UAB „Sweco Lietuva”

European Gauge Railway Line between Kaunas and the Lithuanian-Latvian Border. Strategic Environmental Assessment. Information for the Notification under the Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context

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INFORMATION FOR THE NOTIFICATION UNDER THE PROTOCOL ON STRATEGIC ENVIRONMENTAL ASSESSMENT TO THE CONVENTION ON ENVIRONMENTAL IMPACT ASSESSMENT IN A TRANSBOUNDARY CONTEXT

TABLE OF CONTENT OF THE NOTIFICATION

ABBREVIATIONS USED IN THE TEXT

Abbreviation	Meaning
EU	European Union
TEN-T	EU Trans-European Transport Network
NATO	North Atlantic Treaty Organisation
SEA	Strategic Environmental Assessment

1 BACKGROUND

While most railways in Europe use a standard gauge, Russian standard gauge tracks are still present in the territory of the Republic of Lithuania, which make cross-border operations more difficult.

A standard 1435 mm gauge track is planned to be built in the territory of Lithuania in order to link the capitals and other cities of the Baltic States, Poland and other EU Member States (Warsaw, Kaunas, Riga, Tallinn and (using a rail ferry, Helsinki) by means of a high-quality railway line. 120 km of the 1435 mm track line will be constructed between the Polish-Lithuanian border and Kaunas. Two alternative options are being considered for the line between Kaunas and the Lithuanian-Latvian border.

The Rail Baltica route is one of the priority projects of TEN-T, the EU Trans-European Transport Network (project No. 27) (see Fig. 1). The EU institutions consider the project as a strategic long-term project, the purpose of which is to develop high-quality passenger and goods transport between the Baltic States, Poland and other EU Member States. The modernised railway lines will enable an effective land transport link between the Baltic and Nordic countries (in particular, Finland) and, in the long term, with Central Asia. Improved railway transport will bring benefits in terms of environmental protection, reduced congestion in the European road network, improvement of access to the Baltic States, and regional development in the relevant countries. The long-term objective of the Rail Baltica Project is to fully implement the principles of transport intermodality, interoperability, reliability, safety and security and to enable the use of most environmentally-friendly modes of transport.

Construction of the first Rail Baltica section between Šeštokai and Mockava was completed on 29 July 2011.

By resolution of the Seimas (Parliament) of the Republic of Lithuania No XI-1612 of 11 October 2011, the Rail Baltica Project was recognised as a project of national significance. This means that the procedures of taking land for the public needs, set out in the Republic of Lithuania Law on Compulsory Purchase of Land for the Implementation of Projects of National Significance, will have to be implemented.

Second phase of the Rail Baltic Project has been launched recently according to Clause 6 of the Plan on Preparatory Works of the European Gauge Railway Line from Kaunas to the Lithuanian-Polish Border approved by Resolution of the Government of the Republic of Lithuania No 1195 of 26 September 2012 (Žin., 2012, No. 115-5833).

A strategic environmental impact assessment has to be made in order to assess and compare the alternative options for the railway line Kaunas–Šiauliai-Latvian border (as marked in the Master Plan of the Territory of the Republic of Lithuania approved by Resolution of the Seimas No. IX-1154 of 29 October 2002 (Žin., 2002, No. 110-4852)) and the railway line Kaunas-Panevėžys-Latvian border (according to recommendations set out in the 2011 Feasibility Study for the European Gauge Railway Line in Estonia, Latvia and Lithuania (Rail Baltica Corridor)).

Based on the results of the strategic environmental assessment (SEA), a railway line alternative which is optimal from the environmental, social and economic standpoint will be proposed, forming the basis for the implementation of the construction of the European gauge railway line between Kaunas and the Lithuanian – Latvian border. The SEA results will also show whether there will be the need to change the route of section B.3.3 “European gauge section Kaunas-Šiauliai-Latvian Border“ of the Trans-European Transport Corridor I, Warsaw-Kaunas-Riga-Tallinn.

This document has been prepared as part of the TEN-T (the EU Trans-European Transport Network) priority project “RAIL BALTICA Route Warsaw-Kaunas-Riga-Tallinn-Helsinki“ co-financed by the Republic of Lithuania and the EU TEN-T Programme.

