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The indirect impacts on biodiversity can occur as a result of:

- > pollutant emissions generated by the movement of heavy vehicles which transport construction materials in working fronts and the waste outside the plan location;
- pollutant emissions generated by the activity of construction equipments in working fronts (bulldozers, loaders, rollers, pavers, etc.);
- pollutant emissions generated by handling construction materials and equipments within the site organization: loading / unloading construction materials, fuel supply.

The main pollutants present in the environment in the plan boundaries (working fronts, access roads, site organization) are dust particles. To these are added, but in much smaller quantities, NO_x, SO₂ and CO.

Because these particles may be filed on the leaf lamina, can lead to decrease of biological productivity and can affect the physiological processes of the plant (respiration and photosynthesis). If will be used the classical construction technology of a road, the pollutants generated can reach to a distance of 50 m from the works site and up to 1,000 m around the site organization if using conventional technology. In case of modern technology, emissions are greatly diminished (by over 11 times), and the contaminant particles reach distances much closer to the works site, in calm atmospheric conditions, up to 30-50 m of works site boundary.

Because for the construction of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will be used modern equipment and technologies, emissions will be very low, that so will not be significant affected the vegetation from the plan location and its vicinity. Also, due to low concentration of pollutants will not be registered significant impact on the wildlife specimens that use the site for feeding.

Because this type of pollution will manifest only for limited period, the negative impact on biodiversity is not significant and will not cause changes in the structure of biocenosis.

The immediate impact (short term) occurs only during construction works, in each working front by punctual habitat disturbance within areas involving stripping and re-covering and by dust deposition (sedimentable particles) on the foliage of the plants. This impact will cease upon completion of the construction works (after restoration of the temporary affected areas). In the first two season of vegetation after the completion of the construction works, the areas temporary affected by the construction works will recover naturally, that so, the only residual impact on biodiversity is the permanent occupation of several land surfaces, but because these areas are not occupied by protected habitats, the impact will not be significant.

Construction and operation of the bridge over Tisa in Tepliţa area on Sighetu Marmaţiei will have **no impact on medium and long term on environment** (except the permanent occupation of some arable land areas).

Both in construction and operation period of the bridge over Tisa in Tepliţa area will not be adverse side effects.

Temporary effects on terrestrial ecosystems will occur only by temporary occupation of some land areas (uncovering and re-covering of those for achievement of site organization and other facilities with temporary character) and by temporary removal of wild fauna specimens that use the plan location like feeding areal to the boundaries areas on the construction period. Because the areas temporary affected will be restored at the completion of the construction works, and the wild fauna specimens will return in the plan location, the temporary effects will not significant.

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Indirect impact on the aquatic ecosystem

The indirect impact on the aquatic environment can occur through:

- production of local accidental pollution of waters and sediments with oil or other toxic substances;
- waste ingress in the surface water bodies.

Water quality is determined by certain physical and chemical parameters. Fluctuations in these parameters directly affect aquatic organisms. Pollution of aquatic ecosystems with toxic substances can affect indirectly these organisms. Due the fact that construction works will not be carried out on the minor riverbed, modern techniques of construction will be adopted and the waste will be stored in specially designated areas, away from the river bed, the construction of the bridge over Tisa in Tepliţa area on Sighetu Marmaţiei will have no impact on the Tisa river and on the aquatic species living in the river.

Permanent impact on biodiversity is the permanent occupation of some land areas, but because these areas are not occupied by protected habitats and does not represent breeding areal for the species identified in plan location and in its vicinity, the impact on biodiversity it is not significant.

Given that the construction and operation of the bridge over Tisa in Teplita area on Sighetu Marmatiei does not suppose significant impairment of the environmental factors and no other types of activities are conducted in the area, exempting agriculture (but is ecological agriculture without the use of chemical fertilizers or pesticides), will not be a synergistic effect on biodiversity if will be adopted measures to reduce the impact such as rehabilitation in the areas adjacent to the bridge and achievement of a protection screen along the access road that will connect the bridge to the national road (DN 18). This protector "screen" must be ensured by aligning trees and shrubs to stop the noise generated by the traffic, vehicle noxes, and providing a trophic base and nesting places for avifauna. This is necessary to protect the avifauna from the lakes from Teplita.

It is also advisable to plant a shrub alignement in the areas adjacent to the plan site prior beginning of the construction work. Although in the vicinity of the analyzed area there are similar habitats in which the fauna specimens can move during the execution of the construction works, the achievement of the shrub alignment will provide an additional shelter, especially in the case of avifauna, and in time will generate a phonic protection zone for the avifauna from Teplita lake.

Also, construction and operation of the bridge over Tisa in Teplita area will have no significant impact on **neighbourhoods** (defined as areas in the vicinity of the plan location, at about 500 m). Impact occurs only in plan location due the investment specific involving local works with effects on site.

As the dust deposits on the plant's foliar appliance will be removed after the first rain, the transport of construction materials and scraping / covering works will not have a significant impact on biodiversity, the dust released will not cause disruption to the physiological and biochemical processes of the plants in the areas with spontaneous vegetation in the vicinity of the site.

In order to limit dust emissions and implicitly impact on fauna species using the feeding site and flora species, the operating routes will be sprouted periodically. This measure will also help to protect the crew's staff.

The transport of construction materials will lead to the temporary increase of traffic on the existing roads in the vicinity of the site (DN 18 and the service roads) but will not contribute to significant traffic growth on these roads,

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so that the effects on the flora species in the vicinity of the roads existing are insignificant. Also, no flora species of conservative interest were identified in the plot site.

The residual impact consist in permanent lose of some habitat areas due the land-use change in the areas permanent affected by the new infrastructure. The area permanently occupied for carrying out the works represents it is 76.260 m² which represent 0.1214% of ROSCI0251 Tisa Superioară and 0.2664% of ROSPA0143 Tisa Superiorară.

Because the achievement of the plan involves occupation of some land areas that represent a very small percentage related to analyzed area, and in these areas have not been identified protected habitats (the lands being cultivated annually), the residual impact on biodiversity it is not significant.

Impact during operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei

During operation of the bridge over Tisa in Tepliţa area on Sighetu Marmaţiei will not be significant impact on biodiversity so far as will be carried out the measures to reduce the impact on the environment, the creation of buffer zones consisting of shrubs and trees along the road, maintenance of the edges of the roads to avoid infiltration of invasive flora species (which can become a major pressure for the area and even the Natura 2000 site) and by compensating extension and supporting up to the consolidation of the grove adjacent to the area where the bridge will work.

It is recommended that the alignment of trees in the areas adjacent to the plan location to be executed prior to commencement of the construction work so as to provide additional shelter for fauna specimens. Storm water will be collected and treated before it reaches the emissary, and emissions from vehicles crossing the road will be within normal range and will have lower values than currently recorded as a result of improved traffic conditions. Plan achievement will lead to increased traffic, but not to the extent that the biodiversity is greatly affected by the adoption of mitigation measures.

3.5.2. Fauna

The impact on biodiversity is manifested in particular by the temporary disturbance of avifauna species using the site for feeding. The impact is due to the presence of machinery and workers, the level of noise and vibration. It is only registered for each working front and especially during execution of the works.

Some dozens of invertebrate fauna and herpetofauna will be lost by restricting their characteristic habitats. Compensation will be achieved by setting up favorable micro-habitats in the areas adjacent to the site, in its prephase.

The avifauna specimens observed at the bridge site may move in similar habitats near the site so that only the relative density of the populations, and not their populational effective, can be modified.

The noise and vibration level may have an indirect and temporary impact on the invertebrates identified in the analyzed area, but this form of impact occurs at the level of each working front and only during construction works (maximum 24 months) and is reversible, so that it will not lead to the destabilization of the invertebrates identified in the site or in the vicinity of the plan.

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The noise level recorded in the aquatic environment during construction works will not be much higher than the one currently registered.

Temporary effect on the Tisa minor riverbed

Achievement of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will not have impact on the minor riverbed of the Tisa River because the construction works will not be carried out in the Tisa minor riverbed.

During execution of the construction works will not be modified the water flow regime, depth and turbidity of the water, dissolved oxygen concentration.

Raw materials and waste will be stored in special arranged areas, at distance of the Tisa River, that so will not exist the risks of their ingress in water.

During achievement of construction works, the effect of noise on biodiversity is limited to the effect on wildlife. Thus, the noise occurs mainly due to equipment operation necessary for the construction, and from the other activities within the construction works.

The noise level in the working fronts can reach 117 dB (A) when using excavators, but at about 100 m from the working areas, the noise level reaches 45 dB. In accordance with STAS 10009/86, the maximum permissible noise levels are: 65 dB (A) at the enclosure boundary and 50 dB (A) at the protected receptors limit. That so the noise emissions will not affect the areas from the plan location boundaries.

Presence of construction equipments, workers and noise level can cause temporary removal of specimens of fauna that use the area for feeding. These specimens will move on the similar habitats in the vicinity of plan location, in areas where are not conducted construction works, that so will not be registered a significant impact on biodiversity, according to studies conducted so far (such A synthesis of two decades of research documenting the effects of noise on wildlife şi Noise effects on wildlife).

Since construction works will be carried out in stages and not all at once, noise effect will not occur throughout the entire site, but in each working front and in the main access roads to the plan site.

The noise level will not cause significant changes in the behaviour of the species present in the site because they will move in the similar habitats from plan boundaries. These specimens will return after the finalization of the construction works.

Currently there are no studies on the influence of noise generated by the execution of road infrastructure (roads / bridges) on birds, but such studies were done in the case of wind farms. That so, according to study "Avian hearing and avoidance of wind turbines" (Midwest Research Institute, Colorado, 2002), birds perceive noise intensity at half that humans, at the same distance from the transmitter. Since noise caused by construction machinery is reduced by half at a distance of 100 m from the fronts of work, and about 300 m merges with wind noise, completion of the construction of the bridge over Tisa in Tepliţa area on Sighetu Marmaţiei will not affect nesting birds in the vicinity of the site. More those, in the area where the works will be carried out, have not been identified nests.

High level of noise in the working location can lead slower rate of development or temporarily change of fish behaviour. Because the construction works will not be carried out in minor riverbed of the Tisa River, achievement of the bridge over Tisa in Tepliţa area will have no significant impact on the aquatic species living in the Tisa riverbed.

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Another source of noise is represented by the transport of construction materials. Also, transport of construction materials and the stripping / covering works can be source of air pollution with dust. Presence of sedimentable powders in air can have effects in fauna species that use the plan location for feeding and on flora species from working fronts and from vicinity of access roads. Impacts occurs only during construction works period (maximum 24 months), but will occur punctually in each working front and in vicinity of the service roads and this type of impact will not be recorded within the entire plan site.

It is advisable to plant a shrub alignement in the areas adjacent to the plan site prior to commencement of the construction work. These shrubs will provide an additional shelter for fauna specimens that will move from the plan site during the execution of the works.

Operation of the bridge over Tisa in Tepliţa area on Sighetu Marmaţiei will not lead to change of behaviour of the species observed in the plan location because in present the plan location is penetrated by national roads (DN 18) and several service roads. The plan location represents only feeding areal for identified species. Have not been observed nest of birds species for whose protection have been designed ROSPA0143 Tisa Superioară, except the white stork nests observed on the detachment area from DN 18. Also, construction and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will have no impact on bird species observed in passage in analysed area (in the plan location and in its vicinity).

In order not to affect the nesting bird species from the vicinity of the bridge site, the construction works will not be carried out during the reproduction period, and then tree and shrub alignments will be made along the connecting road, alignments that act as a screen protection by reducing the noise level and emissions of air pollutants generated by the road traffic. Also, the realization and exploitation of the bridge over Tisa in Tepliţa area of Sighetu Marmaţiei will have no impact on bird species observed during the migration in the analyzed area (at the site of the bridge and its vicinity).

Areas permanently occupied by the plan are represented by a small grove which is currently in a state of degradation and where the road is foreseen, are arable land and anthropized pastures, currently subject to antropic impact.

Also, the areas permanently occupied by the works represent a very small percentage from analysed area, that so will not be registered a significant decrease of the feeding areal of the species observed in the plan location.

Integrity of the protected areas of community interest ROSCI0251 Tisa Superioară and ROSPA0143 Tisa Superioară will not be significant affected during construction and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei, due the implementation of the measures of mitigation / elimination of the impact on the biodiversity presented in the report.

Also, the plan location will be monitored during construction works and in first two years after commissioning of the bridge and in case of occurrence of negative environmental effects that could not be provided during elaboration of the environmental report, will be adopted adequate measures to eliminate these negative effects.

Construction and operation of the bridge over Tisa in Tepliţa area on Sighetu Marmaţiei will have no significant impact on environment, because:

- > in plan location have not been identified habitats of community interest or protected species of flora, except a reminiscent grove, currently degradated;
- the surface of favorable habitats for invertebrate fauna for amphibians and reptiles is only a few hundred square meters, compared to dozens of favorable habitats in sites; the losses of individuals will be small, a few dozen compared to the thousands of individuals at the scale of the site;
- the plan location represents only feeding or passage areal for the fauna species identified in the plan location. Have not been observed nests of these species, with the exception of the white stork nest Ciconia ciconia observed at the detachment of the connecting road from DN 18;
- reduction of the feeding areal will not be significant, and in the vicinity of the plan location are similar habitats, in which the wildlife specimens could move during achievement of the construction works, wherefrom will return after the completion of the construction works;
- construction and operation of the bridge over Tisa will not lead to significant changes in the behaviour of the fauna identified in the plan location, area being crossed even in present by national roads (DN 18) and service roads;
- construction and operation of the bridge over Tisa will not act like a barrier to bird migration because the height of the flight is far superior to that the buildings works will be carried out. Springs in Tisa river valley and Tepliţa Lake will not be affected in any form by the construction and operation of the bridge over Tisa in Tepliţa area.

