

DEVELOPMENT OF LATVIAN AUTO ROADS AND ADMINISTRATIVE SYSTEM IMPROVEMENT

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Abstract

Auto road sector in national economy, is a sector development of which, with appropriate funding, creates basis for other sector development and facilitates competitiveness of country in international market. The goal of auto road sector is auto road network maintenance and development, in order to contribute to the development of the whole country, increase of standards of living of inhabitants, as well as facilitate compliance of Latvian auto roads with the European Union requirements for auto road network. Effective resource utilization and investment attraction to auto road sector is determinant for favorable conditions to overcome economic crisis, structural changes in national economy, regional development and technical progress implementation, which, subsequently, are basis for stable growth of economy. Development and construction of international and national roads is strategically important for further country's economic development, as well as for the European Union regulation and standard fulfillment. In order to achieve positive progress in Latvian auto road development, it is important to assign existing funds, as well as try to find opportunity to increase financing for roads in Latvia. It is necessary to elaborate effective method in order to be able to assign funds appropriately for prioritized projects for them to create reflective return in the development of national economy of Latvia. Solution for this problem is scientifically grounded, well considered auto road construction resource appraisal and assigning method elaboration. Traffic intensity on Latvian roads has considerably increased during the past few years – motor road traffic has increased at least two times. Roads are very overloaded. Demand on use of the transport infrastructure is still increasing. This growth is due to both increasing of number of registered vehicles and the fact that there increases the number of inhabitants of Latvia which live outside Riga but work in Riga. During the past ten years quality of the Latvian auto roads has considerably deteriorated. Due to shortage of financing and increase of the traffic intensity auto roads in Latvia are worn out, coverings has become uneven and there have developed grooves and holes. Shortage of money has forced the owner of roads to set a decreased maintenance standard. Driving by bad roads increases possibilities of accidents on roads and the costs of users and speeds up the wear of vehicles and results in more frequent repairs. Taking into account bad technical condition of Latvian roads, which is deteriorating from year to year due to lack of funding is necessary to significantly improve the situation, which could be achieved by increasing funding for road management, maintenance and restoration. Now Latvian road network condition is critical. As several years for state road maintenance and restoration are not allocated sufficient resources, road pavement condition in many country roads is not satisfactory, and even in some parts is needed emergency reconstruction. Road funding model over the past 15 years has changed several times. Over the last couple of years, it was succeeded to improve the financing model, which along with beginning of economic crisis was destroyed, now the road funding level has fallen back for 5 years.

Keywords: auto roads, auto road funding, resource assignment methodology.

Introduction

Novelty. Analyzed impact of quality of resources available in Latvia on road surfacing quality and construction costs and elaborated road maintenance, quality improvement and development financing assignment methodology.

Aim

The aim is, exploring auto road development problems, reveal positive aspects and drawbacks in road maintenance and development resource assignment system as well as elaborate proposals for auto road resource utilization system in Latvia.

Tasks

- Reveal factors delaying road development in Latvia;
- Elaborate Latvia's auto road development resource assignment methodology;
- Summarize the elaborated conclusions and proposals;

Object: Development of roads of Latvia.

Research methods In order to achieve the aim of the paper and fulfill the set tasks, the Author in analysis has used the following research methods: logical-constructive method, monographic method, situation analysis method and graphical method.

Current difficult economic situation not only in Latvia, but also in the rest of the world, have negative impact on real economy, which can be seen in consumption, sales and production decrease, real estate market corrections and other. This situation has directly and severely impacted the economy of Latvia.

The existing financial and economic crisis in Latvia has caused large burden on the state budget- rapid budget income decrease forces to revise budget expenditures as rapidly as incomes decrease, making emphasis not only on proportional expenditure cut on accounts, but also revising budget expenditure making principles and financing structure of public sector functions. Public and private partnership in this

situation is the most effective instrument in order to improve national economy of Latvia. In limited public sector financing situation it can give long lasting and important contribution to revitalization process of Latvian economy, ensuring private sector funding for public sector infrastructure and service projects, decreasing tension in the society, as well as maintaining and creating new work places. As a result it leads to tax incomes in the state budget.

In many European Union countries governments are working towards economy stimulation measures. These measures almost always include significant investments in infrastructure, starting new construction projects, in order to facilitate employment and maintain economic activity as high as possible. Other European Union countries as one of the main exits from economic crisis consider direct support of infrastructure projects [2;16;19].