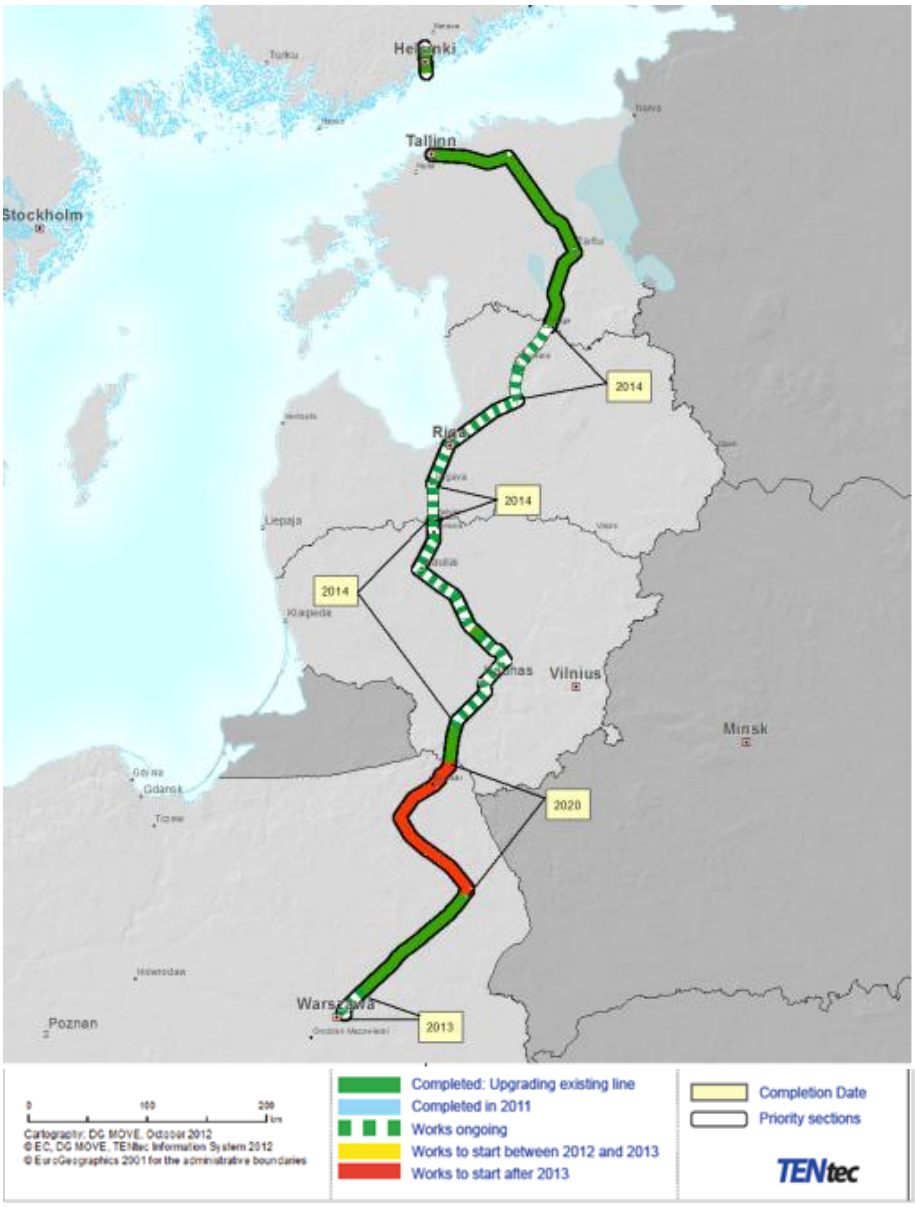

Fig. 1. TEN-T priority project No 27 “RAIL BALTICA Route Warsaw-Kaunas-Riga-Tallinn-Helsinki“ [5].

2 DESCRIPTION OF THE RAILWAY LINE ALTERNATIVES

2.1 Railway line alternatives

The purpose of Rail Baltica Project is to ensure a secure and effective high-quality link between the Baltic States and the main economic, administrative and cultural centres of Western Europe. The link with the 1435 mm gauge rail networks in Poland and Germany is an important component of the project as the present traffic in Northern – Eastern direction using the 1520 mm gauge network in the Baltic States is highly ineffective and inefficient [3].

Historically, the Baltic States are linked by the eastern-western axis, which is reflected in the current rail traffic flows. The rail transport services are provided using 1520 mm gauge tracks and this makes cross-border traffic with Poland difficult and costly. The Baltic rail system is incompatible with the continental European standards in all respects. While the issue was not so pressing prior to the EU accession of Estonia, Latvia and Lithuania, now it is obvious that the three Baltic States must be integrated into a wider rail transport system [3].

The long-term objectives of the EU transport sector are defined in the European Commission's White Paper[1] [6]:

- 30% of road freight over 300 km should shift to other modes such as rail or waterborne transport by 2030, and more than 50% by 2050;
- by 2050, complete a European high-speed rail network. Triple the length of the existing high-speed rail network by 2030 and maintain a dense railway network in all Member States;
- a fully functional and EU-wide multimodal TEN-T "core network" by 2013, with a high quality and capacity network by 2050;
- by 2050, connect all core network airports to the rail network, preferably high-speed.