It is not the case of decommissioning of the plan. After normal operation period of the bridge and the connection road, these will be rehabilitated. The mitigation measures proposed during rehabilitation period of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei are similar to those proposed for the construction period, but due the fact that decommissioning period is much shorter that the construction period and the magnitude of the works is much smaller.

3.6. Population

The construction of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will not have a significant negative impact on the population. During achievement of the construction works, a slight discomfort will be recorded on the inhabitants of the vicinity of the site and on the persons transiting the analyzed area, but this will not be significant, but will be temporary and reversible.

During the exploitation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei, the impact on the population will be positive, by improving the traffic conditions.

The plan "Bridge over Tisa in Tepliţa area in Sighetu Marmaţiei" is necessary to increase the accessibility in the cross-border area through the development and management of the border infrastructure in northwest Romania (Maramureş).

Construction and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will not lead to changes in population structure, will not affect those number or occupational level. Also, will not influence the

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characteristics of population, respectively age distribution, sex, education, family size and will not change the structures of ethnic groups, but will only contribute to a temporary increase in employment (in the construction works period), which will be beneficial to the economy of the analyzed area.

To carry out the works are not necessary house demolition and resettlement or utilities movement. Also, construction and operation of the bridge over Tisa will not cause overuse of local utilities or services (no need to build new houses, education and health services development in the analyzed area and will not contribute to the emergence of other plans.

In the construction works period of the bridge over Tisa in Teplita area in Sighetu Marmaţiei will increase the amount of waste produced, but these will be stored in special arranged areas within the site organization and will be removed by a specialized company (with which the beneficiary will lead a contract), so that there will be no impact on local population.

Construction of the bridge over Tisa in Tepliţa area on Sighetu Marmaţiei will have no cumulative effects on the population, because in area have not been designated other communication routes to be built or closed during the achievement of the analyzed bridge. The only plans that are in the analyzed area are the gravel pits from the Tisa riverbed, but because they will not work simultaneously with the building of the bridge over Tisa, will not generate cumulative impact on the population.

In the analyzed area are no areas where the public has general access (sports, camping and picnic areas) or areas containing historical artefacts, cultural and archaeological.

The bridge over Tisa in Tepliţa area on Sighetu Marmaţiei will have no negative impact on the public health and will not lead to changes in disease incidence because there are no emissions that contribute to air pollution or water. Improvement of traffic conditions in the analyzed area will lead to lower emissions of air pollutants, which will have indirect positive impact on human health and will increase the safety of citizens (long-term positive impact).

Construction and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will not influence the economic activities in the analysed area.

During environmental impact assessment procedure has not been identified any group of people dissatisfied by the achievement of the bridge over Tisa in Teplita area on Sighetu Marmaţiei.

Achievement of the bridge over Tisa in Tepliţa area will have both short term impact, and long term impact on socio-economic environment in the analyzed area.

4. EXISTING ENVIRONMENTAL ISSUES, RELEVANT FOR THE PLAN, INCLUDING IN PARTICULAR THOSE RELATING TO ANY SPECIFIC AREA OF ENVIRONMENTAL IMPORTANCE, AS THE SPECIFIC SPECIAL BIRD PROTECTION AREAS OR SITES OF COMMUNITY IMPORTANCE

Critical aspects of development of the road traffic in the area

The main channels of communication are the national roads DN 18 and DN 19 which passing through the city center, which cause the traffic crowding. It is imperative to build the ring roads that will allow transit along the outskirts of the city. A detour road that connects DN 19 to DN 18 is proposed, this road was designed to pass on north of the city going along the flood defense ditch present in the vicinity of the Tisa River. The proposed connecting road and the bridge over Tisa will provide the cross-border road link with Ukraine.

It is also proposed a ring road that will prevent entrance of the traffic from the DN18 in the city. This road will bypass the east of the city and will connect in DN 18 between the point located just north of the bridge over the Ronisoara river and the point where it is foreseen to connect to DN 18 the road leading to the new cross-border bridge.

For the connection of the city with the county residence it is foreseen on long term to build a railway line that will connect Sighetu Marmaţiei to Baia Mare, and for the increase of road traffic it will be necessary to build a tunnel under the Gutâi Mountains.

The modernization of the current railways leading to Salva as well as the construction of a new line to the west: Sighetu Marmaţiei - Bixad are needed to reduce access time to other urban centers in Romania. In order to optimize the cross-border traffic in addition to the construction of a new bridge and the connection to the Romanian and Ukrainian road networks, it is necessary to resume the railway traffic to Ukraine on the two directions Rahiv and Teresva directions.

The analysis of the existing situation does not reveal any special problems or constraints.

The land in the studied area is approximately flat and bordered by a national road, a river and private property.

Natural and anthropic risks

There have been no dangerous floods affecting the local households, except when large waterfalls go out of the riverbed and flood the nearby areas.

Natural and anthropic risks

There have been no dangerous floods affecting the local households, except when large waterfalls go out of the riverbed and flood the nearby areas.

Marking points and routes in the communication ways system and city amenities categories that pose risk to the area

The interventions proposed within the studied area will not pose any risk to the area.

Highlighting heritage values that require protection

The proposed area for the PUZ for the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei is not and does not include elements specific to a protected area from a historical, archaeological and architectural point of view.

Highlighting natural protected areas

On the Ukrainian territory, the plan will be built outside natural protected areas. The minimum distance between the site plan and the limit of the natural protected areas is about 30 km measured in a straight line.

On the Romanian bank, the plan will be carried out in the overlapped territories of the site of community importance ROSCI0251 Tisa Superioară and of the special bird protection area ROSPA0143 Tisa Superioară.

4.1. Information about the site of community importance ROSCI0251 Tisa Superioară

The site of community importance Tisa Superioară has an area of 6.303 hectares, belongs to 2 biogeographical regions (continental and alpine) and in administrative territory of Maramures County. The limits of this site are presented in map from figure 41.

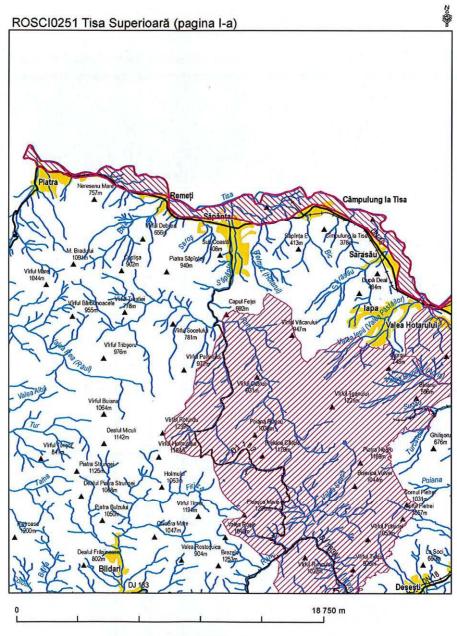


Figure 41. ROSCI0251 Tisa Superioară limits

This protected area has been designated for protection of two habitat type, from which one it is prioritary.

Table 11. Tipe of habitats present in ROSCI0251 Tisa Superioara and site assessment regarding them

Cod	Habitat name	Covering (ha)	Repres	Relative area	Conserv.	Global
9110	Luzulo-Fagetum beech forests	314	В	С	В	С
91EO*	Alluvial forest with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	62	В	С	С	С

According to standard form Natura 2000, in this site of community importance could be find the following species listed in Annex II of Council Directive 92/43/EEC:

Table 12. Species listed in the article 4 of Council Directive 2009/147/EC and listed in the Annex II of council Directive 92/43/EC and the site evaluation regarding these species

	1	Species				Site population					Site evaluation			
G	Code	Scientific name	s	NP	Т	Size		Unit	Cat.	D.qual.	AJBICID	AJBJO	;	
						Min	Ma x				Pop.	Con.	lso.	Glo.
F	1130	Aspius aspius			Р				С		С	В	С	В
F	1138	Barbus meridionalis			Р				Р		С	В	С	В
Α	1193	Bombina variegata		II N	Р	I de			Р		С	В	С	В
F	1163	Cottus gobio			Р	193			Р		С	Α	С	Α
R	1220	Emys orbicularis			Р				Р	-	С	В	С	В
F	4123	Eudontomyzon danfordi			Р				Р		С	В	С	В
F	2511	Gobio kessleri			С		W		С		В	В	С	В
F	2511	Gobio kessleri			Р		WI		С		В	В	С	В
F	1157	Gymnocephalus schraetzer			Р	the state of the s			Р		С	В	В	В
F	1105	Hucho hucho	14.		P				٧		Α	В	В	В
F	1131	Leuciscus souffia			Р				Р		В	Α	В	В
F	1131	Leuciscus souffia			R	BAR			Р		В	Α	В	В
F	1131	Leuciscus souffia			С	Ř.	7		Р		В	Α	В	В
F	1131	Leuciscus souffia			W				Р		В	Α	В	В
М	1355	Lutra lutra	-ye		Р				Р	20.11	С	В	С	В
F	1146	Sabanejewia aurata	1		Р				Р		С	Α	С	Α
Α	1166	Triturus cristatus	100		Р				Р		С	Α	С	В
F	1160	Zingel streber			Р				Р		С	В	С	В
F	1159	Zingel zingel			Р	11-11-11	5-1-1-1		Р		С	В	С	В

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Legend:

- > Type: p = permanent, r = reproducing, c = concentration, w = wintering;
- Unit: i = individuals, p = pairs;
- Abundance categories (Cat.): C = common, R = rare, V = very rare, P = present to fill if data are deficient (DD) or in addition to population size information;
- ➤ Data quality: G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (in case not even a rough estimation of the population size can be made,)

4.2. Information about the special bird protection area ROSPA0143 Tisa Superioară

The special bird protection area ROSPA0143 Tisa Superioara is located in the continental and alpine bio-geographical region and on the administrative territories of Maramures County. This protected area has an area of 2.832 hectares. The average altitude of the area is 246 m, the maximum is 377, the minimum is 204 m.

Tisa River from Viseu Valley Meadow until Tisa forms a gorge about 10 km, with steep slopes covered by forests old. The right bank of the river on Ukrainian territory is covered in Cuzin reserve. From the Lunca to Tisa valley widens, River has a middle course with many arms and a large meadow in some places it having a width of several kilometers.

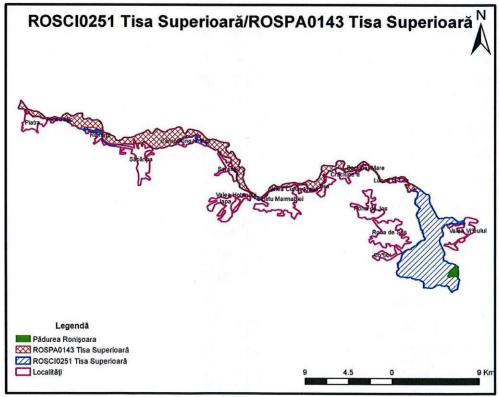


Figure 42. Limits of ROSPA0143 Tisa Superioară overlapped with the limits of ROSCI0251 Tisa Superioară

The course is bordered by numerous river meandering oxbow lakes. On the Tisa floodplain alluvial forest is found contoured localities especially right Craciunesti and Tisa village. According to the standard form Natura 2000, the most representative warbler, with trees and "jungle" aspect is located in border line of towns Teceu Mic and Piatra.

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The site has a special importance due to its geographical position for the passage of aquatic birds. The site forms a corridor in the Eastern Carpathians, in fall occur the passage in east-west direction on the Tisa valley and vice versa in spring. Specimens of the genus Anser, Anas, Grus, Vanellus come by in flocks of hundreds or even thousands of individuals. Tisa River, including floodplain and meadows are excellent habitat for wintering. Tisa not completely freezes due to his quickly course and in the river meadow are springs with constant temperature where wintering hundreds of ducks and swans.

The site have been designed for protection of 32 bird species from annex I of Bird Directive (2009/147/EC). Also, in these site can be observed 17 species of migratory birds not mentioned in Annex I of Council Directive 2009/147/EC.

