

Landscape Protection and Management Guidelines for Roads: Problems and Amendments for Lithuanian Legal Acts

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crossref <http://dx.doi.org/10.5755/j01.sace.3.4.4779>

In 2011 the Ministry of Environment of the Republic of Lithuania ordered to prepare the “Landscape protection and management guidelines for roads and railways”. Integration of the trends of the politics of Lithuanian Republic and the requirements of legislation, which is related to landscape protection and management, into the road development system is only a part of all the tasks of these guidelines. This part, including the analysis of Lithuanian legal acts, identification of their problems and proposal of amendments, is presented in this paper. As a result, the amendments were proposed for Lithuanian legal acts regarding the road landscape evaluation methodology, visual impact of roads on the environment, road signs, advertising regulation and planting near the roads.

Keywords: *legal act, legislation, road, road landscape.*

1. Introduction

In the Lithuanian landscape according to the importance roads are in the second place after the rivers and streams: it is estimated that there are approximately 22.2 thousand kilometers of rivers and streams which total about 76.8 thousand kilometers in length (Aplinkos ... 2012); the total length of roads and streets equals to 82 thousand kilometers, where 21.3 thousand kilometers are the roads of state importance and more than 60 thousand kilometers are the roads and streets of local importance (municipalities) (Lietuvos ... 2012b). Due to this reason, the sustainable road designing and maintenance are significant for the promotion of our country image, natural and cultural heritage, preservation of bio-diversity, protection of landscape identity and value.

The project “Landscape guidelines for Lithuanian roads and railway” is being implemented in 2011-2013 by the Ministry of Environment of the Republic of Lithuania. The guidelines “Landscape protection and management guidelines for roads and railways” in the frame of the project are prepared by specialists of JSC “Infraplanas” and other scientific institutions, as well as the authors of the paper. The guidelines are developed in order to increase the understanding of society, private institutions and authorities about meaning, values, role and changes of state roads. The project is going to the end, and there are the main landscape designing principles which should be followed when planning, designing, building, reconstructing or

mending Lithuanian state roads formulated. Guidelines are going to be published at the end of 2013 year and intended for representatives of authorities (municipality, environmental protection and cultural heritage specialists, designers, engineers, builders and managers) in order to find easier decisions when adjusting requirements of traffic safety and designing with landscape value protection and improvement, that the road would be both comfortable to use and picturesque to see.

When preparing the guidelines and trying to integrate requirements of Lithuanian landscape policy and other landscape protection and management legislations to road development system the analysis of Lithuanian legal acts has been performed, main problems have been formulated, conflict decisions and amendments of legal acts have been introduced. The offers for legal acts and the arranged guidelines have to ensure development of identity of Lithuania and its ethnographic regions, single landscape units, protection and multiplying of ecological and aesthetics values, expedient designing of road landscape and general improvement of Lithuanian image when constructing, rebuilding and maintaining the roads.

2. Analysis and proposals

In accordance with the European Convention on Landscape (Europos ... 2000), every country seeking to implement the landscape policy, undertakes to adopt the legal

acts designed for protection, management and/or planning of landscape. Presently, the main legal acts for landscape protection are the documents of territorial planning, assessment of the effect on the environment and other environmental legal acts, cultural heritage and international legal acts. This structure is supplemented by the road design and planning legal acts with reference to landscape, relief, vegetation, etc. The guidelines “Landscape protection and management guidelines for roads and railways” is the first strategic document for protection of the landscape of roads and railways in Lithuania.

According to the legal acts of the Republic of Lithuania in effect today, the building of motorways and highways, also, of roads with four or more lanes or reconstruction of roads with fewer than four lanes, by building four or more lanes (when building or reconstructing a continuous section of 10 km or longer) is included into the list of types of the planned economic activity, the impact of which on the environment is to be assessed. The selection procedure for the environmental impact assessment (EIA) must be carried out in building regional roads longer than 2 km and those having four or more lanes, also, in reconstructing the roads by building four or more lanes (when building or reconstructing the road shorter than 10 km, but longer than 2 km long continuous route).

This paper represents the review of legal acts grouped according to themes, and the suggestions for their amendments. The suggestions are only preliminary requiring thorough analysis and motivated substantiation. Their final formulation will be presented only after preparing the landscape guidelines.

