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ISSUES RELATED TO ELABORATION OF ENVIRONMENTAL IMPACT ASSESSMENT STUDIES FOR CONSTRUCTION OF STATE ROADS

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Abstract

The biggest problem that occurs during elaboration of environmental impact assessment studies for construction of state roads and the biggest impediment to obtaining the Decision on the acceptability of interventions for the environment (the Decision) by the Ministry of Environmental Protection, Physical Planning and Construction (the Ministry) often is the discrepancy between the road route according to the physical planning documents and project documentation. As a matter of fact, in order to start the procedure of Environmental impact assessment, the state road route within the preliminary design has to be in line with the one from the county physical plan, as well as individual plans of lower levels. However, when drafting the project documentation, which is often done several years after the physical plan has been concluded, the route needs to be adopted to the current terrain as well as physical and technical elements of the project, which in many cases leads to route relocation and consequently to discrepancies in relation to the physical planning documentation. The elaboration of the Environmental impact assessment study basically starts after the preliminary design has been finished completely and approved by the management. As it often happens, by analysing environmental impact of a particular route, a negative impact is detected and often as a protection measure, further relocation of the route is proposed, thus exerting more time and funds. Therefore, environmental impact assessment experts need to balance between the physical planning documentation, preliminary design, negative environmental impact of the route as well as the project management. In the end, in case the discrepancy between the proposed route and the physical planning documents is too big, the Ministry might not start the relevant procedure. Another possibility is that the Ministry refuses to issue the Decision until amendments to a physical plan are made, which requires a procedure of 6 months to a year, or commonly even longer. Pursuant to the Rulebook on evaluation of plan, programme and intervention suitability for an ecological network (OG 118/09), each intervention which is conducted in an area included in the ecological network and which could potentially endanger the network, requires the procedure of Initial evaluation of intervention suitability for the ecological network. Should the Initial evaluation indicate that the intervention might have a significant negative impact, the Full evaluation follows. It can be completed within four months but the conclusion may request a design with several alternative routes, which automatically prolongs the procedure of environmental impact assessment.

Keywords: state road, physical plan, environmental impact, National Ecological Network.

1 Introduction

Environmental impact assessment, as a means of environmental protection, involves a procedure of identifying an extent to which a certain intervention is acceptable for the environment as well as defining necessary protection measures in order to minimize possible impacts and retain the highest possible level of environment preservation. This procedure is undertaken at an early stage of the project, within the scope of preparing the planned intervention, prior to issuing the building permit or another permit in case building permit is not required for a particular intervention.
Depending on possible impacts, their coverage, intensity and duration, the goal of the environmental impact assessment (EIA) is to elaborate on the extent to which an intervention is needed, determine possible impacts on the environment, determine the conditions under which the intervention is to be undertaken as well as define the protection measures and the programme of monitoring the state of environment and operation of the intervention.
EIA is conducted in accordance with the Environmental Protection Act (OG 110/07) and Ordinance on environmental impact assessment (OG 64/08 and 67/09) [5]. The content of the EIA study is determined by the Ordinance and the Study itself serves as an official expert basis for the purpose of assessing the environmental impact.
At the end of the environmental impact assessment procedure conducted by the Ministry of Environmental Protection, Physical Planning and Construction, the Decision on the Decision on the acceptability of interventions for the environment is issued, which is one of the documents required for construction and one of the preconditions to be met before obtaining the building permit.

2 Environmental Impact Assessment Study

The construction of a state road of 2000m and longer can be found in Annex I of the Ordinance on environmental impact assessment (OG 64/08 and 67/09), which lists interventions which require environmental impact assessment studies. The Ordinance also proscribes the obligatory contents of the Study.
Planned construction of a state road, as well as most of other linear interventions (highways, railways, main pipelines) requires an elaborate overview of individual and joint impacts of the intervention on the environment, which includes the question of synchronization with physical planning documentation as well as impacts on individual elements of the environment. Thus, impacts during construction and operation are analyzed with respect to the current and planned infrastructure, construction areas and population, scenery, cultural and historic heritage, flora, fauna, ecological network, forests and gaming, waters and zones of sanitary protection, as well as soil and agriculture.
After individual elements of the environment have been elaborated, protection measures are proscribed for both the construction and operation phases of the state road.
At the end, all environmental impacts, proposed protection measures, monitoring programme and the benefits are compared and the final evaluation on the acceptability of intervention is made.

3 Physical planning documentation

Physical Planning Strategy [2] and Physical Planning Program of the Republic of Croatia (OG 50/99) [3] stress dominant role of road transport in Croatia primarily due to extensive coverage of the road network as well as the its availability as opposed to other transport modes. The general goal is to achieve the full maintenance standard as soon as possible as well as the full operational standard depending on the road category. This is a plan for state roads

primarily, where apart from improvements to most frequent sections, access roads and ring-roads are planned as well.