Table 13. Bird pecies listed in the article 4 of Council Directive 2009/147/EC and listed in the Annex II of council Directive 92/43/EC and the site evaluation regarding these species

		Species			Site population						Site evaluation			
G	Code	Scientific name	s	NP	Т	Size		Unit	Cat.	D. qual.	AIBICID	AJBJO		
						Min	Max				Pop.	Con.	Iso.	Glo.
В	A229	Alcedo atthis			Р	40	50	р	С		C	В	С	В
В	A054	Anas acuta			С	500	600	i	R		С	С	С	С
В	A056	Anas clypeata			С				С		D			
В	A052	Anas crecca			W	100	200	i	С		D			
В	A052	Anas crecca			С	500	1000	i	С		D			
В	A050	Anas penelope	2		С	400	500	i	С		D			
В	A053	Anas platyrhynchos			R	150	200	р	С		D			
В	A053	Anas platyrhynchos			W				C		D			
В	A053	Anas platyrhynchos			С	2500	3000	i	С		D			
В	A055	Anas querquedula			R	10	15	р	R		D			
В	A055	Anas querquedula			С	1500	2000	i	С		D			
В	A041	Anser albifrons			С	2500	3000	j	С		D			
В	A043	Anser anser			С	1500	2000	j	С		D			
В	A039	Anser fabalis			С	2500	3000	i	С		D			
В	A090	Aquila clanga			С	1	2	j	V		С	В	С	С
В	A089	Aquila pomarina			R	1	2	р	٧		D			
В	A029	Ardea purpurea			С	6	8	i	R		D			
В	A222	Asio flammeus			С	2	3	i	V		С	В	С	В
В	A059	Aythya ferina			С	1500	2500	i	С		С	В	С	В
В	A061	Aythya fuligula			W	130	160	i	С		D			
В	A060	Aythya nyroca	6		С	50	60	i	С		С	В	С	В
В	A104	Bonasa bonasia			Р	15	20	р	R		С	С	С	В
В	A021	Botaurus stellaris			С	5	6	i	R		D	40.14		

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	Species					Site population						Site evaluation			
G	Code	Scientific name	s	NP	T	Size		Unit	Cat.	D. qual.	AJBICID	AJBJC			
	i Anderso	en en 4 och avlade har skille e				Min	Max				Pop.	Con.	Iso.	Glo.	
В	A215	Bubo bubo	SANDAGE A	AASSWA MA	Р	4	5	р	С	Water State	С	Α	С	В	
В	A224	Caprimulgus europaeus			R	5	6	р	R	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	D				
В	A031	Ciconia ciconia	3.4	4 (1)	R	15	150-180	р	С	11,1	С	В	С	В	
В	A031	Ciconia ciconia		_A3 =	C	150	200	4 j	С		С	В	С	В	
В	A030	Ciconia nigra			R	2		р	٧		С	В	С	В	
В	A030	Ciconia nigra			С	5	6	i	٧		С	В	С	В	
В	A081	Circus aeruginosus			С	2	3	i	٧		D	1			
В	A082	Circus cyaneus			W	2	3	i	٧		D				
В	A082	Circus cyaneus			С	8	10	i	R		D				
В	A122	Crex crex			R	10	12	р	С		D				
В	A238	Dendrocopos medius			Р	8	12	p	С		D				
В	A236	Dryocopus martius			Р	1	2	p	V		D				
В	A027	Egretta alba			С	2	3	i	٧		D				
В	A321	Ficedula albicollis			R	150	200	р	С		D				
В	A320	Ficedula parva			R	50	60	p	R		D				
В	A125	Fulica atra			С	3000	4000	i	С		С	В	С	С	
В	A125	Fulica atra			R	30	50	р	С		С	В	С	С	
В	A153	Gallinago gallinago			С	500	700	i	С		D				
В	A002	Gavia arctica			W	1	2	j	V		С	В	С	С	
В	A002	Gavia arctica			С	1	2	i	٧		С	В	С	С	
В	A127	Grus grus			С	1, 11	30	j	٧		D				
В	A022	Ixobrychus minutus			R	5	6	р	R		D				
В	A338	Lanius collurio			R	30	35	p	С		D				
В	A339	Lanius minor			R	5	6	p	R		D				
В	A179	Larus ridibundus			С	2000	2500	i	С		С	С	С	С	
В	A023	Nycticorax nycticorax			С	10	15	i	С		D				
В	A072	Pernis apivorus			R	2	3	р	R		D				
В	A017				С	500	700	i	С		D				
В	A234				Р	10	15	р	С		D				
В	A008	Podiceps nigricollis			С	100	150	i	С		D				
В	A120				R	1	2	р	٧		D				
В	A119				R	8	10	p	С		D				
В	A193				С	12	20	i	R		D				
В	A220	Strix uralensis			Р	3	4	р	С		D				
В	A142				С	2500	3500	i	С		С	В	С	В	

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Legend:

- ➤ Group: A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- > Type: p = permanent, r = reproducing, c = concentration, w = wintering;
- Unit: i = individuals, p = pairs;
- ➤ Abundance categories (Cat.): C = common, R = rare, V = very rare, P = present to fill if data are deficient (DD) or in addition to population size information;
- > Data quality: G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (in case not even a rough estimation of the population size can be made,)

Connections of the plan with the conservation management of the natural protected area of community importance

The plan will be carried out in overlaped territory of the site of community importane ROSCI0251 Tisa Superioara and of special bird protection area ROSPA0143 Tisa Superioară that are in the custody of Heidenroslein Association according to convention 293 / 07.12.2011. These two protected areas still have no management plan.

Achievement of the construction works of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will not affect the conservation status of the species and habitats for whose protection have been designed the site of community importance ROSCI0251 Tisa Superioară and the special bird protection areas ROSPA0143 Tisa Superioară. Will not be emission in air, water, soil that would significantly affect the environment state.

Description of ecological functions of species and habitats of community interest affected (area, location, related species) and their relationship with surrounding natural protected areas of Community interest and their distribution

The plan site represents a very small percentage of the total area of the two protected areas, ie 0.2664% of the total area of ROSPA0143 Tisa Superioară and 0.1214% of the total area ROSCI0251 Tisa Superioară. In the plan site have not been identified the habitats for whose protection was designated the site of Community importance ROSCI0251 Tisa Superioară, but only a reminiscent degraded grove, with 5-6 m width in the bridge location. This habitat is very antrophic surrounded by crops, already under strong pressure. Currently, the habitat difficulty fulfils its ecological functions of protection of river banks, of buffering area between the cultivated lands and the minor riverbed and that of ensuring a corridor for habitat integration, counteracting the fragmentation effects generated by the human activities.

On the area occupied by degraded grove are present just a few specimens of *Bombina variegata*, *Triturus cristatus*. Among the avifauna species observed in the plan area, dominant are those that have non conservative interest (the antropophile species). The species of conservation interest are much slighthly represented, are not strictly attached to this territory, but especially to surrounding areas (Tepliţa Lake).

From the ecological point of view, in the plan location there is a reminiscence of the initial riverside grove of Tisa found in an advanced state of degradation. Habitat fragmentation is minor. Also, after completion of the

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construction works, will be planted willow and poplar in the vicinity of the bridge over Tisa that will help to restore the original Tisa riverside grove and ensure the areas connectivity.

Bird specimens have high mobility and can withdraw in similar habitats in the vicinity, but can also fly over the plan location in search of food. The populations of amphibian species that could be directly affected by the construction works represent a small percentage of the overall population present at the site and will not lead to impairment of conservation state of these species. Because the construction works will not be carried out during the reproduction of the species identified and will be taken appropriate measures (such as training the manufacturer team for possible relocation of specimens with low mobility present in the working fronts) will help reduce the impact and compensate losses.

In the plan location have not been obserbed nests of the bird species except the white stork nests in the vicinity of DN 18. The birds specimens that use the analyzed area as feeding areal will move in souranding similar habitats, will relocate naturally without affecting the conservation status of these species.

Construction and operation of the bridge over Tisa will not contribute to reduction of the population of the bird species identified, but only to change their relative density.

In mammals case, could be affected several shrews specimens, but will not be affected speciemens of conservative interest (such as otters).

Structural and functional relations that create and maintain the integrity of the natural protected area of Community Interest

The integrity of the natural protected area Tisa Superioară depends on the maintenance or improvement of habitat components that are shelter for amphibians, as well as for birds. A first structural relation is the relation between number of components species and habitats surface. Analysis of habitats listed in the standard form of the site in conjunction with environmental requirements of avifauna and amphibians species demonstrates that surface of the appropriate natural habitats, especially meadows is low, against the cultivated lands. In time, this situation may lead to decreasing of the favourable habitats for bird species of Community interest, endangering the surface / structure / functions relation. By decrease of the surface, will decrease the specific diversity.

A potential danger hanging over all habitats in localities and near localities, is penetration with ruderal and alien species. The more the surface of ruderal areas within manifests the human impact is greater, the more increase the pressure on natural habitats.

Nevertheless, construction and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will have no additional impact to the existing impact on the structural and functional relation of the two Natura 2000 sites if will be accomplished the restoration measures of the areas temporary affected by the execution of the construction works.

Conservation objectives of the natural protected area of Community, where have been established through management plans

The two natural protected areas still have no management plan.

Description of the current conservation status of natural protected areas of community interest, including evolutions - changes that may occur in the future.

Currently, through conducted studies has been ascertained a favorable conservation status of the Natura 2000 site, although in the anthropic areas, such as plan location, have been observed habitat degradation by restricting the characteristic species in behalf of the invasive species.

Implementation of the construction activities of the bridge will not contribute to degradation of the conservation status of fauna, including birds, because the plan site does not represent breeding areal for identified fauna species, but only feeding areal, will not be reduced the populations effectives of identified species, only could cause injury or accidental death of the fauna specimens present in the plan location.

In table 14 are presented the conservation status of the avifauna species identified in the analysed area (on the plan location and in its boundaries), species in passage or in search of food and species whose presence is possible in the site location, species that could be affected by the construction and exploitation of the bridge over Tisa in Teplita area of Sighetu Marmaţiei.

Table 14. Conservation status of the bird species identified in the analysed area and the species whose presence is possible in the site location

No.	Scientific name	OUG 57/2007	IUCN Categ ory	SPEC Category	Red List	Bonn Conventi on	Berna Conventi on	Bird Directi ve
1	Anas platyrhynchos	5C, 5D	LC	Non SPEC	40	-11	III	2, 3A
2	Anas crecca	5C, 5E	LC	Non SPEC	-	- 11		2, 3B
3	Anas querquedula	5C	LC	3	100	II	III	2
4	Anas clypeata	5C, 5E	LC	3	-	11	III	2, 3B
5	Alauda arvensis	5C	LC	Non SPEC	-	-	Ш	2B
6	Anser anser	5C, 5E	LC	Non SPEC	-	II	III	2, 3B
7	Ardea cinerea	Kingley in	LC	3	·	2=	III	
8	Aythya fuligula	5C şi 5E	LC	2	-	ll ll	111	2, 3B
9	Carduelis cannabina	4B	LC	Non SPEC	S#0	11	-	
10	Carduelis carduelis	4 B	- E 19 19	2	-	11		
11	Ciconia ciconia	3	LC	Non SPEC	х	II		1
12	Columba livia domestica		LC	Non SPEC	-	n=	II	2
13	Corvus corax	4B	LC	Non SPEC	-		III	
14	Corvus frugilegus	5 C	LC	Non SPEC	-		-	2B
15	Corvus monedula	5 D	LC	Non SPEC ^E	-	-		2B
16	Dendrocopos medius	3	LC	Non SPEC	-	-	II	1, 3
17	Dendrocopos leucotos	3	LC	Non SPEC	*	-	U.	1
18	Dendrocopos syriacus	3	LC	Non SPEC			11	1
19	Egretta alba	3	LC	Non SPEC	х		11	1
20	Egretta garzetta	3	LC	Non SPEC	Х	ll	II	1
21	Fulica atra	5C, 5E	LC	Non SPEC ^E		*	111	2, 3B
22	Ficedula albicollis	3	LC	Non SPEC	Х	11	11	1, 3
23	Ficedula parva	3	LC	3	-	11	II	1, 3
24	Ixobrychus minutus	3	LC	3	190	*	11	1, 3

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25	Lanius collurio	3	LC	3	-	-	I	1, 3
26	Oenanthe oenanthe	-	LC	3	-	II	11	=
27	Lanius minor	3	LC	3	·-	-	11	1
28	Galerida cristata	7=1	LC	Non SPEC		=	III	-
29	Galinulla chloropus	5C	LC	3	1-1	-	III	2B
30	Hirundo rustica	-	LC	3		10-	11	
31	Passer domesticus	(LC	3				-
32	Passer montanus	-	- I	3	-	-	III	-
33	Phalacrocorax carbo		LC	Non SPEC	1=0		III	-
34	Phalacrocorax pygmeus	3	LC	1	х	П	II	-1
35	Pica pica	5 C	184	3				2B
36	Saxicola rubetra	:=::	LC	Non SPEC	.=:	П	11	1114
37	Saxicola torquatus	-	LC	Non SPEC	-	- 11	11	6-
38	Sterna hirundo	3	LC	Non SPEC	-	*	II	1
39	Streptopelia decaocto	5C	LC	Non SPEC	-	9 ,40)	III	2B
40	Sturnus vulgaris	5C	LC	3	-) -	Æ	2B
41	Turdus merula	-	LC	Non SPEC ^E	-	II	Ш	2B
42	Turdus pilaris	5C	LC	Non SPEC ^E W	-	Ш	10	2B
43	Tachybaptus ruficollis	4 B	LC	Non SPEC	-	: ≠ 1	II	-

Legend

GEO 57/2007:

- Annex 3 plant and animal species whose conservation requires the designation of Special Areas of Conservation and Special Bird and Fauna Protection Areas;
- Annex 4 A species of community interest: animal and plant species requiring strict protection;
- Annex 4 B species of national interest: animal and plant species requiring strict protection;
- Annex 5 A species of community interest: animal and plant species of community interest, except for bird species whose taking in the wild and exploitation are subject to management measures;
- Annex 5 B animal species of national interest whose taking in the wild and exploitation are subject to management measures;
- Annex 5 C species of community interest whose hunting is permitted;
- Annex 5 D species of community interest whose trade is permitted;
- Annex 5 E species of community interest whose trade is permitted in special conditions;

SPEC category:

- SPEC 1: globally endangered European species;
- > SPEC 2: Species concentrated in Europe with unfavourable conservation status in Europe;
- > SPEC 3: Species not concentrated in Europe with unfavourable conservation status in Europe;
- Non-SPEC^E Species concentrated in Europe with favourable conservation status in Europe;
- Non-SPEC Species not concentrated in Europe with favourable conservation status in Europe;
- Not assessed species not assessed.

