

The road landscape in Latvian laws and regulations

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Abstract. Aesthetic quality and scenic beauty of the road landscape depends on road designers, road managers and landowners of properties adjacent to roads. Their actions are defined and influenced by normative regulations and planning documents.

The aim of the study is to examine laws and regulations affecting road landscape development in Latvia, to analyse their impact on road landscape and to detect weaknesses of the present state. Results show that current legislative system does not ensure the development of road landscape.

Keywords: road landscape, scenic roads.

Introduction

The landscape is an important element in the road environment. Aesthetic road landscape is an essential part to ensure safe driving on the road [30, 22, 8]. Roads create impression about the country and scenic roads are particularly important to the tourism sector.

Aesthetic quality and scenic beauty of the road landscape depends on road designers, road managers and landowners of properties adjacent to roads. Their actions are defined and influenced by normative regulations, planning documents and development policies in different sectors.

The United States of America, Australia and some countries in Europe provide guidance on the planning, design, operation and maintenance of landscape infrastructure. National road authorities offer guides for the design and maintenance of road landscapes [7, 39, 36]. The National Spatial Planning Act of Denmark explicates the generic policy on panoramas and motorway zones to protect Dutch motorway panoramas [28].

In Soviet normative literature, landscape principles were first reflected in 1950. Design regulations were included in SNIP II-D.5-72 *Roads: Design regulations* as recommendations [5].

In 2007, Latvia ratified the European Landscape Convention agreeing to promote landscape protection, management and planning in natural, rural, urban and peri-urban areas, including landscapes that might be considered outstanding, as well as everyday or degraded landscapes. Law of the European Landscape Convention defines that it is necessary to integrate landscape in any policy with possible direct or indirect impact on landscape [10].

The aim of the study is to examine if and how much road landscape is reflected in laws of Latvia, to analyse the impact of different regulations on road landscape development. The main focus is set on the countryside and road landscapes outside the cities. The study consists of a review of design standards, laws and regulations. Laws, regulations of Cabinet of Ministers and standards influencing development and

management of the road landscape were examined. It was checked if actions influencing the road landscape and road landscape as a term are mentioned in the regulations. Analyses of the results of the restrictions were carried out.

The road landscape is divided in the landscape corridor adjacent to road and landscape of the road route. Road landscape in specially protected territories is analysed separately due to more strict restrictions.

Results show the place of road landscape in the current legislative system, and detect weaknesses of the present state. Research comparing laws and regulations regarding road landscape in neighbouring countries will be carried out.

Results and Discussion

Legislative enactments concerning the territories adjacent to roads

Transport infrastructure has been integrated in forestry, agriculture, and urban landscapes. In projects for Latvian motorways, the width of landscape corridors is considered 1–2 km on each side of the motorway centre [31]. Therefore, the road landscape includes different areas and is affected by the use, management and development of these territories, which, in turn, is subject to different regulatory documents.

The use and management of forest territories is determined by the Law on Forests [23], use and management of agricultural lands – the Law on Agriculture and Rural Development [15]. The development of territories involved in construction is governed by the Construction Law [6]. Actions involving land ownership are determined by the Land Survey Law [43], surface water and groundwater management issues are regulated by the Water Management Law [40], environment quality issues – by the Environmental Protection Law [41], conservation, management and monitoring of species and biotopes is governed by

the Law on the Conservation of Species and Biotopes [33], the use and management of landscape as a tourism resource is governed by the Tourism Law [38].

The above-mentioned laws govern the activities of the respective sector, which may also affect the landscape; however, road landscape is not separately mentioned in these laws.

The legal framework for various actions affecting the landscape is ensured by drawing up the development planning and obligatory rules for each territory regarding the procedure for the use and management of specific territories and objects. The Spatial Development Planning Law stipulates that thematic plans may be developed at all spatial development planning levels solving specific issues related to the development of separate sectors, including, transport infrastructure, or specific themes, for example, valuable landscape areas, according to the planning level [35]. A landscape plan may be developed as a thematic plan containing recommendations for further action. As regards to road landscapes, the landscape plan may establish publicly accessible viewing points and perspectives, scenic roads. However, no uniform criteria have been developed and established for the assessment of road landscapes and classification of scenic roads.