2.1. Legal acts related to territorial planning

In these legal acts the aims to create preconditions for maintaining or reconstructing landscape ecological equilibrium are specified (Lietuvos ... 2004b). In addition, they contain the cases when the private land can be taken for public purposes followed by compensation for the property. The acts provide for the motivated substantiation of the taking of land (Lietuvos ... 2011a) and for the ways of compensation (Lietuvos ... 2005b). The general plans do not deal with the issues of aesthetic visual quality of the roads and their landscape. The master plan of the territory of the Republic of Lithuania (Lietuvos ... 2002) promotes the expansion and improvement of the transit roads for tourist mobility which, for the most part, coincide with the main motorways, and specialized tourist routes. In addition, the planned urban integration axes are also provided. The recreation sector identifies the development of educational tourism and recreation in nature as one of the priorities. But tourist attraction and recreation objects are connected by the roads of different categories which are supposed to be representative of the country, promoting tourism and convenient for the users; the roadscape should be attractive and not boring. The main priority in the structure of transportation and communication infrastructure is given to the development of automobile transport. The master plans of Vilnius City (Vilniaus ... 2007), Kaunas County (Kauno ... 2009) and Klaipėda Region Municipality

(Klaipėdos ... 2005) provide for the new communication routes and building of the deficient junctions for motorways.

The problem: Nonexistence of landscape management strategy for the sideways and in the neighborhood of railway lines. A too complicated procedure of taking land for public purposes (e.g. for landscape management near the roads and railways) is applied.

The proposed amendments: Regarding the legal acts related to territorial planning, integration of landscape through master plans and taking of land for public purposes is proposed. The order of the Minister of the Environment of the Republic of Lithuania „On the approval of the rules for preparation of the master plan of the county’s territory, for the master plan of the Municipality territory and for the master plans of the cities and towns“ (Lietuvos ... 2004a) is proposed to be supplemented by the following proposals: to develop vegetation along the roads, to establish the newly designed vegetation zones on the roadsides, to mark not only planned, reserved and taken territories for the communication systems, but also for the related environment, on the drawings of the communication and engineering infrastructures. This proposal can also serve as the tool for placing responsibility for vegetation, so that the proposal is applied not only for the road manager, whose powers are limited by the traffic safety requirements and the lack of free land nearby the roads. These requirements can be also applied for the owners of logistics, commercial and other territories, whose plots border on the roadband, and whose development change the highway environment dramatically.

Even though according to the Lithuanian Law on Roads (Lietuvos ... 1995), vegetation is attributed to the „concept of the road“, it is a complicated task to take the land from the owners for the purpose of vegetation, because to this effect, the substantiation of taking of land must be provided (following the decision of the Government of Lithuania „On the submission of the request to take the land for public purposes and the rules of investigation of the request and the preparation of projects for taking the land for public purposes and the approval of the rules for its implementation“ (Lietuvos ... 2005b)). Therefore, there exists the possibility to propose the amendment of the Law on Land (Lietuvos ... 2004c), so that it can be applied to the design of landscape along the roads.

The order of the LR Communication Minister and LR Environment Minister „On the approval of the rules of preparation of special plans for means of communication“ (Lietuvos ... 2006a) is proposed to be supplemented by the requirement that in conducting the evaluation of the impact on the environment, special attention should be given to the impact of communication infrastructure on the environment, also, in the stage of the analysis of the current condition, visual resources of the roadside landscape should be evaluated and the possible utilization of these resources should be proposed; the proposals for roadscape management should be submitted at the implementation stage.

In preparing the detailed plans at the stage of the analysis of the present condition, visual quality of the landscape should be evaluated.

2.2. Legal acts related to the issues of environmental impact assessment

These legal acts clearly define the concept of landscape and its management for the purpose of economic activity, including building of the planned new roads, (Lietuvos ... 2005a), the scope of evaluation of the impact on the landscape, the impact reduction strategy in selecting the measures (Lietuvos ... 2006b), also, they provide for the ecological equilibrium of the landscape, landscape geocological equilibrium, protection of landscape diversity, its uniqueness and specific features; the legal acts also provide for the adaptation of the complexes of cultural landscape and its objects for exposure to the visitors (Lietuvos ... 2001a). They regulate public relations in the area of environment protection, set the main rights and responsibilities of legal and physical entities towards the preservation of biological diversity, ecosystems and landscape typical to the Lithuanian Republic, thus, ensuring healthy and clean environment, sustainable utilization of natural resources within the territorial waters, continental shelf and economic zones (Lietuvos ... 2011b).

The problem: Nonexistence of the roadscape assessment methodology; inadequate certainty of the qualification of the organizers of the EIA.