The faster the economy diminishes; the grater government activity in construction field should take place. In Russian Federation one of the main government priorities are construction. Construction volume increase facilitates development of other sectors- construction material production, increase in transportation etc. France, USA, the Great Britain and Germany have chosen construction as one of the most important areas to be supported. It is assumed that one employee working in construction site provides job for three to four additional workers in related industries. Latvia should also follow his trend. Construction sector direct impact on other sectors is approximately 683 million LVL added value per year. Gross domestic product should increase by 3 % for people to get financial resources and stimulate construction sector[11].

It is necessary to justify how important is to maintain and develop auto roads and how much is dependent on the overall condition of roads. New methods for rational resource assignment have to be elaborated. The Author has developed recourse assignment scheme in auto road field which could improve overall situation in the auto road field and develop it.

The Author in the Latvian road development resource assignment scheme has depicted system how auto road user, paying for infrastructure accessibility, receives well developed auto road network. In single scheme the Author has depicted all resource circulation, showing new finance acquisition methods for Latvian auto road development and maintenance model.

Primary factor in this scheme is road user who, in unusual way- by levies and taxes, is paying money into the state budget which eventually reaches auto road maintenance providers and developers. In Latvia toll roads are not allowed by law thereby road user can not pay directly for road accessibility, but indirectly it is happening in daily life by performing motor vehicle technical maintenances and paying vehicle tax or buying fuel for your vehicle.

The Author is of the opinion that it is necessary to restore the State Auto Road Fund. At this moment it is the state budget subprogram which is subject to general financial resource cuts during the economic crisis.

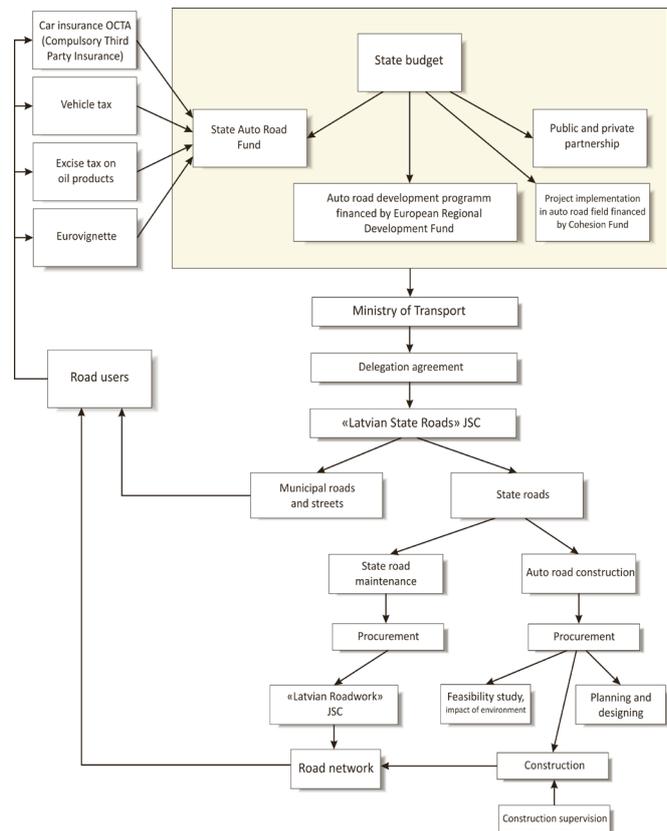


Figure 1. Latvian auto road development resource assignment scheme

The Author in her scheme has mentioned four income sources for the State Auto Road Fund, paid by user:

1. Vehicle tax - 100%
2. Excise tax on fuel - 100%
3. Eurovignette - 100%
4. Vehicle insurance OCTA (Compulsory Third Party Insurance) - 5%
5. Vehicle tax contributes in average 26 million LVL incomes per year. This sum is included in the state budget, but the Author considers that this sum should go into the State Auto Road Fund. Thereby this money would go for auto road financing in 100% amount and could be used for auto road maintenance and development. According to law "Law on vehicle exploitation tax and enterprise car tax"[10] tax each year has to be paid by all natural and legal persons, who owns or holds or will register vehicle in Latvia or to whom transit number plates are assigned. Taxes for each in Latvia registered or to be firstly registered vehicle have to be paid once a year irrespective of how many times per year for particular vehicle state technical inspection or registration is performed. The vehicle annual duty aim is to serve as a financial basis for state auto roads and municipal auto roads. The tax is levied as stated by the law and it is included in the state budget main income.