Road construction, reconstruction and maintenance

Construction of new roads, repairs and reconstruction of the existing roads leave an impact on the surrounding landscape. Design and construction of State motorways is carried out in accordance with the schemes for the development of the road network drafted and approved by the Ministry of Transport. Local government roads and streets within the populated areas are designed and maintained by local governments, whereas the household roads and merchant roads – by the road owners. Activities related to the construction of roads and engineering networks are governed by the Construction Law [6]. General Construction Regulations [42] and Motorway and Street Construction Regulations [4] stipulate the application of technical requirements of Latvian Standard and construction standards for drawing up of a road building design, for the correct procedure of the construction process and requirements for the specialists involved.

Road Design Regulations issued by the Latvian Standard govern the design activities in relation to new roads and roads to be reconstructed. Part 1 of the Road Design Regulations *Road Alignment* LVS 190-1:200 provides for the spatial planning of road alignment setting tasks for spatial planning of road and the surrounding landscape, according to which a road must be included in terrain landscape,

respecting nature and landscape protection requirements, as well as improvements made in road landscape and road area. The design provisions for the alignment plan refer to the need to perceive the alignment in relation to landscape structure and elements, as well as highlight the fact that road alignment may not be designed guided by a single-type scheme, since the spatial arrangement of a road depends on the structure of terrain landscape, particularly on the basic forms of relief. Road tracing and shaping the surroundings of a road is a creative task to be individually addressed [16].

By making changes in the relief, a driver has an opportunity to observe the surroundings from a higher or lower point of view, which requires assessing the sights being exposed or concealed.

Part 1 of Road Design Regulations *Standard Sections* LVS 190-2:2007 regulate construction of standard cross sections of roads, placement of the equipment, engineering and communication systems, greenery. New planting of trees and shrubs may not disturb road side visibility according to norms set in standards [17].

When carrying out construction or reconstruction of motorways, a motorway drainage system is also built altering natural water runoff, which may cause erosion and landslides of road slopes, embankment deformations, waterlogging of local terrain, thus affecting the surrounding landscape. Regulations Regarding Latvian Construction Standard LBN 223– 99 *External Networks and Structures of Drainage* contain requirements to ensure the functionality of drainage systems and environmental protection [25].

Lines of rain water drainage ditches along the road are planned in a complex together with the road design. Parameters of transverse profiles (depth, width) are set by hydraulic calculations. Slopes are designed considering engineering, geological and hydrological parameters of the area [26].

Rain water drainage ditches and storage voids can be designed, so that they could perform the functions of biotopes and be integrated into the surrounding landscape. In some sources, these issues have been examined only as recommendations [13], but not included in binding legislative documents.

The visibility and aesthetic quality of landscape may be affected by special constructions built in the protection zone of motorways under the Environmental Protection Law on motorways, so that the impact of exhaust gases, noise from vehicles and other harmful factors on the environment would comply with sanitary norms [18].

Much attention is paid to safety in both design and reconstruction of roads. Latvian national standard specifies the visibility standards which also affect road landscape. Visibility is one of the indicators of landscape aesthetic quality.

TABLE 1
Minimum width of zones of a section from the centre of
the motorway to each side [18]

Width, m	Type of motorway
25	for a dual carriageway motorway with a dividing lane up to 10 meters
15.5	for a single carriageway motorway with roadbed width from 12.5 meters to 20 meters
13.5	for a single carriageway motorway with roadbed width from 10.5 meters to 12 meters
11	for a single carriageway motorway with roadbed width from 8.5 meters to 10 meters
9.5	for a single carriageway motorway with roadbed width up to 8 meters

The potential distractions, such as, anti-noise fences and walls, must be placed to ensure the required visibility triangles. Rows of trees, as well as individual trees and shrubs may be left in the visibility triangle, if they only slightly reduce the visibility and serve as a visual orientation system for traffic management or building of the driving area [16].

For safety reasons, winding road alignments are straightened in dangerous sections, when carrying out road reconstruction work. Straightening of road, as well as felling of trees on the roadside aimed at providing higher road safety significantly affects the quality of road landscape. As a result of road reconstruction for safety reasons, tree alleys growing too close to the road may be cut down. No fixed barriers may be located in the free-space (free space consists of traffic space (carriageways, side lanes, chutes) and safety space on sides / top) area of a road, and relief conditions must be assessed at each point of the particular road (large variations in the relief), and tree species must be assessed (for example, oaks may not be located close to the road due to their roots). 60 alleys included in the list of protected alleys are currently under protection [24].

For construction, maintenance and protection of motorways, the law on motorways stipulates the establishment of zones of a land section along the state, local government and merchant motorways [18].