In October 2001, amendments to the published TEN-T guidelines[2] were initiated by the European Commission. As a result, in April 2004 the European Parliament and the Council passed a decision No 884/2004/EC amending the TEN-T development guidelines. In response to the growth in the international traffic flows, the decision highlights the development of multimodal infrastructure projects, as well as the need to promote the EU cohesion, in particular in the those sections of the pan-European corridors that fall within the new EU Member States, and the "motorways of the sea". The Decision establishes that project "RAIL BALTICA Route Warsaw-Kaunas-Riga-Tallinn-Helsinki" No 27 is a priority one [3].

The development of the Rail Baltica Project is in line with all the three Baltic States' national planning strategies for the improvement of national networks and contributes to economic

[1] White Paper 2011. Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system.
[2] European Union Trans-European Transport Networks.

growth. In addition, sufficiently high quality of transport infrastructure meeting the defence and security needs of countries is one of the key factors of both national and cross-border planning. The Baltic States are among the 28 countries of the present European Union. They are also part of the NATO, the political mission of which lies in common democratic values and collaboration in securing defence of its 28 members. NATO is committed to peaceful resolution of disputes; however, if diplomatic efforts fail, the organisation has the necessary military capacities to perform crisis management operations. The direct railway route linking the Baltic States with the Central Europe would facilitate a speedy transfer of military equipment to places where it is necessary, in a worst case scenario. Containers are becoming the most popular means for the transfer of military equipment, and intermodal transport terminals enable smooth container operations [3].

AECOM, a UK consultancy, was commissioned a feasibility study on the selection of the route of the European gauge line between Kaunas and Tallinn, commissioned by the Ministries of Transport of Estonia, Latvia and Lithuania and co-financed by the European Union. The feasibility study proposes the optimal route Kaunas–Panevėžys–Riga–Piarnu–Tallinn without track alignment and ensuring a 240 km/hour train speed. The purpose of the study was to provide a detailed and justified opinion to the Heads of the Baltic States and the European Union and competent bodies. Within the scope of the study, the economic situation of the Baltic States was assessed together with the current levels of transport services and the existing constrains that have determined the selection of the route. This information was used to assess the potential customer base for both passenger and goods' transport and to estimate potential revenues. The preliminary qualitative evaluation of the proposed options has led to the selection of the preferred route. A cost-benefit analysis of the route was made [3].

The technical specifications of RAIL BALTICA were formulated based on the new main TEN-T line which operates as a mixed traffic line. The railway line will be constructed to the latest Technical Specifications for Interoperability (TSI). The main TSI parameters are as follows [3]:

- line category IV-M
- structure gauge GC
- maximum axle load 25 tons
- maximum line speed 240 km/h (*the speed which is used for the design of the track alignment / geometry*)
- maximum train length 750 m.

In order to run at very high speeds, the high speed rail (HSR) trains need to be far more powerful than conventional trains. In order to maintain their top speeds, the lines that they travel on must be built with the fewest possible curves – and where curves are unavoidable, they must use larger turning circles to change direction. Braking distances must also be longer to allow the trains to slow down safely and rail construction tolerances are far more exact, all of which considerably increase construction and maintenance costs. In addition, the train design and the

stations serving them must also have different characteristics. High speed stations are more comparable to airport terminals than conventional train stations, which in the context of Rail Baltica is not required based on passenger densities anticipated as calculated and validated via journey time sensitivity analyses in the passenger demand models of this study. Therefore, *fast conventional services* rather than *HSR train services* were offered for the Rail Baltic Project [3]:

	Conventional rail	High-speed rail
Maximum speed (km/h)	200	400
Installed power (MW)	4	20
Maximum gradient (%)	1	3
Maximum radius of curvature (m)	1800	7200
Average braking distance (m)	2000	5500

Note: these figures are representational and are based on typical design parameters for comparison purposes only

The study [3] considered three different scenarios for the implementation of infrastructure:

- independent 1435 mm gauge line (new alignments);
- 1435 mm gauge lime adjacent to the existing 1520 mm gauge line (existing alignments);
- dual gauge 1435/1520 mm line.

The dual gauge scenario, due to the technical constraints inherent in the design of such layouts, is to be considered a worst-case scenario and is contemplated only in urban areas where other options are not viable [3].