The proposed amendments: Presently, in accordance with the Law on the assessment of the planned economic activity on the environment (Lietuvos ... 2005a) the organizer of the EIA can be any specialist with a scientific degree, thus, all parts of the assessment of the effect on the environment can be prepared by a single specialist. Accordingly, the quality of the assessment of different parts is inadequate and the proposed protection measures often lack competence. Consequently, the proposal is to set detailed rules related to education and qualification requirements for the person, including the environment evaluator, in preparing each part of the EIA.

The order of the LR Environment Minister “On the approval of the preparation of provisions for the program and report of the assessment of the impact on the environment” (Lietuvos ... 2006b) delivers inadequate instructions on landscape assessment which have influence on differing and frequently incompetent assessment of the landscape. For this reason, there is a proposal to work out methodology in which detailed criteria requiring obligatory assessment are set. The following are the possible assessment criteria: vividness, integrity, diversity, naturalness, picturesqueness, infrequency, cultural changes, as well as relief, vegetation, water, colors, exceptionality, also, such features as recreational, historical, informative, scientific, geological, natural, cultural, ethnic or rich in biological diversity.

2.3. Legal acts related to road design

These legal acts give but a very general description of roundabouts and vegetation of the surroundings (Lietuvos ... 2012a). The VGTU Road Research Institute has prepared (not approved yet) a new road division study “The analysis of the purpose of the road network element and preparation of development plan” which identifies the roads recommended to be widened, unchanged or even nar-

rowed. “The rules for highways and motorways design” (RHMD 13) being prepared by the same author, are going to present the regulations of incorporation of roads in the landscape with regard to the relief, relation to the water pools, as well as other environmental aspects. Currently, Technical Regulation For Roads KTR 1.01:2008 (Lietuvos ... 2008c) describing roads and design materials, parameters (profiles, safety requirements, recommended distances for vegetation, etc.) is in force.

The problem: Insufficient regulation of landscape protection and management, insufficient amount of proposals for design including the design of roadscape and environmental measures, implementation and maintenance.

The proposed amendments: The first edition of RHMD 13 lacks environment evaluation and protection measures, including landscape protection, analysis of the procedures; therefore, there is a proposal to specify road evaluation procedures in regard of the classification and nature of construction works. In addition, there is a proposal for the Lithuanian Road Administration to supplement the existing recommendations for environmental protection measures with the new document “Landscape Protection and Management APR-KAT 13”. This document should specify detailed recommendations for road design. For this purpose the Design Manual for Roads and Bridges (Design ... 2001) issued by Highway Agency of Great Britain is recommended to use.

2.4. Legal acts related to road signs and proposals for the system of road information

The resolution of the Government of the Republic of Lithuania “On the approval of traffic rules regulations” (Lietuvos ... 2008e) lacks provisions on the information system for natural and cultural values.

The problem: The roadside information system lacks consistency, and in some places there is an insufficient number of road signs.

The proposed amendments: This legal act is to be supplemented by providing for the creation of new road signs to inform on the natural and cultural values within the territory of Lithuania. In addition, comprehensive amendment of the act providing for the reorganization of the roadside information system which would cover consistent development and adequate and sufficient location of road signs is necessary. Currently, the present information system is under study, therefore, new road signs have not been introduced and the issue has not been thoroughly analyzed yet.

2.5. The legal acts related to the regulation of the outside advertising

These legal acts do not sufficiently regulate the location, exterior and siting of advertising hoardings at the roadsides (Lietuvos ... 1992; Lietuvos ... 2000; Lietuvos ... 2001b).

The problem: Insufficient regulation of advertising hoardings at the roadsides.

The proposed amendments: Specific conditions for using land and forests (Lietuvos ... 1992) provide for prohibition of advertising hoarding solely in the road

protection zones, but their location outside the zones is not regulated (e.g. abundance of different advertising hoardings along the A1 road Vilnius-Kaunas). Consequently, there is a proposal to provide for higher requirements for visual quality of the landscape, leaving the existing road protection zones without introduction of any changes. Also, the proposal is to establish practical measures for regulating the installation of advertising hoardings in compliance with the amendments of the LR Law on Advertising (Lietuvos ... 2001b), since according to this law the permissions for the installation of the hoardings are issued by relevant municipalities which operate instruments for restrictions on the location and type of advertisements. There is a recommendation to change the provisions on visual pollution caused by advertising hoardings.