Table 1

Scheduled Latvian Road Financing 2012.th-2015., milj.LVL [The autor developed]

	The autor's forecast			
	2012	2013	2014	2015
1. State Auto Road Fund income	191	215	244.2	250
1.1. Vehicle tax (100%)	32	32	33	34
1.2. Excise tax on fuel	159	177	190	194
	90%	95%	100%	100%
1.3. Eurovignete (100%)	0	0	15	15.5
1.4. Vehicle insurance OCTA (Compulsory Third Party Insurance (5%))	0	6	6.2	6.5
2. State Auto Road Fund expenditure	191	215	244.2	250
2.2. Local Government Road Funding (30%)	57.3	64.5	73.26	75
2.3. State road funding (70%)	133.7	150.5	170.94	175

Fuel excise tax constitutes in average 270 million LVL per year. This sum also is included in the state budget. The Author holds a view that this would be a reasoned state auto roads base model. 2010 was the last year when by the law percentage proportion from fuel excise tax which should be conveyed for auto road development was stipulated and it was 80%. Nevertheless they were not taken into account by the Cabinet of Ministers preparing state budget and planning funds for auto roads. At the same time "Latvian Railways" JSC is willing to achieve that 5% (approximately 18 million LVL) from this tax is invested in railway development, because state is not financing railway infrastructure. The Author is against such tax proportion assignment to railway infrastructure. Infrastructure user using railway services for passenger or cargo transportation is paying for the services, but using auto roads nobody is paying direct exploitation payment. "Latvian Railways" JSC is profitable company, but "Latvian State Roads" JSC is not earning and is living only on funds assigned by the state budget. Therefore the Author is of the opinion that fuel excise tax in 100% should be conveyed to the State Auto Road Fund.

Eurovignette introduction in Latvia is postponed till 2014. This road toll is stipulated only for cargo consignments which are performed in territory of the Republic Latvia. Eurovignette is effective first united road toll collection system not only in Europe, but in the rest of the world. It is created on the basis of paper vignette. The activity of the Eurovignette is based on electronically stored usage rights therefore documents in paper form are not necessary any more. The main Eurovignette introduction goal is improvement of transit road condition. It is stored in electronic data record form, using state assigned numbers. Buying electronic Eurovignette the only information provided by vehicle driver is vehicle registration number, necessary usage period/region, number of axis, and emission category. [18] Domestically or in other countries registered

motor vehicles with total mass over 12 tons, which will be using trunk auto roads of Latvia, are liable to the Eurovignette payment. The Author regards that acquired funds would be necessary to convey for trunk auto road reconstruction and maintenance. The planned Eurovignette payment incomes from road toll per year could be within 15 million LVL

Positive is fact that the road toll will be applied to the foreign motor vehicles, because they are crossing territory of Latvia with large full mass, increasing the load on Latvian auto roads. Mainly these cars are crossing territory of Latvia not buying fuel, because it is more expensive, as well as are not using other goods and services in our country.

The Ministry of Transport is working towards Eurovignette introduction in Latvia. Amendments in the law "On auto roads" [9] as well as new law "Auto road usage law" [8] has been adopted. It was planned to enact the Eurovignette on summer 2009 but auto carriers succeeded to persuade government of Latvia to postpone it, because large part of auto carrier enterprises are struggling for solvency and they do not have funds for the Eurovignette payment. Now it is planned that it will be introduced on January 1, 2014.

The Author is of the opinion that now it is not appropriate time for new toll introduction in Latvia. Transport conveyers have to work on cost optimization, due decrease in cargo volumes and severe competition. Also for new toll implementation additional budget funds will be needed which could be more useful in improving competitiveness of enterprises.

Along the other Eurovignette implementation gaps could be named high implementation and administration costs. The implementation of Eurovignette forms additional taxation system which duplicates, for instance, annual motor vehicle duty system, but annual motor vehicle duty to Latvia is paid only by motor vehicles registered in Latvia, at the same time Eurovignette is directed towards transit transportation by roads. For trucks crossing Latvia only in transit, national economy of Latvia is not receiving any money and is suffering losses from these transit trucks, because road surface is damaged and our nature is polluted with emissions and waste.