IUCN categories:

- extinct (EX);
- > extinct in the wild (EW);
- > critically endangered (CR);
- endangered (EN);
- vulnerable (VU);
- > near threatened (NT);
- > least concern (LC);
- data deficient (DD);
- > not evaluated (NE).

Population trend countrywide:

- "-" decreased population
- "0" steady population
- "+" growing population

Table 15 presents the conservation status of the other fauna species identified in the analyzed area, species that could be affected by the construction and exploitation of the bridge over the Tisa River.

Table 15. Conservation status of the other species identified in the analysed area

No.	Scientific name	OUG 57/2007	IUCN Category	Red Book	Bonn Convention	Berna Convention	Habitats Directive
1	Vulpes vulpes	5 B	LC	-	-	-	-
2	Microtus arvalis	-	LC	-	-	- 1	-
3	Apodemus agrarius	-	LC	-		J= 1	
4	Lepus europaeus	5 B	LC			-	-
5	Talpa europaea	-	LC	2=2	-	-	-
6	Ondatra zibethicus	-	LC		-1	-	-
7	Triturus cristatus	3, 4A	LC	Vulnerable species	-	Anexa II	Anexa II, IV
8	Bombina variegata	3, 4A	LC	Specie near threatened	-	Anexa II	Anexa II, IV
9	Cyprinus carpio	-	VU	3=6	-2	-	-
10	Esox lucius	-	LC		-	-	·
11	Perca fluviatilis	-	LC	-	-0	-	(-)
12	Scardinius erythrorhtalmus	-	LC			9	=
13	Abramis brama orientalis	-	LC			*	7.M
14	Carassius auratus gibelio	4	LC	-	-	-	-
15	Barbus barbus	5 A	LC	-		-	Anexa V

Also, the conservation status of the species identified in the site of the plan was analyzed in accordance with the Ukraine legislation.

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Below are presented some of the normative acts analyzed, and the bibliography presents the legislation on environmental protection in Ukraine.

- The Law of Ukraine "On protection of environment" (25 June 1991).
- The Law of Ukraine "On Nature Conservation Fund of Ukraine" (16 June 1992).
- The Law of Ukraine "On the animal world" (3 March 1993).
- The Forest Code of Ukraine (21 January 1994).
- The Water Code of Ukraine (6 June 1995).
- The Resolution of the Verkhovna Rada (Parliament) of Ukraine "On the Red Data Book of Ukraine" (29 October 1992).
- > The Resolution of the Verkhovna Rada (Parliament) of Ukraine "On the Program for Further Development of the Nature Conservation in Ukraine" (22 September 1994).
- ➤ The Decree of the President of Ukraine "On preservation and further development of the Nature Conservation Fund of Ukraine", No. 361/93 (8 September 1993).
- The Decree of the President of Ukraine "On biosphere reserves in Ukraine", No. 563/93 (26 November 1993).
- > The Decree of the President of Ukraine "On reservation of valuable natural territories for their subsequent conservation", No. 79/94 (10 April 1994).
- ➤ The Decree of the President of Ukraine "On creation of nature reservates of national importance", No. 750/94 (10 December 1994).
- ➤ The Decree of the President of Ukraine "On organization of nature conservation territories and objects of national importance", No. 715/96 (20 August 1996).

ENVIRONMENTAL PROTECTION OBJECTIVES ESTABLISHED AT NATIONAL, COMMUNITY OR INTERNATIONAL LEVEL RELEVANT FOR PLAN OR PROGRAM AND MANNER OF THEIR IMPLEMENTATION IN PLAN OR PROGRAM

5.1. General information

The environmental objectives relevant to the PUZ in Teplita area in Sighetu Marmaţiei were established after consultation of the following documents, policies and regulations in force:

- National Strategy for Sustainable Development of Romania Horizons 2013-2020-2030;
- National Strategy for Waste Management (2014-2020), National Waste Management Plan (2003-2013), Regional Waste Management Plans;
- National Strategy for Atmospheric Protection;
- Rural Development Strategy of Romania 2014-2020;
- The National Strategy for Flood Risk Management on medium and long term;
- National Strategy for Biodiversity Conservation;
- Sustainable Transport Strategy for 2007-2013 and 2020-2030;
- The National Strategy on Climate Change and Growth based on Low Carbon (CRESC) and the National Action Plan 2016-2020 on Climate Change (PNASC);
- Guidance on Adaptation to Climate Change GASC;
- > The National Plan for the Improvement of the Hydrographic Basins in Romania 2013 2020 2030.

5.2. National, community and international objectives relevant to the plan

The environmental objectives established at national, Community or international level relevant for the plan are presented in Table 16.

Table 16. Environmental objectives relevant to the plan

Environmental aspects	Cod	Environmental objectives relevant to plan
Biodiversity	OMR 1	Conservation of natural habitats and wild flora and fauna species
	OMR 2	Avoiding the fragmentation of habitats through the construction of new roads (road)
Soil	OMR 3	Soil protection based on the principles of preservation of land functions, prevention of soil degradation and integration with other sectoral policies (limiting the extension of localities in unincorporated area)
	OMR 4	Prevent damage to all surface water bodies
Water	OMR 5	Ensure wastewater collection and treatment systems before being discharged into natural receptors
Sustainable transport	OMR 6	Modernizing and developing the national transport system so as to ensure sustainable transport
	OMR 7	Improving transport safety
	OMR 8	Protection of air quality in urban agglomerations

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Air	OMR 9	Reduction of emissions of air pollutants associated with road traffic within the localities
Waste	OMR10	Reduce the amount of waste generated and increase the reuse / recycling rate
Climate change	OMR11	Adaptation to the effects of climate change (provision of resilient structures to the effects of climate change)
Cultural heritage	OMR12	Protecting and preserving the historical and architectural heritage of the regions
Environmental risks	OMR13	Preventing and combating the effects of natural hazards caused by dangerous hydro-meteorological phenomena (heavy rain and snow, floods, frost, drought, heat, earthquakes and landslides)

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6. POTENTIAL NEGATIVE EFFECTS ON THE ENVIRONMENT

6.1 Impact on water environmental factor

The site organization will be located outside the natural protected areas at a distance from the minor Tisa riverbed (at about 1,000 m). In the site organization will be carried out a drilling pit for taking over the technological water, and the drinking water will be brought commercially bottled.

The waste water generated in the site organization will be treated through the treatment plant before being discharged into the natural emissary (Tisa River).

Raw materials and the waste will be stored in special arranged areas within the site organization, faraway from Tisa riverbed and outside natural protected areas. It is strictly forbidden storage of raw materials and waste directly on soil.

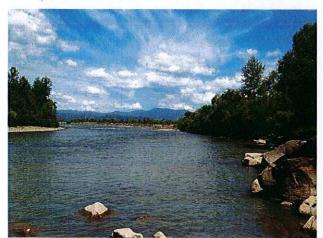




Figure 43. Tisa riverbed in the designed bridge location

The level of emissions from site traffic and the handling and commissioning of construction materials that could reach the surface waters is not significant and will not lead to a change in the quality of Tisa waters.

During the construction of the bridge over Tisa in Teplita area in Sighetu Marmatiei, only accidental increase of the turbidity or pollution of the Tisa water can occur, as a result of the failure of the machinery and the vans used to carry out the works, the inadequate waste management and construction materials and the occurrence of accidents involving vehicles transporting dangerous substances.

In such situations, it will act as soon as possible with absorbent material, and then will be used the services of a company specialized in depollution.

Wastewater generated in the site organization will be treated by treatment plant, so that at the discharge in the natural emissary the concentration of pollutants could frame the limit values of industrial and municipal wastewater discharged into natural receivers, limits provided by the NTPA 001/2002. If the wastewater will be discharged after treatment in the sewerage network existing in the analyzed area, it will comply with the provisions of NTPA 002/2005 "Normative on the conditions of waste water evacuation in the sewerage networks of the localities".

The plan will have no impact on groundwater.

The potential impact of construction works on water is insignificant, has local effects and it is reversible. Upon completion of the construction works, the environment will return to its original state.

During the operation period of the bridge, water flow regime or water quality of the Tisa River will not be influenced, as hydrocarbon separators and sedimentation basins will be installed.

The impact of the exploitation period will be conditioned by traffic volume, precipitation volume, wind direction, road maintenance status, presence and concentration of organic substances.

For the collecting of rainwater from the road platform there were designed concrete gutters, gutters and caves. The solid particles transported by the pluvial waters will be deposited at 80-85% percentage and the oil products will be retained in the oil separators, that so the provisions of NTPA 001/2002 will be complied.

Realizarea planului nu va avea niciun fel de impact asupra apelor râului Tisa aflate in administrarea statului ucrainean deoarece nu vor fi executate lucrări in albia minoră, iar in perioada de operare apele pluviale care spală platforma drumului vor fi preluate de separatoarele de hidrocarburi.

6.2 Impact on air environmental factor

Achievement of the bridge over Tisa and the connection road will not have a significant impact on the air quality at the site location. Modern technologies and equipment will be used, so that emissions of air pollutants are as small as possible.

To the air pollution can contribute: site construction activities (storage and handling of construction materials, fueling of equipment), activities carried out within working fronts (scraping / covering of surfaces, excavation / filling works, earthworks, paving of concrete / asphalt), site traffic and traffic on the access roads to the site.

The sources for construction of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei are free sources (dust release), emission levels (maximum admissible concentrations) are not regulated either in national or community legislation. These will be displayed in the working fronts without affecting the entire surface of the analyzed area.

Emissions of atmospheric pollutants acts within the working fronts, their intensity decreases with increasing distance from the working site.

The local impact on air quality due to the construction of the connecting road and the bridge over Tisa will have a temporary character, being limited to the construction period. Also, the change in the position of the emission sources over time (due to the movement of the working fronts) results in a reduced local long-term impact and the decrease in the likelihood of high concentrations of short-term concentrations.

The air impact is temporary and reversible and occurs only at the plan site, without affecting the air quality. Upon completion of the construction, the environment will return to its original state, there will be no residual impact on the air.

During the operation of the bridge over Tisa, the impact on air quality will not be significant due to traffic conditions.

Also, the realization and exploitation of the bridge over Tisa will not have a significant impact on the air quality in Ukraine due to the location of the plan and the magnitude of the works carried out on the Ukrainian bank.

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6.3 Impact on soil and subsoil environmental factors

Achievement of the bridge over Tisa will have no significant impact on the soil from plan location, because the areas temporary / permanent occupied by the construction works represent a very small percentage of the analysed area, will not be pollutant emissions that could affect the quality of soils from the plan location and from those vicinity.

The impact on soil can occur both directly and via the dispersion environment of pollutants.

To the construction of a bridge it can be associated the followings forms of soil impact:

- temporary occupation of some land areas;
- > stripping the topsoil and the possibility of change of the natural qualities of those in case of unproper storage;
- > occurrence of soil erosion;
- > accidental pollution of soils with hydrocarbons or other substances;
- > soil pollution due to the discharge of wastewater before being treated;
- > increasing soil acidity following submission of air pollutants.

The impact on soil varies depending on the magnitude of the construction works, the technologies used and details of the site. In case of construction of the bridge over Tisa in Tepliţa area, the impact on soil will not be significant.

Will be utilized modern construction technologies and machinery, that so the emissions will be as low as possible. The construction equipements and vans will act only in working fronts and on the access / service roads. It is strictly forbidden their movement or parking on the green area from plan location.

All the areas temporary affected by the construction works will be restored upon the completion of the works (will be restored their structure, in order to allow movement of air, water and rooting plants), that so upon the completion of the construction works, the only residual impact on soil will be the permanent occupation of some land areas.

Construction materials and waste will be stored in special arranged areas within the site organization. It is strictly forbidden their storage directly on soil.

The waste water will be proper collected and treated, that so at the discharge in the natural emissary will comply the provisions of NTPA 001/2002.

During operation period of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei the impact on soil will be insignificant due the fact that will be mounted oil separators and sedimentation basins.

The proposed works will not affect the subsoil. In order to protect the geological environment and reduce the potential impact on the environment will be complied the measures proposed in the geotechnological study.

6.4. Impact on biodiversity environmental factor

The construction of the Tisa bridge in the Tepliţa area in Sighetu Marmaţiei will not have a significant impact on biodiversity.

On the Ukrainian territory, the plan will be built outside natural protected areas. The minimum distance between the site plan and the limit of the natural protected areas is about 30 km measured in a straight line.

On the Romanian bank, the plan will be carried out in the overlapped territories of the site of community importance ROSCI0251 Tisa Superioară and of the special bird protection area ROSPA0143 Tisa Superioară.