The areas of state road routes are planned according to the second generation of physical planning documents. The first generation was drawn up in the 1980s-1990s period, the time of different social and economic circumstances at the region. Once the independent Republic of Croatia was formed, new geopolitical circumstances were set and likewise, new strategic goals were defined. This was followed by a new administrative and territorial division of the Republic of Croatia. Therefore, amendments to the physical planning documents of the time became a necessity (plans until 2015) [13].

In order to carry out the environmental impact assessment, each intervention needs to be in accordance with the physical planning documents. In case of state roads, interventions of national importance, the planned route needs to coincide fully with the route indicated within the physical plan of a particular county. This is where most problems occur.

State road corridors are drawn into physical plans of counties with the 1:100 000 ratio in accordance with the Physical Planning Strategy as well as the Program of the Republic of Croatia, which provide basic guidelines to physical planning and define construction and design of a particular space in accordance with certain priorities. Physical planning documents of a lower level (physical plans of towns and counties) need to be in line with the county physical planning documentation at a detailed ratio (1:25000 or 1:5000). However, only by compiling project documentation for the state road, often several years after the physical plan of the county was made, the actual route is placed within the particular area. In order for the road to fully meet its purpose, it has to be adapted to the actual terrain and meet the physical and technical elements proscribed by the terms of reference. This includes a detailed terrain inspection, construction of a detailed geodetic basis and the design based on the physical planning documents with very detailed ratios. In many cases, the route needs to be relocated and therefore, discrepancies in relation to the county physical planning documents occur. (Figure 1).

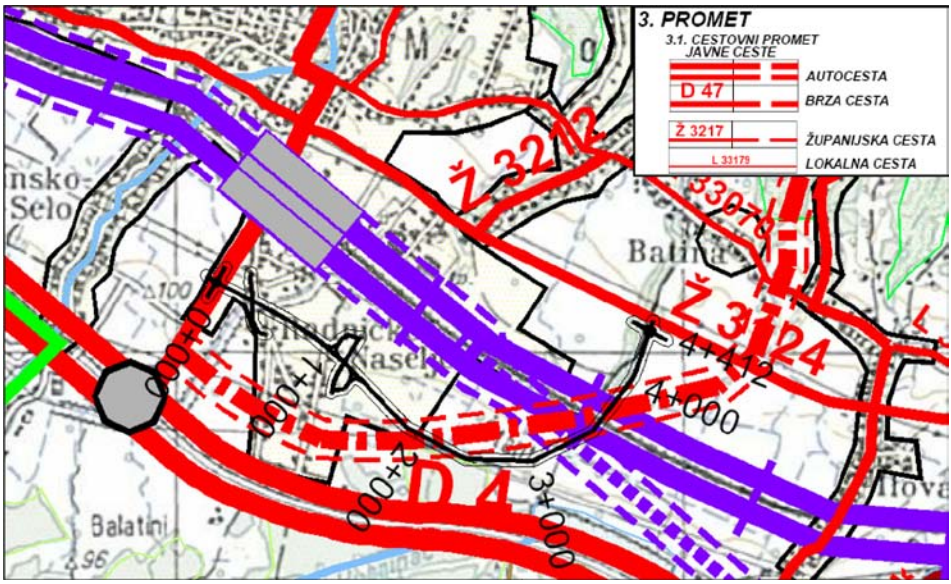

Figure 1 Southern ring-road of Kutina drawn over an extract from the Physical Plan of the Sisačko-moslavačka County, (OG of Sisačko-moslavačka County n. 04/01.) [21]

The elaboration of the Environmental impact assessment study basically starts after the preliminary design has been finished completely and approved by the management. As it often happens, by analysing environmental impact of a particular route, a negative impact on elements of environment is detected and often as a protection measure, further relocation of the route is proposed, which exerts more time and funds. However, as it often happens, contractors consider their obligations to be met once the preliminary design is finished, and therefore find themselves unobligated to work on further documentation which, among other things, includes the EIA as well as the route relocation. The authors of the EIA can only hope they will receive the much needed professional help with the possible alternative route design.
In this way, the EIA contractors need to balance between the route and corridor in the physical planning documentation, preliminary design, actual negative environmental impacts of the route as well as the investor/management of the project.
In the end, in case the discrepancy between the proposed route and the physical planning documents is too big, the Ministry might not start the relevant procedure. Another possibility is that the Ministry refuses to issue the Decision until amendments to the Physical Plan are made, which requires a procedure of 6 months to a year, or commonly even longer.
When the procedure starts, despite the discrepancies, the route relocation is requested within the scope of the impact assessment by the Ministry council. This requires active involvement of all parties, starting from the investor/management to the EIA contractor and the Ministry. This often leads to missed deadlines and prolongation of the entire procedure because the Ordinance on environmental impact assessment (OG 64/08 and 67/09) [5] proscribes the procedure duration up to 4 months and the obligatory public oversight lasts for 30 days.