Road Design Regulations define specific actions and conditions for using the zone of the road land section.

According to the Protection Zone Law, it is prohibited to grow forests in the zone of the road land section. This provision may slightly improve the visibility of the landscape and, consequently, the aesthetic quality of the landscape.

In order to reduce the negative impact of motorways on the environment, as well as to create a building-free zone required for reconstruction of streets and motorways,

the Protection Zone Law stipulates establishment of protection zones along roads [2].

The width of protection zones in rural areas:

- along major State motorways – 100 meters from the centre of the road to each side,
- 1st grade State (regional) motorways – 60 meters,
- 2nd grade State and local government motorways – 30 meters.

The protection zone lands of motorways remain available for land users and they must be properly maintained by the owner of the land. General restrictions in protection zones are determined by laws and Cabinet regulations, they may also be prescribed by the binding rules of the local governments. Without the consent of the owner of the motorway, the land owner or user is prohibited to plant trees and shrubs, fell trees in the protection zone of the motorway. If it is necessary to reduce the impact of exhaust gases, noise from vehicles and other harmful factors on the environment and people, special constructions are built or rows of trees and shrubs (hedges) are planted in the protection zones of the motorway [3].

In order to ensure visibility of a motorway and traffic safety for vehicles, according to restrictions in protection zones along motorways, it is prohibited to fell trees in the zone of 30 metres from the centre of the State motorway to each side without a written agreement from the State Joint Stock Company *Latvian State Roads* for the felling of trees [2].

Restrictions in relation to planting and felling of trees in road protection zones affect the formation of road landscape area.

According to the Law on Environmental Impact Assessment, the motorways and express roads to be built require to assess the effect of the proposed activities on the environment, if the section of constructed, realigned and/or widened motorway is 10 or more kilometres long. When carrying out this assessment, it is necessary to characterise the location of the intended activity and the geographical properties of such location. These factors include landscapes of historical, archaeological and cultural and historical significance [16]. This Law does not include the remaining landscapes, as well as landscape values are not always adequately respected, while reconstructing or repairing shorter road sections.

The quality of road landscape is affected by information objects located along motorways. The placement of promotional objects and information objects along roads is governed by Cabinet regulations [26]. They mostly emphasize the safety of drivers. With regard to the visual pollution of the landscape, it is positive that attention is paid to the minimum distance between promotional objects and the number of information objects.

There are many different normative documents in Latvia each of them regulating different area – design, construction and maintenance of roads, ditches, communications and others, but links between those documents are missing. In the reality situations when one regulation is against the other can occur. For example regulation on Melioration systems and hydrotechnical buildings clearly define that trees and shrubs may not grow in ditches. It is not clear what to do in situations when lines of designed rain water ditches are very close to large trees. Should the trees be cut in all cases?

The impact of road maintenance requirements on the landscape

The routine maintenance of State roads is provided by SJSC *Latvian State Roads*, and in case of local government roads – by the local government concerned. The routine maintenance of motorways is carried out according to the Regulations on the Routine Requirements for Maintenance of the State and Local Government Motorways and the Procedures for the Control of the Fulfilment thereof according to the Road Maintenance Class [27]. The law on motorways provides for the use, management and protection of landscape elements within the complex of a motorway – bus stops and pavilions, car parks, parking areas, recreation areas, snow protection fences and greeneries [18].

The landscape quality is affected by motorway maintenance works, such as liquidation of washouts; ditch cleaning and reconstruction of their profile, shoulder grading, profiling and repairs; cutting of shrubs in ditches, slopes and motorway lanes, cutting of shrub sprouts; mowing; greenery cultivation; adding greenery and snow-protective plantings; hedge trimming; cutting of dead branches; clearing individual trees. The requirements approved by the Cabinet of Ministers regarding the maintenance of State and local government motorways are listed in Table 2 and road maintenance classes are presented in Tables 3, 4.

Negative assessment may be given to the lack of requirements regarding mowing of shrubs within the range of motorway roadbed, regarding the repairs of the damaged equipment in recreational areas on class C and D roads and regarding mowing on class D roads. The requirements approved by the Cabinet of Ministers for maintenance of the State and local government motorways do not provide a high level of aesthetic quality of road landscape.