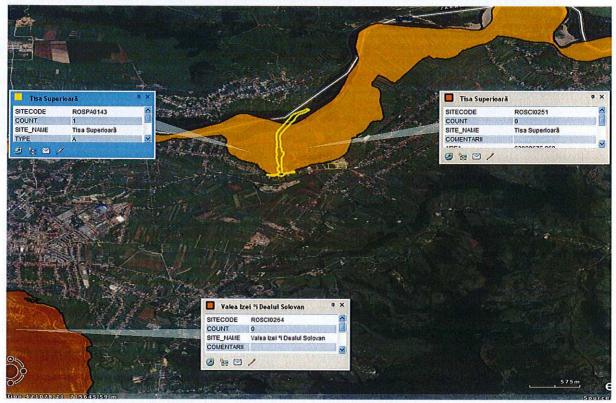


Figure 44. Plan location related to protected areas

In boundaries of the plan location are another site of community importance ROSCI0264 Valea Izei şi Dealul Solovan, but because this is located at big distance from the plan location (about 3,85 km measured in straight line on south – west direction), this site will not be affected in any form by the plan achievement.

The potential impact on biodiversity will occur only during achievement of the construction works, but it is temporary and reversible. Upon completion of the construction works, the environment will return to its initial state, except the areas permanent occupied by the construction works.

During operation period of the bridge over Tisa, the impact on biodiversity will be insignificant by adopting measures to reduce the impact on the environment.

6.4.1. The current impact

The currently impact in the analysed area (both in area included in ROSPA0143 Tisa Superioară and ROSCI0251 Tisa Superioară, both in its boundaries) consist in anthrophic use of lands, respectively crops, pastures, meadows, livestock farms, gravel pits, shrubs deforestation, landfills.

The current impact level is medium to high because the waste disposal, grazing, human activities, gravel pits. Also, the impact is generated occurs by movement of machineries and vehicles on the national road, but also on agricultural roads, that lead tu ruderalization of the analyzed area.

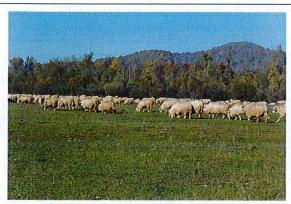


Figure 45. Grass in boundaries of the plan location



Figure 46. *Erigeron annuus* – allien species in plan location

6.4.2. Forecasted impact

The plan will be carried out in the overlapped territories of the site of community importance ROSCI0251 Tisa Superioară and of the special bird protection area ROSPA0143 Tisa Superioară

The plan location it is antrophic and does not represent breeding areal for the observed fauna specimens, but it is used only like feeding and passage areal.

The forecasted impact on the Natura 2000 site it is low, affecting under 0,3 % of the overlapped territory of those two natural protected areas, and its intensity is diminishing, consist in noise emissions on short term and low level. During execution of the construction works will be generated even emissions of sedimentable powders and exhaust gases from the machineries that carried out the construction works and from the vans that transport the construction materials. Emissions will have average intensity and will occur only for short term.

The low intensity of the impact is determined even by the establishment of the site organization outside of the two natural protected areas, and the small number of species of fauna likely to be disturbed by the works site.

Consecutive to construction of the bridge and the connection road, the impact will be reduced considerably because road transport activity will produce a much lower impact than construction activities, given that the impact will narrow on the road surface, there will be no dust emissions, will be reduced exhaust gas emissions / unit time, the noise level will be reduced.

The forecasted impact is similar to the impact currently registered, given that in the analyzed area exist several service roads used mainly for agricultural activities, but also for the transport of quarry aggregates. The existing roads are currently with high traffic, unpaved or in poor condition, generating impact level comparable or superior to that which will be produced by traffic on the connection road and on the bridge over Tisa in Tepliţa area.

Construction and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will not lead significant impairment of the fauna and flora in the analysed area.

Achievement of the construction works and the operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will have insignificant and reversible impact on biodiversity. The only form of residual impact on biodiversity is represented by the permanent occupation of some land areas, but because these represent a very small percentage from the analysed area, the residual impact will not be significant.

6.4.2.1. Direct and indirect impact

The direct impact will occurs punctually in the areas within will be built the bridge and the connection road, which are 100.600 m², from which 76.260 m² within the overlapped territory of ROSCI0251 Tisa Superioară and ROSPA0143 Tisa Superioară. These are represented by antrophic areas (generally agricultural lands). The areas permanently occupied for achievement of the construction works represent a very small percentage from the total area of the two natural protected area, respectively 0,1214 % from ROSCI0251 Tisa Superioară and 0,2664% from ROSPA0143 Tisa Superioară.

The indirect impact consists in noise, emissions from road vehicles and human presence in the area. This manifest even in present in the area, due the fact that are carried out circulation with vehicles, animals, generating noise, emissions and human presence.

6.4.2.2. Assessment of the impact generated in the design phase

The main measures for the protection of the natural protected areas must be taken from the design phase, by establishment of the location of the plan and of the site organization. Due the fact that the entire border line from Sighetu Marmaţiei boundaries it is occupied by the overllaped territory of the site of community importance ROSCI0251 Tisa Superioară and the special bird protection area ROSPA0143 Tisa Superioară, could not be avoided establishment of the plan within natural protected area, but the plan location has been verified and does not exist the habitats for whose protection has been declared ROSCI0251 Tisa Superioară. From the species for whose protection have been designated the two natural protected areas, have been identified only a part, the plan location represent only feeding areal for those species, do not represent breeding areal. In the plan location have not been identified nests or juvenils of protected fauna species, except the nests of white stork from the boundaries of the emerging area from DN 18 of the connection road.

Also, the site organization will be located outside natural protected area, faraway from the minor riverbed of the Tisa riverbed, so that the impact on the environment will be considerable reduced.

At the establishement of the plan location have been used the following criteria:

- > do not affect the habitats and the fauna species for whose protection have been designed the two natural protected area;
- the location to be free of construction and faraway from the inhabitated area;
- > not to be necessary demolition, relocation of roads, utilities (gas pipelines, power lines).

 Also, at the selection of location of the site organization have been used the following criteria:
- location outside of natural protected area and residential areas;
- location far away from the minor riverbed of the watercourses (Tisa River);
- the lands occupied are unproductive lands, so that will not be necessary deforestation or occupation of lands with conservative values;
- does not involve the diversion of aerial or underground networks;
- existence in the vicinity of the headquarters of the site organization of the authorized centers where from could be purchased the raw materials and the construction materials.

6.4.2.3. Forecast of the impact generated in the construction phase

The technological phases for the plan achievement are briefly the followings:

- establishement of the site organization;
- scraping the areas where the construction works will be executed;
- excavation of the top soil and the infertile material to the depth recommended in the technical plan;
- storage on categories of the fertile and infertile material;
- execution of the construction works of the bridge over Tisa and the connection road;
- restoration of the areas temporary affected by the construction works.

In this chapter will be assessed the impact of construction and operation of the connection road on biodiversity, on species and habitats for whose protection have been designated the site of Community importance ROSCI0251 Tisa Superioară and the special bird protection area ROSPA0143 Tisa Superioară.

6.4.2.4. Assessment of the impact on habitats

To identify and assess the impact should be quantified the intensity and extending of the activities that generate the impact and the type of impact that occurs in that habitat.

The impact on habitats, namely the impact on their values and functions can fall into four categories:

- habitat destruction;
- habitat fragmentation;
- habitat simplification;
- habitat degradation.

The impact on habitats will be punctual, located especially in arable lands, alredy intense ruderalised. Due the fact that in the plan location have not been identified the habitats for whose protection have been designated ROSCI0251 Tisa Superioară, but only a reminiscence of a degraded grove with 5 – 6 m width in the plan location, the areas permanently occupied represent a very small percentage of the total area of the two natural protected areas, respectively 0,2664% from the total area of ROSPA0143 Tisa Superioară and 0,1214 % from the total area of ROSCI0251 Tisa Superioară, and upon completion of the construction activities and closure of the construction site will be adopted measures for restoration of the areas temporary affected by the construction, the lands will have improved characteristics related to period before commencement of the construction works, so that the impact on habitats will be insignificant.

Construction and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will have any form of impact on the habitats for whose protection has been designated ROSCI0251 Tisa Superioară due the fact that those do not exist in the plan location or in its boundaries.

The lands where the plan will be carried out are occupied by the low flooded meadow flora, Tisa river minor riverbed, arable lands cultivated annually (without a stable biota) and a degraded grove in the bridge location, both on the Romanian riverbank and on the Ukrainian riverbank, so that construction and operation of the bridge over Tisa will not lead to distruction, fragmentation, simplification or degradation of some habitats of community interest.

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The construction works will not be carried out in minor riverbed of Tisa river, that so the habitat represented by the Tisa river and its banks will not be affected in any form by construction and operation of the bridge over Tisa.

Execution of the piers and the connection road involves permanent occupation of some lands area and their removal from the agricultural circuit, but due the fact that these does not represent a very large percentage of the analyzed area and are not occupied by protected habitats or flora species of conservation interest, the impact on biodiversity it is insignificant.

All the areas affected temporary by the construction works will be restored upon completion of the construction works and returned to their initial state.

The plan location does not represent breeding or shelter areal for identified fauna species. In the plan boundaries exist similar habitats that could be used for feeding by the identified fauna species.

The plan location it is antropogenic, within this and its boundaries exist several service roads utilised for transport of the materials from the gravel pits existing in the area, so that construction and operation of the bridge will not lead to the habitat fragmentation.

The impact nature depends on the type of stress exerted of each activity on the habitat. According to the data from literature, to the establishment and operation of a bridge it can be assigned as the following stress factors:

- scraping / recovering;
- dehydration and flooding;
- acidification;
- salination;
- heating;
- contamination with toxic substances;
- noise pollution.

The scraping (uncovering) activities will be limited to the minimum necessary and will be made only before the start of construction so that will be reduced the environmental impact. Each space temporary affected by the construction works will be restored with the topsoil excated initially and their restoration will be monitored.

Construction and operation of the bridge over Tisa and the connection road will not contribute to desiccation or flooding of land in the plan site, due the fact that will not lead to changes in the hydrological regime in the analyzed region and through entire period of execution of the construction works and during operation of the bridge will be maintained the waterflow regime of the Tisa river, depth and physico-chemical characteristics of water.

Construction and operation of the bridge over Tisa and the connection road will not contribute to the lands salination in the plan location due the fact that all the construction materials will be stored in specially designated areas within the site organization or will be directly put into opera. Also, waste will be stored in special arranged area within the site organization, where from will be they will be collected by a specialized firm. During the operation of the bridge and the connection road, the rainwaters that wash the platform of the road and could be contaminated with various substances (including oil and non-skid materials) will be passed first through hydrocarbons separators before being discharged into the natural emissary that so to comply with the provisions NTPA 001 / 2002.

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Construction and operation of the bridge over Tisa and the connection road will not contribute to the termal heating of the lands in the plan location due the fact that the during execution of the construction works will not be used heating sources and the concrete necessary for the execution of the construction works will be brought already prepared from authorised centers and will be directly put in opera. Also during the operation period the administrative building of the custom checkpoint will be thermal insulated that so will not be any heat loss.

Construction and operation of the bridge over Tisa and the connection road will not contribute to toxins contamination of the lands within the plan location due the fact that will be utilised modern building techniques and equipments, so that the emissions of pollutants to be reduced / eliminated. The site organization will be located outside of natural protected areas. The construction materials and waste will be stored in specially designated areas within the site organization. Around the deposits will be made marginal ditches for collect any leakage of construction materials. The rainwaters that wash the platform of the site organization will be collected and directed to a sedimentation basin.

The fuels and hazardous substances will be stored in special spaces in order to avoid the pollution of the adjacent platform. Refuelling of the machines will be made only within the location of the site organization, so that the lands within the location of the bridge and the connection road and those from their surroundings will not be polluted.

Construction of the bridge over Tisa and the connection road will lead to increase of the noise level in the analysed location, but these will have no significant impact on biodiversity. Will be recorded a higher level of noise only during each working day, which can lead to disturbance of individuals who use the plan site for feeding, but due the fact that in the vicinity of the plan location are similar habitats in which specimens present in the plan area in search of food can withdraw, the noise impact on fauna will not be significant. Furthermore, to reduce the impact of noise pollution, the construction works will not be carried out during the reproduction period of the identified fauna, respectively in March – June period.

According to data from the literature, stress factors and processes listed above may have the following effects on habitats:

- direct mortality of native species;
- physiological stress and decrease of reproductive function;
- changes in behavior and normal activities;
- changes in interaction between species and the invasion of alien species.

Achievement and operation of the bridge over Tisa will not contribute to direct mortality of native species due the fact that fauna specimens present in the plan area in search of food will move in similar habitats in the vicinity of the plan location due to noise levels and the presence of workers and machinery. The constructor team will be trained for protection of the species with conservative value and relocation of the species with low mobility. The bird species observed in the plan location have high mobility and could easily move in plan location boundaries.

During execution of the construction works can occur only accidental mortality of fauna specimens present in the working fronts and during the operation period cannot produce the direct mortality of the native species due the fact that on the entire length of the bridge and the connection road will be mounted a safety fence, according to requirements for custom checkpoints.

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Achievement and operation of the bridge over Tisa and the connection road will not generate physiological stress to fauna specimens identified in the plan location due the fact that they will move in similar habitats existing in the vicinity of the site. Execution of the construction works could cause physiological stress to the flora specimens as a result of submission on foliage of powder particles, but because in the plan location have not been identified protected species of flora, but only cultivated species, ruderal and segetal species and a reminiscence of degraded grove, the impact on biodiversity will not be significant. The sedimentable particles deposited on foliage will be removed after the first rains.