2.6. *Legal acts related to vegetation*

These legal acts provide for the responsibilities of the Communication Ministry and give definitions for vegetation and its management along the motorways (Lietuvos ... 2007). They set the requirements for vegetation along the roads in the territories of natural frame (Lietuvos ... 2010c) and describe cases when transplanting of trees and bushes to be protected is carried out (Lietuvos ... 2008a). Following the LR Government resolution "On the approval of the list of the criteria according to which trees and shrubs growing in the non-forest land are assigned to those to be protected and on the assignment of trees and shrubs to those to be protected" (Lietuvos ... 2008d), the road lane can be not nearer than 1 m from the side of the trench, padding or excavation (i.e. it can be farther away than 1 m), therefore, this lane area covers practically all roadside alleys, etc. The LR Communication Ministry's order "On the approval of the description of procedure for cutting and pruning of trees and shrubs growing along the roadside of the state motorways and in the protection zones of railways and their equipment, possibly causing danger for safe traffic" (Lietuvos ... 2008b) instructs that for cutting of trees and shrubs in the lanes of the road of state importance the permission is not required. It is in these places that the removal of vegetation along the roads of state or local importance is carried out to prevent obstruction. Point 33.3 of the order of the LR Environment Minister "On the approval of the regulation rules for keeping trees and shrubs, water pools in the vegetation zones, lawns and flowerbeds" limits the height of tree crowns, which causes problems for lorries, because they can damage them through breaking branches.

The problem: Some of legal acts protect trees, others issue permissions for cutting them down, which leads to the absence of regulation to secure trees and plants by means of speed limit or partitions in the most dangerous sections.

The proposed amendments: There is a proposal to supplement the LR Government's resolution "On the approval of the list of the criteria according to which trees and shrubs growing in the non-forest land are assigned to those to be protected and the assignment of trees and shrubs for those to be protected" (Lietuvos ... 2008d) in the following way: the alleys, according to regions, etc. are to be assigned to those to be protected by recommending to build partitions for road safety. Not all the alleys are to be

selected, but only those which are the most valuable and so far unprotected. The LR Communication Ministry's order "On the approval of the procedure of pruning and cutting of trees and shrubs growing along the roads of state importance and railways and their constructions in the protection zones which threaten traffic safety (Lietuvos ... 2008b)" should be basically amended due to the conflict described in Section 2. There is also a proposal to apply these requirements for the regional roads and roads of local importance. The LR Environment Minister's order "On the approval of the procedure of cutting, transplanting or other kind of removal of trees and bushes to be protected, of execution of and the issue of permissions for these works and compensation for the value of the removed trees and shrubs" (Lietuvos ... 2008a) is preliminarily proposed to be supplemented in the following way: if the trees to be cut down or transplanted are too big, it is appropriate to replant them by trees and shrubs of the same species of trees and shrubs. Replanting should be done with trees of the cross-section not smaller than 10 cm. The distance from the roadside and the way of replanting trees and shrubs should be predicted in advance (so that construction machines and mechanisms can move along without obstruction). However, there is one essential drawback of this proposal: if there emerges the need to take some private land for replanting vegetation, this will not be possible until the project of taking of land for public purposes is implemented. After taking the land, construction/ reconstruction works start immediately, and it is only after that the planting of trees is possible. From the order of the LR Environment Ministry "On the amendment of the approval of the provisions of the natural framework (carcass)" (Lietuvos ... 2010c) point 6.1., the word "sanitary" should be eliminated, because the road sanitary protection zones do not exist any longer. In addition, there is no recommendation to plant vegetation on the roadsides within the territory of natural carcass: if the speed is big, the zone of 3 – 15 meters at the minimum from the side of the road lane, according to the safety requirements, should be left free from vegetation. Besides, vegetation is not recommended along the local communication roads which are not long (up to 1 km) and are designed for taking agricultural machines to the field or back to the farm, i.e. in the open agricultural territories.

2.7. *Planning recommendations*

The Lithuanian Road Administration under the Ministry of Communication issued "Recommendations for Environmental Tools for Design, Implementation and Maintenance (Protection of Biological Diversity)" in 2010 (Lietuvos ... 2010a). This is one of a few documents describing some of the roadscape design aspects. The Recommendations describe the selection of the route and its longitudinal profile, the adaptation of bridges and viaducts for migration of wild animals and their adjustment to the landscape. The document gives a detailed description of the selection of landscape elements, their location with regard to the road or natural elements, their materials, color solutions, selection of type, parameters and materials of fences and enclosure borders, selection of double-leaf gates and horizontal barriers, installation of single-leaf gates and ramps, advantages and disadvantages.