Road landscape in specially protected territories

In territories with a special status, road landscape is subject to requirements raised by the provisions of the special status and, therefore, is more protected from changes than landscape in other territories. Road landscape is affected by the Law On Specially Protected Nature Territories [20]. Here are some of

the regulations issued by the specific territories, for example, Gauja National Park Law, Kemeru National Park Law, Razna National Park Law, Slitere National Park Law, Grini Nature Reserve Law, Teici Nature Reserve Law, Law On the North Vidzeme Biosphere Reserve and individual protection and exploitation regulations of national parks.

In the landscape protection zone of Gauja National Park and North Vidzeme Biosphere Reserve along the motorways (if the adjacent territory is defined as a valuable landscape area in the territory plan of the local government), restrictions exist in respect to forestry activities affecting the conservation of landscape quality and nature. A forest stand adjacent to clear felling may not be felled earlier than 10 years after a clear felling in coniferous tree stands and five years after a clear felling in deciduous tree stands, if the area of the clear felling has been recognised as being regenerated and the average height of the coniferous trees of the regenerated forest stand trees is one or more metres, but for deciduous trees – two and more metres [11, 44].

In the entire territory of Gauja and Kemeru National Park and in the territory of the protected landscape area *Northern Gauja*, the State motorways within the width of the zone of their section are defined as the neutral zone, where the main restrictions apply to forest management and clear fellings [11, 14, 1].

In the protected landscape area *Northern Gauja*, there are some protected alleys not included in Cabinet Regulations on the Protected Alleys. In the protected landscape area, it is prohibited to fell trees of alleys mentioned in individual protection and exploitation regulations, except for the dangerous trees threatening human life and health, the nearby buildings or infrastructure facilities.

In the entire territory of the protected landscape area, except for the neutral zone, it is prohibited to perform road construction or road reconstruction. It is allowed to perform construction or reconstruction of household roads, reconstruction of State and local government motorways within the width of the existing road alignment, construction or reconstruction of merchant roads in the road alignment reaching 10–12 meters in width, in the road alignment reaching 20 meters in width or within the width of the existing road alignment. During road construction, reconstruction or periodic maintenance, it is prohibited to alter the natural relief surface of inland dunes by more than 1 meter, thus ensuring the protection of the road landscape [1].

When performing road reconstruction in the landscape protection zone of North Vidzeme Biosphere Reserve, it is prohibited to change the

TABLE 2

Requirements regarding the maintenance of State and local government motorways [27]

No.	Requirements	Maintenance class			
		A	B	C	D
		Acceptable parameters			
1.	No washouts or landslides are permitted within the range of motorway roadbed. Deficiencies found must be eliminated;	yes	yes	yes	yes
	Washouts and landslides deeper than 50 cm must be filled up or filled in;	within 1 week	within 2 weeks	within 1 month	within 6 weeks
2.	Long-term accumulation of water of more than 20 cm under the motorway surface structure is not permitted in the side ditches of motorways. Deficiencies found must be eliminated;	yes	yes	yes	yes
	Side ditches must be cleaned from blockages;	within 1 week	within 2 weeks	within 1 month	within 2 months
3.	Shrubs growing within the range of motorway roadbed must be cut off;	once a year	once a year	no requirements	no requirements
4.	The visibility of motorways, road signs or intersections stipulated in legislative enactments is ensured by cutting down the troublesome shrubs or tree branches. Deficiencies found must be eliminated;	within 3 days	within 1 week	within 1 month	within 1.5 months
5.	Grass growing on the motorway shoulder and the adjacent slope within the width of 1.0–1.5 m, as well as on the dividing lane, which is narrower than 12 m, must be mowed during the vegetation period;	2 times	1 time	1 time	no requirements
6.	No broken or damaged equipment is permitted in recreational areas. The equipment damaged must be repaired or removed;	within 2 weeks	within 1 month	–	–
7.	In recreational areas, stairways must have secured railings. Steps must be durable and without damages. If deficiencies have been detected, warning signs must be immediately affixed and the stairway must be marked off;	yes	yes	–	–
	Defective elements must be replaced;	within 2 weeks	within 1 month		

TABLE 3

Maintenance classes for State motorways [27]

The average vehicle traffic intensity (number of vehicles per day)	Main motorways	Regional motorways	Local motorways
more than 5000	A	A	–
from 1000 to 5000	A1	A1	A1
from 500 to 999	A1	B	B
from 100 to 499	–	C	C
less than 100	–	–	D

TABLE 4

Maintenance classes for local government motorways [27]

The average vehicle traffic intensity (number of vehicles per day)	Local government motorways
more than 5000	A
from 1000 to 5000	A1
from 500 to 999	B
from 100 to 499	C
less than 100	D

location of the alignment of a scenic road (if such have been prescribed in the spatial planning of the local government) without a written consent from the Nature Protection Board [44].