Achievement and operation of the bridge over Tisa and the connection road will not lead to the impairment of the reproductive function due the fact that the fauna specimens identified on the location of the bridge over Tisa in Tepliţa area use the analysed area only for feeding. The location of the construction works does not represent breeding areal for the fauna specimens and the breeding areal for the plan boundaries will not be affected in any form by the construction and operation of the bridge over Tisa in Tepliţa area. Moreover, the construction works will not be carried out during reproduction period of the fauna identified in the plan area and those for whose protection have been designated ROSCI0251 Tisa Superioară and ROSPA0143 Tisa Superioară, respectively they will not be carried out in March – June period.

Achievement and operation of the bridge over Tisa and the connection road will not lead to changes in behavior and normal activities of the fauna identified in the plan area due the fact that the fauna specimens identified use the plan location only foe feeding and can move in similar habitats in the vicinity of the plan location. Due the fact that the area occupied temporary / permanent by the construction works represent a very small percentage of the analysed area, the feeding areal of the identified species will not reduce considerable. Will change only the relative density of the species in the analysed area, but construction and operation of the bridge over Tisa in Teplita area will not lead to the decrease of the herd effective of the species identified in the plan area or those for whose protection have been designated ROSCI0251 Tisa Superioară and ROSPA0143 Tisa Superioară.

Achievement and operation of the bridge over Tisa and the connection road will not lead to changes in the interaction between species and invasion of alien species due the fact that will not be introduced alien species. The fauna species will move in similar habitats from the plan vicinity. All the areas temporary affected by the construction works will be restored with the topsoil excavated originally in order to remove the risk of intrusion of the alien species.

In conclusion, achievement and operation of the bridge over Tisa and the connection road will not lead to decrease of the surface of habitats for whose protection has been designated ROSCI0251 Tisa Superioară due the fact that these have not been identified in the plan location and in its boundaries.

The areas that will be permanently occupied by the works are occupied by crops, by habitat Ruderal communities and a reminiscence of degraded grove and represent 0,2664 % from the total area of ROSPA0143 Tisa Superioară and 0,1214 % from the total area of ROSCI0251 Tisa Superioară, so that will not have significant impact on those natural protected areas.

6.4.2.5. Forecasted impact on plants and animals populations

Forecasted impact on plants populations

The areas that will be permanently occupied by the works are occupied by agricultural crops, the Ruderal communities habitat and a reminescence of degraded grove (with 5 – 6 m width in the location of the bridge over Tisa river), so that the impact on the plants populations will not be significant. Upon completion of the construction works will be planted trees from local flora (especially willows and poplars) which will ensure restoration of the Tisa grove and areals connection.

Forecasted impact on reptiles and amphibians populations

The construction works will not be executed in breeding period of the identified species or those of whose protection it is possible in the analysed area, respectively will not be executed in March – June period. The impact that could manifest on the reptiles and amphibians specimens which could be accidentally present in working fronts will be reduced considerable by training the constructor staff to protect these specimens and to relocate them in similar habitats in plan boundaries. Also, the reptiles and amphibians specimens could relocate naturally due the presence of workers and of the construction machineries and the noise level. As a result of implementation of these measures, the impact on the reptiles and amphibians specimens will be low / insignificant.

Forecasted impact on fish populations

Construction and operation of the bridge over Tisa will have no impact on the fish populations due the fact that the construction works will not be carried out in Tisa minor riverbed, the construction works from the water course boundaries will be executed using metallic pilling enclosures so that will not exist the risk of ingres of the construction materials and waste in waters of Tisa river.

Also, during the plan operation period, the rainwaters that wash the road platform will be collected and lead to oil separators, so that not lead to contamination of the waters of Tisa river.

Forecasted impact on mammals populations

Construction and operation of the bridge over Tisa and the connection road will not have impact on mammals species of conservative interest.

Location of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei it is not used by European otter. Have not been observed European otter specimens or its traces (traces on mud, silt, sand or snow). Also, does not exist otter galleries due the fact that the site condition are not favourable digging the galleries: on the Romanian riverbank exist a shore protection from rubble stone rock, and on the Ukrainian riverbank exist a coastal belt.

The European otter could reach in the location of the bridge over Tisa only in search of food, but will not be affected in any form by the construction and operation of this bridge due the fact that the construction works will not be carried out in Tisa minor riverbed.

The construction works could have impact on the common vole specimens.

During the operation period will not increase the mortality rate of the fauna specimens, due the fact that on the entire length of the bridge and the connection road will be installed a safety fence.

The impact of the construction and operation period of the bridge over Tisa and the connection road on the mammals species will be low / insignificant.

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Forecasted impact on birds populations

According to the literature data, the plans impact on birds is manifested by:

- disturbance of the species present in the plan area;
- habitat loss:
- barrier effect:
- mortality generated by collisions.

The plan location it is used only like feeding areal by the birds species identified in the analysed area. Due the increased mobility, the bird specimens will move in similar habitats from the plan boundaries due to the noise level and presence of construction machinery. Because no changes will occur in behavior and normal activities of bird species, disturbance of the species present in the plan area will not be significant. The breeding areas in the vicinity of the plan location will not be affected in any way by the execution and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei, so that will not be impaired the reproductive function. Furthermore, the construction works will not be executed during the reproduction of the fauna species identified in the plan location or of those for whose protection has been designated the two natural protected areas, respectively will not be executed in March – June period.

The habitat loss registered in case of the bridge over Tisa will not be significant due the fact that the location of the bridge over Tisa it is used only like feeding areal by the birds species identified and the surroundings habitats can ensure enough feeding habitat for the identified fauna specimens.

Construction and operation of the bridge over Tisa will not represent barrier for bird migration since the height of the flight during migration is much higher than that where will be performed the construction works. Although it will be installed a fence along the entire length of the bridge and the connection road (to ensure the safety requirements specific to the custom checkpoint areas), due to the ability to fly, the birds can move easily from one area to another, that so the construction and operation of the bridge over Tisa will have no barrier effects.

Also, because the bridge will be painted in bright colors, but natural (the deck color will be selected between RAL 8004 Copper brown and RAL 6018 Yellow green and will be enlighted on night, making it very visible, there is no risk of collisions of the bird species with the bridge structures.

6.4.2.6. Forecasted impact on the site integrity

Impact on ROSPA0143 Tisa Superioară

Because the areas occupied by the works represent a very small area from the analysed area, that so will be occupied a very small area from the feeding habitat of the identified species, and in the vicinity of the plan location are similar areas in wich the fauna species can move for feeding, the impact on biodiversity will not be significant.

The plan site it is located on a major migration route (northern branch of the road east elbic), because flight height during migration is far superior to that at which will be carried out the construction works, the plan will not be a barrier to bird migration. The springs from Tisa river valley and Teplita Lake will not be affected in any way by the construction and operation of the bridge over Tisa River in Teplita area.

In the plan location have not been identified nest of the bird species for whose protection have been declared ROSPA0143 Tisa Superioară. In the boundaries of the emerging area from DN 18, have been observed two

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nests of White stork, but those will not be affected by execution of the construction works. Also, the breeding habitats from the vicinity of the plan location will not be affected in any form by construction and operation of the bridge over Prut in Teplita area in Sighetu Marmatiei.

The negative impact on the ROSPA0143 Tisa Superioară it is insignificant, temporary and reversible, will not lead to destabilization of the population present on the plan or to the impairment of the conservation status of this bird special protection area.





Figure 47. Nest of White stork (Ciconia ciconia) in the detachment area from DN 18

Impact on ROSCI0251 Tisa Superioară

In the plan location have not been identified the species and habitats for whose protection have been designed the site of community importance ROSCI0251 Tisa Superioară, but only a degraded grove.

The plan location it is occupied by the low flooded meadow flora, riverbed Tisa and arable lands, several service roads and a degraded grove. Achievement of the construction works involve permanent / temporary occupation of some land areas, but because in those areas does not exist flora species of conservative interest, the impact on biodiversity will not be significant.





Figure 48. Existing service roads in the plan location on the Romanian border

Upon completion of the construction works will be planted 216 trees (willows and poplars). Using trees from local flora will lead to restoration of Tisa grove, which in present it is degraded and will ensure connectivity to habitats.

The areas temporary affected by the construction works will be restored upon completion of the works. During operation period of the bridge will be closely monitored the restoration degree of those areas.

The works will not be carried out in minore riverbed, will not be pollutant emissions, will not be affected the quality of Tisa water and will not be impact on the aquatic species of flora and fauna.

The impact on biodiversity it is insignificant, temporary and reversible.

6.4.2.7. Forecasted cumulative impact

It is very important assessment of the cumulative impact with manifold and indirect effects wich the human activity could produce into a habitat.

In the analysed area does not exist another plan with what the construction and the operation of the bridge over Tisa in Sighetu Marmaţiei could have cumulative impact.

There are several projects / plans approved on the river section between Sighet and the Tisa exit out of the country:

- gravel pit Iza Tisa confluence sf 288 SC M BARSAN TRANS SRL located approximately at 6.5 km from the plan site (measured in a straight line in the west direction);
- gravel pit TISA UIL SF 295, the Tisa minor river bed, left bank, SF 295, hm 258-261 located approximately 3.2 km from the plan site (measured in a straight line in the northwest direction);
- de-cogging of the Tisa river at the Historic Bridge SF 292 located approximately at 4.5 km from the plan site (measured in a straight line in the northwest direction);
- Concrete station SC SEBIMARC SRL located approximately at 0.65 km from the plan site (measured in a straight line in the east direction);
- > sorting station, aggregate washing and concrete preparation located approximately at 7.5 km from the plan site (measured in a straight line in the west direction);
- arrangement of ZĂVOI 2 fish pond located about 7.7 km from the plan site (measured in a straight line in the north-west direction);
- fishery in the place called Between Waters located about 6 km from the plan site (measured in a straight line in the west direction);
- ➢ fish pond located approximately 16.4 km from the plan site (measured in a straight line in the northwest direction), as shown in Figures 49 and 50.

Environmental report

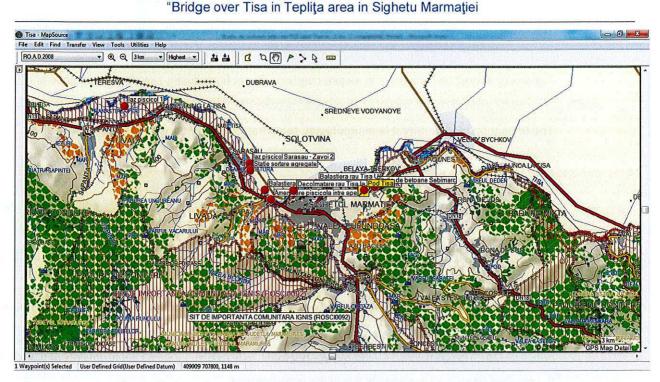


Figure 49. Location of existing / proposed projects / plans in the analysed area



Figure 50. Detail with the location of existing / proposed projects / plans in the analysed area

The limit within which the cumulative effects analysis was performed was about 30 km (15 km downstream of the location of the analysed plan and 15 km upstream from it).

In the cumulative impact assessment, have been taken into account:

- the location of projects / plans and distances between them;
- possible ways to cumulate the effects: noxious, noise and vibration emissions;
- impact on protected species and habitats.

The cumulated impact was quantified both for the construction of the bridge over Tisa (maximum 24 months) and for the period of its operation.

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Due to the large distance between the bridge over Tisa and the other analyzed projects / plans (the gravel pits from Tisa river basin, the fish ponds and the concrete sorting stations), these projects / plans can not produce a cumulative impact. These projects / plans will not be carried out simultaneously. The gravel pits are temporarily and seasonally operated, i.e. until 2019, so that the possibility of generating cumulated impact with the construction and operation of the bridge over Tisa is considerably reduced. The gravel pits have undergone the environmental impact assessment procedure and it has been established that their impact on the environment is within acceptable limits.

Even if the gravel pits will be exploited during the execution of the construction works or during the operation of the bridge over Tisa, it would not generate cumulated impact because operation of the gravel pits produce an impact, which, usually, occurs in their location and to several km of the location limits. Due the large distance between the plan location and the location of the gravel pits, noise and vibrations emissions cannot cumulate. Pollutants emissions from the construction machineries directly decrease with the increase of the distance between the emissions issuance location, so that until the limits of the plan location these will be in insignificant concentrations. Also, the noise level decrease with the increase of the distance between the production location, so that cannot cumulate.

The gravel pits existing in the vicinity of the sit of the bridge over Tisa in Tepliţa area have completed the environmental impact assessment procedure and / or adequate assessment, and in the regulatory acts are imposed measures that will have to be observed depending on the implementation stage in which will be the plan. The implementation of measures to reduce the environmental impact for each individual objective (each gravel pit) will contribute at diminuation / elimination of the impact both in the site of the plan and in the entire analyzed area.

If measures to reduce / eliminate the impact stipulated in the regulatory acts will not be implemented, it may cause damage to species and habitats present in the sites analyzed. In case not be used modern construction technologies and equipment, the emissions, noise and vibration levels may affect the environment in the location of these projects / plans.

Also, if the space provided to be temporarily or permanently affected by works for each plan will not be strictly respected, it can be affected the state of conservation of these protected species / natural protected areas.