“The Recommendations for Environmental Tools for Design, Implementation and Maintenance (Traffic Noise Reduction)” (Lietuvos ... 2010b) say that the measure for reduction of traffic – caused noise is selected on the base of several criteria, including aesthetics, in accordance with the criteria of landscape, public safety, etc. The selection of route and preparation of practical solutions for spatial design, selection of partitions and noise reduction installations to avoid negative visual effect on the landscape are thoroughly described. The proposals for installation of wooden, brick, concrete, metal, transparent and plastic noise gates in the urbanized, suburban, rural and out-of-town environment are submitted. A detailed description of the architectural design of noise gates is provided to harmonize the gate with the environment. To achieve the latter aim, it is recommended to follow two essential principles of aesthetic combination, i.e. stylistic integrity of the structure and the landscape. The recommendations for the construction of mounds relating them to the visual quality of the landscape, the principles of vegetation and its assortment of the roadside are provided.

3. Discussion

Lithuanian legal acts contain the following provision: the Council’s directives bind the Member States to carry out a comprehensive evaluation of direct or indirect impact on the landscape, however, concrete actions and methods are not specified, thus, regarding them the responsibility of the Member State in accordance with the legislation of that state.

It can be stated that road designing in the Lithuanian legal acts is carried out based on documents of territorial planning, environmental impact assessment and other environmental legal acts, legal acts of cultural heritage, also, on other specific road designing and planning legal acts where landscape is involved (relief, vegetation, etc.). However, these documents lack legal and practical compatibility between roadscape and traffic safety, e.g. cutting down of trees at the roadsides, which in some cases is necessary for the sake of safety, has a negative effect on the aesthetic quality of the landscape. The review of the relevant Lithuanian legal acts showed that legal acts regulating landscape protection, fail to ensure sustainable road development, therefore, an integrated publication to present the main principles of incorporation of roads into the landscape is necessary. The publications of this type (planning manuals, guidelines) are available in other foreign countries. Their experience can be a good example in developing landscape protection and management guidelines for Lithuanian roads.

None of all Lithuanian legal acts require mandatory evaluation of the aesthetic visual impact of the road on the environment. The analysis of the Lithuanian legal acts showed that:

- there is no strategy of road landscape management in Lithuania; the procedure of taking land for public needs (for landscape management near the roads) is complicated;
- the methodology for road landscape evaluation is non-existing, besides, the qualification of EIA developers is insufficient;

- the regulation of landscape protection and management is insufficient. In addition, there is a lack of proposals for design, realization and maintenance of highway landscape and environment implements;
- the integrated and comprehensive information system (signs) covering natural and cultural values, is nonexistent;
- there is a need for a more exacting regulation for building of advertising stands along the highways;
- there are contradictions between the existing legal acts: some acts are meant to protect trees, others issue permissions for cutting them near the roads, while the problem could be solved by limiting the speed or by railing off the most dangerous sections of the road, thus, saving the roadside vegetation.

4. Conclusions

The preliminary proposals submitted for improvement of the Lithuanian legislation can regulate roadscape design through master plans and taking of land for public purposes. The essential proposals are the following:

- to work out the road landscape evaluation methodology involving detailed criteria of the obligatory assessment of visual impact of the road on the environment. The qualification and education of the developer of each part of the EIA should be specifically regulated;
- a document with specified recommendations for the design of the Lithuanian road landscape should be prepared;
- in carrying out the evaluation of the effect on the environment, visual effect of the communication infrastructure on the environment should be taken into consideration, visual resources of the roadside landscape should be evaluated, the possibilities for utilization of these resources and detailed proposals for landscape management should be offered;
- it is necessary to analyze the existing system of road signs and, if necessary, it should be expanded to an integral and easily understood system with the information on the cultural values in Lithuania;
- the requirements for visual quality of the landscape should be provided, the provisions for the visual pollution caused by advertising billboards should be amended, the amendments of the LR Law on Advertising on the regulation of practical installation of advertising billboards should be provided;
- it is highly recommended to preserve the most valuable, though not assigned to the plants to be protected, alleys or their individual sections along the roads and to rail them off by protective walls; to submit grounded proposals for replanting with regard to traffic intensity, traveling speed and the significance of the road.

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Received 2013 07 13

Accepted after revision 2013 07 29

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