3.1 Justification of the intervention

Although the state road corridor is included in the county physical plan as proscribed by the Physical Planning Strategy as well as the Program of the Republic of Croatia, the question of the justification of the state road investment is often raised.
Despite the arguments made by the local community (town, municipality) that the road is vital for shifting traffic from the town centre and improving the local quality of life, and that it will improve local community on the basis of better connectivity, statistics on current and future traffic needs, i.e. daily vehicle frequency numbers, can not justify a project that costs several tens of million Kuna. When environmental impacts are added in, the intervention justification can be questionable.

4 Relation between environmental impacts and route relocation

As it was mentioned above (Section 3.), environmental impact assessment often identifies a negative impact on individual elements of the environment, which requires route relocation as a protection measure. This particularly applies to valuable natural habitats. While protected localities which have been included in physical plans are often taken into consideration and avoided as early as in the first phase of planning, potentially valuable localities such as swamps and old river branches are often disregarded by the engineers. Those localities are very significant in respect to preservation of biological diversity, despite not being directly protected by the Nature Protection Act (OG 70/05, 139/08). However, route relocation that would be required often increases construction costs depending on the terrain surface and possible additional interventions.
There are examples where a knot and a 1000m long route section are planned along an old river branch of a canalled river in Slavonia (Fig. 2) [11]. One of the protection measures would be relocation of the route. However, the valuable agricultural land in the surroundings as well as the ecological network area, construction area and the railway simply do not allow the possibility of route relocation. The second measure would be construction of an object

that would span over the locality in question. However, this would require construction of a wide overpass several hundreds of meters long, which would cost several tens of million Kuna.

Figure 2 3D projection of the knot and the route on a very valuable natural habitat (meanders of the Londžica River near Latinovac) [11]

Moreover, as nature protection in Croatia over the several past years has been concentrated on meeting requirements of the European Union, the matter of National Ecological Network needs to be addressed [22]. According to the Nature Protection Act (OG 70/05 and 139/08) and the Regulation on proclamation of the ecological network (OG 109/07), it has been defined as a network of connected or physically close ecologically significant areas which by means of their balanced bio-geographical coverage significantly contribute to preservation of natural balance and biological diversity of the ecologically significant areas in the Republic of Croatia. Those are also included in ecologically significant areas of the European Union Natura 2000 [10]. Depending on the reasons for their endangerment, there are protection measures proscribed to all areas of the ecological network in order for them to be preserved as much as possible. Pursuant to the Rulebook on evaluation of plan, programme and intervention suitability for an ecological network (OG 118/09), each intervention which is conducted in an area included in the ecological network and which could potentially endanger the network, requires the procedure of Initial evaluation of intervention suitability for the ecological network to be carried out by the Directorate for Nature Protection at the Ministry [1]. Should the Initial evaluation indicate that the intervention might have a significant negative impact, the Full evaluation follows. It can be completed within four months from the date the Request is filed. It includes public panel discussions which can last for 30 days. Should negative impact be identified, one of the protection measures might be a design with several alternative routes at the area of the ecological network. All the stated measures are conducted for the purpose of preserving valuable natural areas which contribute significantly to biological diversity of a closer and wider area. The author of this report supports the stated measures. However, the problem often occurs in relation to physical plans.

Extracts from the map of the National Ecological Network for a particular area are issued only by the National Institute for Nature Protection. The areas of ecological network may cover very large territories and are not included in previously mentioned physical planning documentation. In this way, when the preliminary design is elaborated, the project management and the contractor do not have the information whether their intervention goes through an area of an ecological network or not. Although they can request the extracts, they do not have the relevant experts (biologists) which might identify negative impacts in advance and relocate the route at an early stage or suggest an alternative route. Therefore, this problem is tackled within the EIA, which starts, as mentioned earlier, after the preliminary design has been approved. This practice leads to certain prolongation of the environmental assessment procedure.

5 Conclusion

The deadlines for environmental assessment studies as proscribed by the Ordinance on environmental impact assessment (OG 64/08 and 67/09) are often not met due to several reasons stated above: discrepancies between the state road route and the corridor in relevant physical planning documentation, unbalanced time plan between the elaboration of the preliminary design and the EIA study, the issues related to route relocation and additional designs with several route alternatives in order to preserve valuable areas and areas of ecological networks. Thus, the EIA study elaboration and obtaining of the Decision on the acceptability of intervention can take up to over a year. It needs to be taken into account that this is only the first step in obtaining full project documentation for the planned intervention.

The entire process would be facilitated by more frequent amendments to county physical plans in accordance with physical plans of a lower lever, which are often more up-to-date with local issues. Also, the first amendments should include borders of natural ecological network areas in order to avoid potential problems such as the one described above.

Moreover, the timeline of preliminary design elaboration and EIA studies should be synchronized, i.e. the preliminary design should contain most of proposed protection measures, by means of which retroactive corrections of the preliminary design would be avoided.

References

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[5] Ordinance on environmental impact assessment (OG 64/08 and 67/09)

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