Another action that may affect the conservation status of species and habitats if is not done properly is waste management. Uncontrolled storage, in spaces that are not properly arranged may contribute to impairment of species and habitats, as well as deterioration of the landscape aspect in analyzed area.

Also, no projects / plans / activities were identified on the Ukrainian bank with which the construction and operation of the Tisa bridge could have a significant cumulative impact. The only activities taking place in the analyzed area are the agricultural ones, but their impact is strictly manifested in the analyzed site, so that they can not generate a cumulated impact with the bridge over Tisa.

The construction and exploitation of the bridge over Tisa and the existing gravel pits on the Tisa river do not generate a cumulative impact and because they do not perform similar activities producing the same types of impact. If the activities in the gravel pits have a major impact on aquatic fauna due to changes in water turbulence as well as the depth and river flow regime, the bridge for road traffic can have an impact in the construction phase on terrestrial flora and fauna and during the period of operation only on ornithofauna due the noise level produced by traffic. Furthermore, adequate measures have been proposed to mitigate / eliminate the potential impact of the bridge.

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The two types of activities: the exploitation of the gravel pits aggregates, namely road traffic, will not have synergic impact because:

- are at a distance one from another;
- will function offset in time and space;
- produce different types of impact.

The residual impact on the environment will consist in permanent occupation of several land areas and changes of their initial destination. Due the fact that the areas that will be permanent occupied for projects/plans achievement represent a very small percentage from the analysed area, the residual cumulative impact will not be significant.

Also, due the fact that the gravel pits will function only temporary, will not exist residual impact on long term.

Also, no projects / plans / activities were identified on the Ukrainian bank with which the construction and operation of the bridge over Tisa could have a significant cumulative impact. The only activities taking place in the analyzed area are the agricultural ones, but their impact is strictly reflected in the analyzed site, so they can not generate a cumulated impact with the Tisa bridge.

Assessment of the impact signification in the study has been conducted in base of the following key indicators:

percentage from the habitat area that will be lost

Construction of the bridge and the connection road involves occupation of an area of 84.030 m², of which an area of 76.260 m² within two natural protected areas, areas which represent a small percentage of the total surface of the analyzed area and on the areas that will be stripped have not been identified the habitat for whose protection was designated ROSCI0251 Tisa Superioară, but only crops, ruderal habitats and a degraded grove, so that will not be lost areas of habitat of conservation interest;

fragmentation of habitats of community interest (expressed in percentages)

Through the proposed activity will not occur fragmentation of habitats of Community interest whose protection was designated ROSCI0251 Tisa Superioară, but only punctual fragmentation of a degraded grove. Upon completion of the construction works, in the bridge location boundaries will be carried out a buffer zone within will be planted specimens of willows and poplars, so that to be restored Tisa riverside grove and provide shelters, places for fauna migration, especially for birds.

span or persistence of fragmentation

The impact is manifested especially during construction of the bridge and the connection road;

distance until natural protected area of community interest

The construction works will be carried out within Natura 2000 sites ROSCI0251 Tisa Superioară and ROSPA0143 Tisa Superioară.

changes in population density (no. of individuals / area)

Achievement of the construction works of the bridge and the connection road will not lead to decrease of the populations of the species identified in the analyzed area, but only to decrease of the relative density of these species, because as a result of the noise level and the presence of machinery and workers, these species will withdraw in similar habitats in the vicinity of the plan location.

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Fauna specimens that will withdraw from the plan area are few and will not significantly alter the density of population in adjacent areas.

In case of the density of flora are lost about 77.500 m² of anthropogenic habitats, but because in these areas dos not exists the habitats for whose protection has been designated ROSCI0251 Tisa superioară, but only an area of about 1,000 m² of degraded grove, the impact will not be significant.

timescale for replacing species / habitats affected by the plan implementation

Specimens of flora and fauna, as the ecosystems from the plan location boundaries will be restored within a few months due the fact that the plan assumes restoration of the areas temporary affected by the construction works, including the areas adjacent to connection road. Natural "restoration" presumes a long lasting primary sequence with high risk of ingress of the annual invasive alien species, generating a natural pollution outbreak of invasive species. In order to avoid this risk, after completion of the construction works will be planted vegetation specific to analysed area like willows, poplars and grassy carpet made up of other characteristic species from regional flora.

Construction and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will not affect the population of the species observed on the bridge location and of those in the its vicinity, including those for whose protection have been designed the site of community importance ROSCI0251 Tisa Superioară and the special bird protection area ROSPA0143 Tisa Superioară because:

- a. Removal of some land areas from farm-use classification will not have significant impact on biodiversity because:
- in the location of the bridge over Tisa included in the overlapped territory of the ROSCI0251 Tisa Superioara and ROSPA0143 Tisa Superioara have not been identified flora species or habitat of conservative interest, but only a reminiscence of degraded grove;
- the land permanently occupied by the bridge represent a very small percentage by total area analyzed and in present is occupied by crops, whithout a stable biocenosis, Ruderal communities habitat and a reminiscence of degraded grove;
- the land temporarly affected by the construction works will be restored at the completion of the works and will be integrated in agricultural circuits;
- b. The aquatic species living in the Tisa river will not be affected because:
- the construction works will not be carried out in the minor riverbed of the Tisa River;
- construction works will not be carried out within the minor riverbed of the Tisa River (including shore defense);
- will not be deviated the course of Tisa river, the flow regime and the depth of water will be preserved;
- the physicochemical characteristics of the water will not be altered;
- the construction works from watercourse boundaries will be executed using metallic pilling enclosures, that so will not be any risk of the construction materials in waters of Tisa rivers;

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- c. Will not be affected habitats of community importance because:
- > in the location of the bridge over Tisa in Tepliţa area on Sighetu Marmaţiei and in its vicinity are not present habitats of community importance, but only a reminiscence of degraded grove;
- at the completion of the construction works, in boundaries of the bridge location will be carried out a buffer area within will be planted willows and poplars specimens, so that to be restored the Tisa grove;
- d. Achievement of the plan would not lead to habitat fragmentation because:
- In the analysed area already exist several service roads;
- the structures achieved within the plan will not obstruct the movements of the individuals present in the plan location;
- upon completion of the construction works will be planted willows and poplars specimens which will ensure the restoration of the Tisa grove and will ensure areals connection;
- e. will not be lost or degraded the feeding habitat of the fauna identified on the plan location or listed in the standard forms of the ROSPA0143 Tisa Superioară and ROSCI0251 Tisa Superioară because:
- the land permanently occupied for plan achievement represent a very small percentage of the analysed area, so that will not significantly decrease the feeding area of the species observed in the plan area and its vicinity;
- > in the vicinity of the bridge location exist similar habitats that the fauna specimens observed in the plan location could use for feeding or shelter during execution of the construction works;
- the impact will occur only within each working fronts, so that will not be an impact on the entire plan location;
- f. The nesting, resting and shelter areas will not be affected because:
- the plan location does not represent nesting habitat for the identified species, but only feeding habitat;
- in the plan location have not been identified nests or juvenils of the birds for whose protection has been designed the ROSPA0143 Tisa Superioara or of the birds species observed in the plan location, but not listed in the standard form Natura 2000 of this protected area;
- plan achievement does not affect the areas from ROSPA0143 Tisa Superioara known as nesting, resting or shelter area (Teplita Lake, forested area on the bank of Tisa River);
- the construction works will not be carried out during the reproduction period of the identified fauna species, respectively will not be carried out in March June period:
- g. The plan implementation will not lead to significant changes in the population density (no. of individuals / area) because:
- construction and operation of the bridge over Tisa in Teplita area on Sighetu Marmatiei will not lead to the reduction of number of individuals from species identified in the plan location;
- the specimens observed in the plan location will move to similar habitats from plan boundaries wherefrom will return at the completion of the construction works, so that will change only tempory the relative density;

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- > construction and operation of the bridge over Tisa will not lead to increase of the mortality rate because have not been estimated the traffic density increase, but only improving of traffic conditions;
- h. The noise generated by the bridge construction will not lead to the significant impairment of the fauna species identified in the plan location because:
- the specimens observed in the plan location will move in the similar habitats existing in the vicinity of the location as a result of noise level and the presence of machinery and workers;
- > the noise impact will occur only in each working front, so that will not be affected the entire plan location;
- > upon completion of the works construction, the noise levels in the analyzed location will be lower than the limits imposed by STAS 10009-88 urban acoustics, due to improvement of the traffic conditions;
- i. Will not be deflected the migration routes because:
- despite the fact that the plan is located on an important migration route (northern branch of the east-elbic migration route), because the flight height during migration is much higher than the height at which the construction works occur, these works will not constitute a barrier to bird migration;
- the birds specimens observed in passage above the plan location will not be affected in any forms by the construction and operation of the bridge over Tisa in Teplita area on Sighetu Marmatiei;
- j. Indirect effects on the fauna population on the plan location and its boundaries will not be significant because:
- fauna specimens observed in the plan area will move in similar habitats in the vicinity of the plan;
- > at completion of the construction works, will not be any indirect impact on fauna identified in the plan location.

Considering all the aspects presented in this report, it can be concluded that the negative impact of the construction and operation of the bridge over Tisa in Tepliţa area on Sighetu Marmatiei is insignificant, temporary and reversible.

6.6 Impact on the landscape environmental factor

The impact on the landscape will be manifested especially during achievement of the construction works, as a result of the presence of machinery, working fronts and workers. In order to reduce the impact on the landscape, the yard will be fenced, and the construction materials and waste will be deposited onl in the site organization so as to reduce the risk of their take over by the wind and precipitation.

The construction site will be located outside residential areas and other sensitive areas (natural protected areas, Tisa river banks, wooded areas, etc.).

Currently, there are several landfills and inadequately stored waste in the site.

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Figure 51. Landfils in the plan location

Figure 52. Waste abandoned at plan site

During the exploitation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei there will be no impact on the landscape, the new bridge wil harmoniously integrate into the landscape. The area in which the bridge will be constructed is anthroped.

6.7 Impact on the population and human health environmental factor

The plan is located predominantly outside residential areas (except for the detachment area from DN 18), and the impact of the plan occurs only in its location, so that the local population will not be negatively affected by the works achievement.

The presence of the yard, working fronts and possible traffic restrictions can contribute to creating a slight discomfort both for the local population and for those who transit through the analyzed area. As the site organization will not be located in residential areas, the impact on the population will be considerably reduced. The routes chosen for the transport of construction materials will, as far as possible, avoid crossing residential areas.

The impact of noise and vibrations

The construction of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will increase the noise level, but at the limit of the residential areas these will be integrated within the limits stipulated in STAS 10009-88 "Urban Acoustics - Permissible Limits of Noise".

In order to not have impact on workers that are carrying out the bridge over Tisa, they will be equipped with individual protective equipment and measures will be taken to reduce the emissions of air pollutants (periodic spraying of the service roads and decovered areas, covering the construction materials and landfills, cleaning of machine and vehicle tires when leaving the site).

The discomfort created for the local population will occur only during the construction works. Upon their completion, the traffic conditions will improve.

6.8 Impact on cultural, architectural and archaeological heritage, material values

The achievement and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will have no impact on the objectives of the historical and cultural heritage, as these are not present in the plan site.

The impact of bridge over Tisa is insignificant, temporary and reversible. Upon completion of the construction works, the environment will return to its original state, except for areas permanently occupied by the

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works.

During the operation period, the impact is insignificant and will not lead to environmental damage. Also, although the plan is implemented in the border area with Ukraine, it will not affect the environment in Ukraine, the impact of the plan manifesting itself in its location.

For the environmental impact assessment of the Tisa bridge in the Tepliţa area of Sighetu Marmaţiei, have been used both the impact matrix proposed by the SEA guide and the matrix proposed by the JASPERS guide Sectoral Guidance for Environmental Impact Assessment: Motorway and Road Construction Projects.

The Impact Assessment Matrix proposed by the SEA guide

Using the impact matrix proposed by the SEA guide, has been evaluated the impact that the construction and operation of the bridge over Tisa in Tepliţa area in Sighetu Marmaţiei will have on each environmental factor (air, water, soil, biodiversity, health, landscape, cultural patrimony and socio - economic environment.