The main direction to be developed in auto road field is East- West route and its condition is of great importance, because this is the main transit road of Latvia, connecting three largest ports of Latvia: Riga, Ventspils and Liepaja with Russian Federation border and this route is the most loaded route and contributes to economy of Latvia largest added value. Transport and communications sector can effectively contribute to fast recovery of the economy in short time period. Even at present transport and communications contributes approximately 10 % to GDP of Latvia. [3] The role of transport is very essential in every country's national economy. For Latvia this aspect is very important taking into consideration that Latvia is positioned as attractive for transit and logistic services. The gross domestic product of Latvia in real prices in 2008 was 16 243.2 million LVL, from which transport, storage and communications contributed 1567.7 million LVL, in sector structure constituting 10.8 %. But in 2009 GDP in real prices decreased till 13082.8 million LVL, from which – transport, storage and communications contributed 1341.9 million LVL, in sector structure constituting 11.4%. Transit cargo transportation and handling in ports constituted 614.89 million LVL, which is approximately 1/3 from total service

export. Total service export in Latvia in 2009 was 1937.3 million LVL [4].

The Author considers that in current economic situation it is necessary to facilitate transit flow through Latvia as much as possible. In order to ensure such flow, two inputs are necessary: cargoes which analyzing the world cargo fluctuation tendencies will increase, and appropriate infrastructure that has to be developed for main transit corridors to be able to compete in the world market. Transit, transport and logistics issue are one of the most important in development of the national economy of Latvia. Transit services are one of the most important export services. The ports of Latvia provide an opportunity for Latvia to strengthen as one of the most important logistics centre among the European Union, CIS and Asian markets.

Thereby it is necessary:

1. Develop several lane motor highway system, which would ensure cargo deliveries from ports to West-East and North-South directions;
2. Develop federal road direct connection with port access roads, which would allow to perform large volume cargo flow transportation from ports of Latvia without adding additional load on city traffic;
3. Develop bypass around largest cities of Latvia, in the first place around Riga;
4. Construction of new bridges over the Daugava river (near Saulkalne and in Jekabpils);
5. Modernize border zone roads and develop truck parking lot near important border point entries, which would allow to decrease idle time on the border and would facilitate resolving existing environmental problems;
6. Road toll (Eurovignette) introduction on the state trunk auto roads;
7. Wide public and private partnership model application in auto road construction, which would ensure realization of most important transit projects in due time.

Main problems:

1. Road surface construction is designed according to truck 10 ton axis load, which does not corresponds with the requirements of the EU directive 96/53/EEC (allowed load should be 11.5 tons).
2. Increasing loads and transit traffic intensity leads to situation when load carrying capacity of bridges does not corresponds to real loads which exceed the load requirements applied previously.
3. Nonsufficient number of crossings and connections with 2 level layouts.
4. Single level crossings are settled incompletely – mainly there is lack of additional lanes and not in all places visibility complies with requirements.
5. In auto road (street) lanes (particularly in cities and populated places) not in all places pedestrian and cyclist traffic safety is ensured. There is lack of pavement, cycling lanes and pedestrian crossings.

6. Auto roads mainly are with 2 lanes, with road width of 7,0-7,5 m and roadbed of 12-15 m. Allowed driving speed in single lane roads are till 90 km/h, but in sections passing through cities and populated places- 50-70 km/h.

As additional fund source, the Author proposes to involve insurance system, drawing in the Compulsory Third Party Insurance system. Insurance companies would be even interested in more safe traffic on the motorways and in less traffic accidents. Each motor vehicle owner each year performs compulsory third party insurance. Each month insurance companies would transfer ~ 5 % from collected compulsory third party insurance premium into the State Auto Road Fund.

The state budget would not be able to solve all auto road field problems that are accrued over tens of years. The renewal plan of Latvian auto roads foresees along with the financing from the state budget to attract European and private funds for the auto road field. Within this planning period till 2013 it is planned to involve 300 million LVL- from the European Union Cohesion fund.

It is important to implement public and private partnership model in Latvia, acquiring 650 million LVL. Implementing public and private partnership principle it is planned to construct first five motor highways in Latvia where the maximal allowed driving speed would be 130 km/h.