In Teici Nature Reserve, the protection of aesthetically significant landscape elements is ensured in the outer protection zone of the Reserve. The outer border of the protection zone runs along the edge of the zone of the land section of several motorways (E22–A12 Jekabpils – border of Russia P62 Kraslava – Madona, P82 Jaunkalsnava – Lubana and P84 Madona – Varaklani) [34].

Conclusions

Road design standards define requirements for landscape elements located within the road alignment. Attention is paid to drivers' safety, environmental protection; however, the aesthetic quality of the landscape is poorly reflected in legislation and standards. Landscape quality requirements are not always clearly defined. Consequently, the road designers and project assessors perform the tasks related to landscape based on their understanding of the protection and improvement of landscape.

In areas further away from the road, the quality of landscape and landscape elements depends on the type of use and status of the area. Legislation includes excerpts of factors affecting the quality of landscape, for example, the Law On Environmental Impact Assessment mentions landscapes of historical, archaeological and cultural and historical significance; however, considering the law of the European Landscape Convention, attention should be paid to both landscapes which can be regarded as outstanding and everyday or degraded landscapes.

The possibility to include thematic landscape plans identifying scenic roads, publicly accessible viewing points and perspectives in spatial planning can be regarded as positive, but there is a lack of uniform criteria for the assessment and classification of road landscapes.

Legislative documents relating to roads and adjacent territories pay little attention to landscape.

Landscaping of the road in Latvia lacks common policies and methodological recommendations for the assessment, maintenance and further development.

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Kopsavilkums. Ainava ir neatņemama ceļa sastāvdaļa un estētiskai ceļa ainavai ir būtiska loma drošu braukšanas apstākļu veicināšanai. Skati, ko vērojam no ceļa rada priekšstatu par valsti kopumā un ir nozīmīgi tūrisma sektora attīstībai. Ceļa ainavas estētiskā kvalitāte ir atkarīga no ceļu projektētājiem, apsaimniekotājiem un ceļam piegulošo teritoriju īpašniekiem. Viņu rīcību savukārt nosaka un ietekmē plānošanas dokumenti, likumi un citi normatīvie dokumenti. Pētījuma mērķis noskaidrot, vai, un cik lielā mērā ceļa ainava ir atspoguļota Latvijas likumdošanā, analizēt dažādu normatīvo dokumentu ietekmi uz ceļa ainavas attīstību. Uzmanība fokusēta uz teritorijām ārpus pilsētām.

Pētījums sastāv no normatīvo dokumentu apskata un analīzes. Tika apskatīti likumi, Ministru kabineta noteikumi un standarti, kas ietekmē ceļa ainavas attīstību un apsaimniekošanu. Tika pārbaudīts vai ceļa ainava normatīvajos dokumentos ir pieminēta un analizēta noteikto ierobežojumu un noteikumu ietekme. Ceļa ainava apskatīta, izdalot ceļam piegulošo teritoriju ainavu un ceļa trases ainavu. Atsevišķi izdalīta ceļa ainava īpaši aizsargājamās teritorijās, kur ir noteikti stingrāki ierobežojumi.

Rezultāti liecina, ka pašreizējā likumdošanas sistēma nenodrošina estētiski kvalitatīvas ceļa ainavas attīstību. Normatīvajos dokumentos, kas attiecas uz ceļiem un to piegulošajām teritorijām, ainavām ir pievērsta maza uzmanība. Ceļu projektēšanas standarti nosaka prasības ceļa trasē ietilpstošajiem ainavas elementiem. Tiek pievērsta uzmanība autobraucēju drošībai, apkārtējās vides aizsardzībai, bet likumdošanā un standartos maz atspoguļotas ainavas estētiskās kvalitāte. Ainavas kvalitātes prasības ne vienmēr ir skaidri definētas. Līdz ar to ceļu projektētāji un projektu novērtētāji ar ainavām saistītos uzdevumus veic saskaņā ar savu izpratni par ainavu aizsardzību un uzlabošanu. Ceļa ainavas veidošanai Latvijā trūkst vienota politika un metodiski ieteikumi vērtēšanai, uzturēšanai un tālākai attīstībai.