Table 17. The Impact Assessment Matrix proposed by the SEA guide

Environmental factor	Impact manifestation form	Type, persistence and magnitude of the impact			
Air	Construction period of the bridge over Tisa in Tepliţa area				
	Handling the construction materials and earth will lead to increase of pollutants concentration in working fronts atmosphere and within the site organization. The impact occurs only for short term and only in plan location, without significant impact on air quality	- , ITS, L			
	Activity of construction equipment and vans utilized for transport the raw materials will lead to temporary increase of emissions of pollutants, at completion of the construction works, the environment will return to its initial state				
	Fuel supply of the construction equipment can lead to pollution of the atmosphere with hydrocarbons, but because these activities will be carried out episodic and only within the site organization, the impact on air will not be significant	-, ITS, L			
	Operation period of the bridge over Tisa in Tepliţa area				
	Decrease of atmospheric pollutant concentrations due the improvement of traffic conditions	+++, ITL, L			
Water	Construction period of the bridge over Tisa in Tepliţa area				
	The construction works will not be carried out in the minor riverbed, that so will not be any form of impact on the aquatic ecosystem	0			
	It is not necessary diversion of the watercourse, will not be emissions in the water, will be maintained the water flow regime, and water level	0			
	The construction materials and waste will be stored at distance of Tisa riverbed, that so will not be any risk of their ingress into the water course	0			
	In situation of ingress of toxic compounds in Tisa water, will be used the services of a specialized pollution cleaning company	- , ITS, L ?			
	Operation period of the bridge over Tisa in Tepliţa area				
	Impact on water quality will be insignificant due the fact that the water that	0			
	wash the road platform will be treated in oil separator and sedimentation				
	basin, before to be discharged in the natural emissary				
Soil	Construction period of the bridge over Tisa in Teplița area				
	Stripping of some area will lead to changes of soil structure, but because these areas will be permanent occupied by the new infrastructures, the	- , ITS, L			

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	impact on soil will not be significant	
	The areas permanent occupied by the new infrastructures represent a very small percentage of the analysed area, that so the impact on soil will not be significant	
	Establishment of the site organization can lead to the soil compaction, but the areas temporary affected by the construction works will be restored	- , ITS, L
	Settle of the sedimentable powders that contain heavy metals can have impact on soil, but because the concentration of these substance is low, impact on soil will not be significant	- , ITS, L
	Construction period of the bridge over Tisa in Tepliţa area	*1
	During operation period of the bridge, the impact on soil it is insignificant due the traffic conditions and installing of oil separators and sedimentation basin	0
Subsoil	Construction period of the bridge over Tisa in Tepliţa area	
	Construction of the bridge over Tisa will have insignificant impact on subsoil, will not affect the land stability and will not be generate substances that can lead to pollution of the subsoil or groundwater	0
	Operation period of the bridge over Tisa in Tepliţa area	
	Operation of the bridge over Tisa will have no impact on the geological environment	0
Biodiversity	Construction period of the bridge over Tisa in Tepliţa area	
	Establishment of the site organization and achievement of the excavation works will lead to removal of the vegetal cover, but this will be restored in the first two years after the commissioning of the bridge, without changes in the specific composition of the biocenosis, that so the impact on flora will be temporary and insignificant	- , ITS, L
	In the plan location have not been identified protected habitats, and the areas permanent occupied by the achievement of the construction works represent a very small percentage of the analysed area, that so the impact on biodiversity will not be significant	- , ITS, L
	Handling the construction materials and soil will lead to the increase of concentration of sedimentable powders and implicit at decrease of the rate of plant physiological processes (respiration, photosynthesis) and of primar productivity, but because these will occur only temporary, the impact on biodiversity it is not significant	- , ITS, L
	Presence of working fronts, of construction equipment and workers will lead to removal of fauna specimens from the working fronts. Will not drecrease the effective of the species observed in the plan location, only will change their relative density, because these specimens will move in similar habitats in plan location boundaries, where from will return upon completion of the construction works	- , ITS, L
	Operation period of the bridge over Tisa in Tepliţa area	
	During operation of the bridge, the impact on biodiversity will not be significant	0
	Will not increase the mortality rate of the fauna specimens due the fact that on the entire length of the connection road and the bridge will be installed a fence that will not allow ingress of the fauna specimens	0
	The plan implementation will not lead to habitat fragmentation due the fact that in the plan location exist mainly arable lands and under the bridge will be maintained a free area (between piers and abutments), which the fauna specimens could use for movement	0
	Will not change the water flow regime of Tisa river and its physic-chemical characteristic due the fact that will be installed oil separators and sedimentation basins, and the water collected from the road carriage will be	0

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	discharged in the natural emissary only after proper treatment				
Landscape	Construction period of the bridge over Tisa in Tepliţa area				
	Presence of working fronts and of the site organization will have visual impact on landscape, but because this form of impact will occur only temporary and the percentage of the land occupied by the plan it is very small related to the analysed area, the impact on landscape it is insignificant.	- , ITS, L			
	Upon completion of the construction works, all the areas temporary affected by the construction will be restored, and the new infrastructure will fit into landscape.				
	Construction materials and waste will be stored only within the site 0 organization, that so will have no impact on landscape				
	Operation period of the bridge over Tisa in Teplita area	1 =			
	During operation period of the bridge, will not be registered impact on landscape, the new bridge will fit into landscape	0			
ealth	Construction period of the bridge over Tisa in Tepliţa area				
	Atmospheric pollutants can lead to impairment of the health state of the workers, especially in case of long-term exposure. To mitigate the impact on human health, modern technologies and machinery will be used (which will retain the pollution at source), and the workers will be equipped with individual protection equipment, the service roads will be sprayed periodically for decreasing of the emissions of sedimentable powders.	- , ITS, L			
	Operation period of the bridge over Tisa in Teplita area				
	During operation period of the bridge over Tisa, the level of atmospheric pollutant emissions will be insignificant due the traffic conditions, or even lower that so will not be affected the health state of the population living near the bridge location.	0			
/aste					
vasie	Construction period of the bridge over Tisa in Teplita area	0			
	Waste generated during construction of the bridge over Tisa will be collected selectively, will be stored in special arranged spaces within the site organization and will be eliminated by an authorized company with which the beneficiary will lead a contract	0			
	In case of an accidental pollution due the spill of pollutant substances, will be utilised the services of a company specialized in pollution cleaning. Also, will comply with the measures proposed in the accidental pollution prevention and remediation plan	-, ITS, ?			
	Operation period of the bridge over Tisa in Teplita area				
	Waste will be collected selectively and periodically removed by an authorised company	0			
	In case of accidental pollution will act in shorter time with absorbent material (to limit the extent of pollution), and further will be utilized the services of a company specialized in pollution cleaning. Also, will comply with the measures proposed in the accidental pollution prevention and remediation plan	- , ITS, L			
ultural heritage	Construction period of the bridge over Tisa in Tepliţa area				
	In the location of the bridge over Tisa does not exist historical, archaeological or natural values. Construction of the bridge over Tisa will have no impact on the cultural heritage	0			
	Operation period of the bridge over Tisa in Tepliţa area				
	Operation of the bridge over Tisa will have no impact on the cultural heritage.	0			
Socio – economic					
nvironment	Construction period of the bridge over Tisa in Tepliţa area Creating about 90 new jobs will have positive impact on socio-economic environment	+++, ITS, L			
	Population living in the plan location boundaries may be disturbed by the				

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execution of the construction works and the presence of workers, but this impact is short, after completion of the construction works, the environment will return to its initial state, except the areas permanently occupied by the new infrastructures
Operation period of the bridge over Tisa in Teplita area
Creating new jobs will have positive impact on the socio-economic +, ITS, L environment
Improvement of the road infrastructure will lead to increase of traffic safety and will have positive impact on socio-economic environment
Level of noise, vibration and of atmospheric pollutants concentration will be very low, will not affect the human health and implicit the socio-economic environment

Legend

- + positive impact, negative impact, 0 neutral (no impact),? uncertain
- +/- minor, ++/- moderate, +++/--- major STI = short-term impact (temporary)

MTI = medium term impact (temporary) LTI = long-term impact (permanent)

L = local, R= regional

The impact assessment matrix proposed by the JASPERS Sector guides for the environmental impact assessment: highway and roads construction projects.

The matrix for environmental impact assessment proposed by the JASPERS guide requires the utilisation of the following criteria for environmental impact assessment:

- users (traffic, pedestrian, safety);
- > technical criteria (impact on other roads, services, surface water and railway crossings);
- environmental criteria (planning and development, geology, ecology, landscape and visual impact, plant and agricultural property, residential property, social impact, air quality, noise and vibration)

Table 18. Assessment matrix proposed by JASPERS Guide

		The proposed version
	Traffic	
"	Pedestrians	
Users	Safety	
cal	Impact on other roads	
	Services	
Technical criteria	Surface water crossings	•
G. 급	Railway crossings	•
	Planning and development	
<u></u>	Geology	•
Environmental criteria	Ecology	•
	Landscape and visual impact	•
	Plants and agricultural goods	Neutral
ы р	Residential properties	Neutral

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	Social impact		
	Air quality	, .	
	Noise and vibration		
Ranking score		15	

Matrix assumed and completed from JASPERS Sector guides for the environmental impact assessment: highway and roads construction projects.

Legend of the nature and extent of the impact

Positive	Minor	Moderate	Major	Extremely
Negative	Minor	Moderate	Major	Extremely
•				

The magnitude of the potential impact has been noted: minor = 1, moderate = 2, major = 3, extreme = 4. Has been asset both the positive and negative impact of the proposed alternative.

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7. POSSIBLE SIGNIFICANT EFFECTS ON THE ENVIRONMENT, INCLUDING HEALTH, IN THE TRANS-BORDER CONTEXT

The implementation of the plan "Bridge over Tisa in Tepliţa area in Sighetu Marmaţiei" will not have a significant impact on the Ukrainian environment because it only involves the construction of 120 m from connection road from Ukraine, construction of one pier and one abutment on the Ukrainian territory. The bridge will be executed on the Romanian border and will be launched over Tisa. The connection road from Ukraine will be carried out in base of other plan.

7.1 Water

Achievement of the plan will have no impact on the waters of Tisa river under the administration of the Ukrainian state because there will be no works in the minor riverbed, and the site organization will be located on the Romanian bank, away from Tisa riverbed. During the operation period, the rainwater that rinse the road and bridge platform will be taken over by the oil separators.

For collecting the rainwater from the road platform have been designed concrete ditches, gutters and caves. The solid particles transported by the pluvial waters will be deposited at 80-85% and the oil products will be retained in the oil separators, so that the provisions of NTPA 001/2002 will be complied.

Both in the construction works period and in the operating period, the water quality will be closely monitored.

7.2. Air

The impact on air is temporary and reversible and only occurs at the site location, without significant impair the air quality. Upon completion of the construction works, the environment will return to its original state, there will be no residual impact on the air. Most of the works will be executed on the Romanian side, the impact will be felt at a maximum of 100 m from the working fronts so that the construction and operation of the bridge over Tisa will have no significant impact on the air quality in Ukraine due to the location of the plan and the magnitude of the works conducted on the Ukrainian riverbank.

During the operation of the bridge over Tisa, the impact on air quality will not be significant due to traffic conditions.

7.3. Soil

The implementation of the plan will not have a significant impact on the soil from Ukraine, because the percentage of land occupation will be very low (considering that only one pier, one abutment and 120 m of the connecting road will be executed on the Ukrainian territory).

7.4. Subsoil

Implementation of the plan will not have a significant impact on the subsoil from Ukraine because only one pier, one abutment and 120 m of the connecting road will be executed on the Ukrainian territory and the

hydrogeological conditions of the analyzed area will not be modified. The construction and operation of the bridge over Tisa will not contribute to increase the instability of the land degree.

7.5. Biodiversity

Wildlife and natural habitats existing on the Ukrainian border, in the area of influence of the proposed plan

On the Ukrainian border have not been identified species or habitats protected, but only common species.

On the Ukrainian border of Tisa River is an area in which the density of shrub vegetations is higher, but this it is not framed in standing crop (forest area), but is land of IV category. In this area are dominant the shrubs and willow specimens (*Salix alba*). Aside these, can be identified specimens of poplar (*Populus alba*) and black locust (*Robinia pseudoacacia*).

The analysed area on the Ukrainian border is crossed by service road. Also, have been observed areas in which have been deposited waste.

On the Ukrainian riverbank, besides the cultivated plants, the following species were identified in the plan site and in its vicinity: Poa pratensis, Poa trivialis, Poa annua, Galega officinalis, Lathyrus pratensis, Lotus comiculatus, Melilotus officinalis, Trifolium hibridum, Trifolium pratense, Trifolium repens, Vicia cracca, Achillea millefolium, Potentila erecta, Prunella vulgaris, Chelidonium majus, Euphorbia cyparissias, Pteridium aquilinum, Ranunculus acer, Arctium lappa, Carduus acanthoides, Onopordon acanthium, Rumex sp, Urtica dioica, Verbena officinalis, Carduus nutans, Convulvulus arvensis, Artemisia absinthium, Potentilla argentea, Capsella bursa-pastoris, Hordeum murinum, Potentilla reptans, Ballota nigra, Papaver rhoeas;

Shrubs: Ligustrum vulgare, Lonicera xylosteum, Crataegus monogyna, Sambucus nigra; Euonymus europaeus;

Trees: Salix alba, Populus alba, Robinia pseudacacia.

The analysed area on the Ukrainian border is crossed by service road and exist some areas in which have been deposited waste. These are factors favourable for the penetration and expansion of non-native plant species, in the detriment of native plants, as well as forms of anthropogenic pressure on natural habitats..

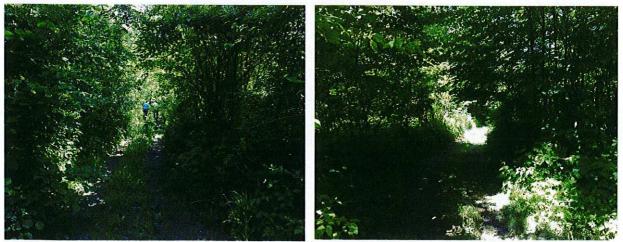


Figure 53. Service roads on the analysed area on the Ukrainian border

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Figure 54. Areas in which have been deposited waste on the Ukrainian border

* Ecosystems and natural protected areas in Ukraine, in the area of influence of the proposed plan

On the Ukrainian territory, the plan will be carried out outside natural protected areas. The minimum distance between the plan location and the natural protected areas is about 30 km measured in straight line, that so there will be no impacts on protected areas in Ukraine.