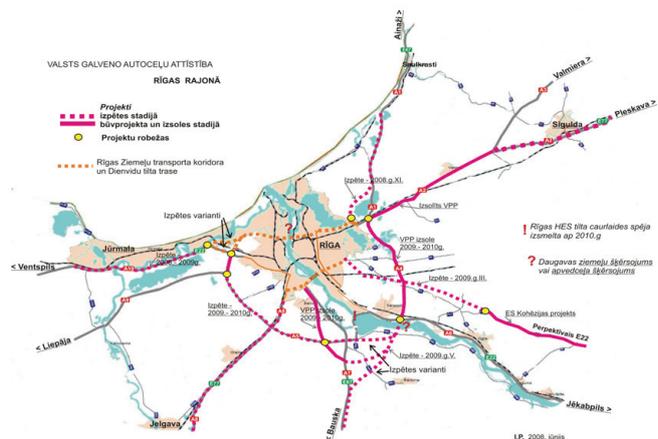


Figure 2. Motor highway/ high-speed road development plan in Latvia [7]

In Latvia there are no such motor highways. It is planned that motor highways will be developed on the following road sections: Riga – Sigulda, Riga – Kekava, Riga – Jelgava, Priedaine – Sloka, Baltezers – Saulkalne. At present there are discussions taking place on the implementation of the Riga – Koknese – Jekabpils project. Till 2025 it is planned to construct new motor highways and high speed roads on the sections of Riga – Ventspils, Riga – Liepāja, Riga – Rezekne, Riga - Valmiera, Riga – Cesis auto roads and on the road that leads to the border with Lithuania. [14]

According to the opinion of the Author, in order to ensure good driving conditions for drivers, the following tasks should be stated as prior in the auto road field management:

1. The role of the road users have to be increased in the adoption of the political decisions favorable for auto road development;

2. New methods and modern equipment have to be introduced which would highlight the priorities and would decrease the gap between technical decision and political decision adoption;
3. Road administrations have to improve road budget justification methods for politicians to be timely prepared to adopt decisions necessary for auto road maintenances.

It is necessary to develop auto road databases and management systems, because only using them it is possible to evaluate where the money has to be invested in road periodic maintenance, reconstruction as well as construction works. The prior task has to be transit road network financing. At present auto road inspection is performed using visual assessment method and there are no elaborated criteria how this visual assessment should be performed, therefore this data very often is not objective.

As economic downturn is continuing and more powerful activities to overcome crisis are introduced, which become apparent as significant budget cuts and other financial restrictions, "Latvian State Roads" JSC and Ministry of Transport have to make their further policy, taking into account that internal and external risk factor influence can increase. Decrease of financial resources will negatively affect commercial activity of "Latvian State Roads" JSC. Expected auto road budget cuts will continue to impact work results in auto road network- technical condition maintenance and ensuring safe traffic, everyday maintenance level and management. The state auto road network has suffered from insufficient financing for almost two decades. It is expected that existing situation will maintain or become worse – necessary funds needed for auto road periodic maintenance and reconstruction will be not assigned timely and in required level. It is necessary to achieve that with available financing urgent activities are performed which would ensure as high as possible prerequisites for auto road development.

In order to ensure state road network operational capability in future it is necessary:

1. Specify priorities and adjust state auto road work programs according to budget amendments;
2. In auto road everyday maintenance area identify works that could be postponed and prepare recommendations on auto road list for which maintenance level could be decreased.
3. For road construction program management and decreasing costs continue improvement of government procurement procedures, as well as improvement of technical solutions and specifications, in order to facilitate usage of local construction materials in auto road construction.
4. Facilitate the EU Cohesion and ERAF fund co financed program implementation in planned volume and pay larger attention on land expropriation for construction needs.
5. Promote implementation of the state and public partnership project – auto road A1 section Riga bypass – Senite and state trunk road surface renewal and maintenance.

Conclusions

1. The main reasons for bad condition of auto road network in Latvia are insufficient financing for auto road surface and bridge upper construction timely restoration; increasing intensity and heavyweight motor vehicle proportion accelerates auto road breakdown.
2. Developed scheme, where all finance resource turnover is depicted, showing new finance obtaining ways and introducing Latvian auto road maintenance and development model.
3. It is important to introduce public and private partnership model. Implementing state and private partnership principle, the first five motor highways in Latvia are planned to build, where the maximal allowed speed would be 130 km/h.
4. Latvia utmost has to facilitate transit flow through its territory. In order to ensure such flow, two inputs are necessary: cargoes which analyzing world cargo fluctuation tendencies will increase, and appropriate infrastructure that has to be developed for main transit corridors to be able to compete in the world market.

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