Taking account of various technical and environmental constraints, the AECOM study [3] identifies 4 main route options (see Fig. 2.1.1):

1. Red route. Selected as the most direct and shortest route.
2. Orange route. Selected as the most direct and shortest existing route.
3. Yellow route. Selected to try and maximise potential passenger demand by passing through the majority of the major population centres.
4. Green route. Selected to utilise all the existing routes.

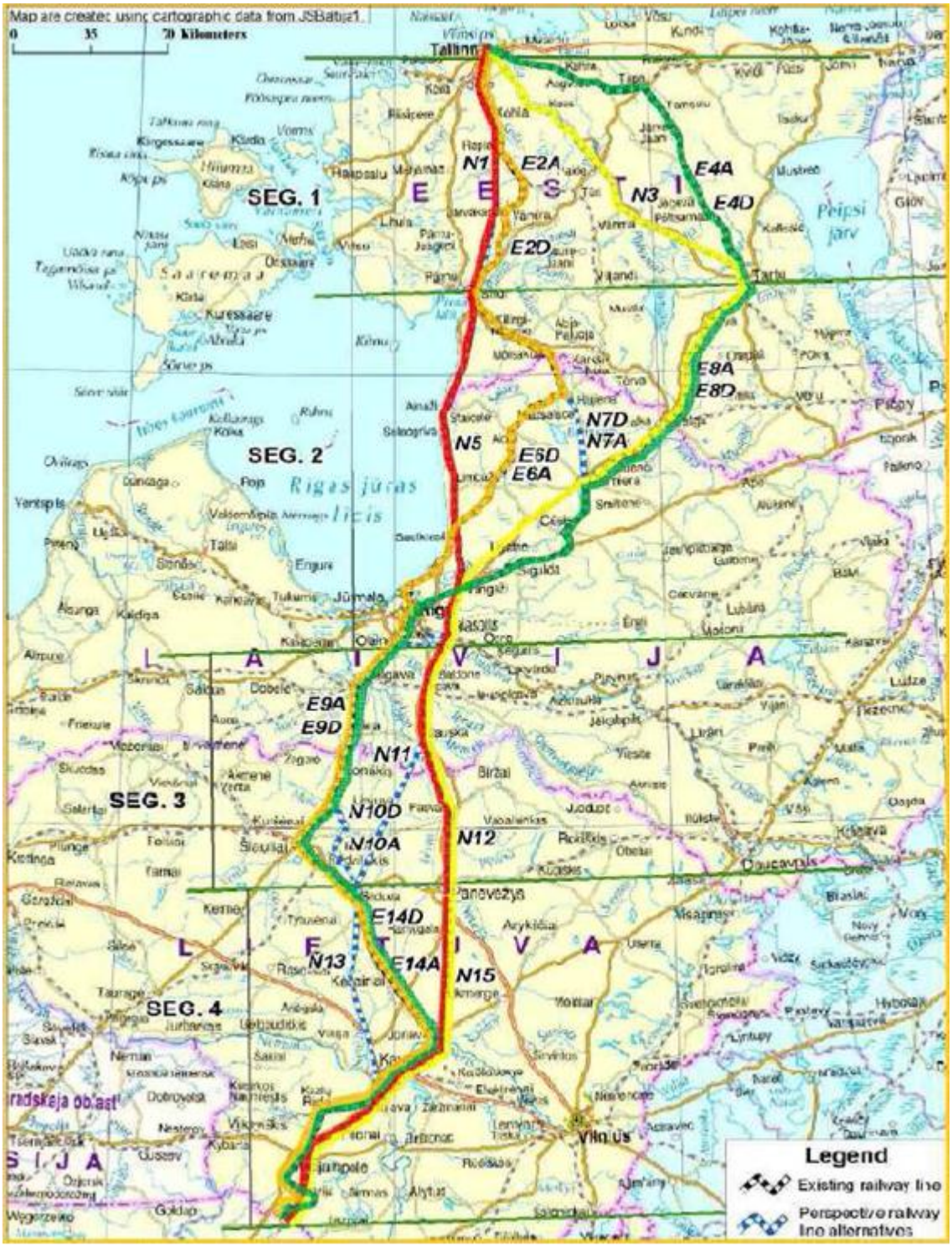

Fig. 2.1.1. Railway route options (Source: AECOM study, 2011)

From the point of view of expected revenues and goods volumes, the Red Route is identified as the optimum route in the study. This is based on the travel time and costs which are competitive with similar cargo carriage by road and by sea. The larger part of the goods volume planned for

Rail Baltica will be intermodal cargoes for which speed and price are the most important criteria. This is best demonstrated by the expectations that, by 2040, out of 21 daily goods trains on long-term routes, 18 trains will be intermodal goods trains. Rail Baltica would be interconnected with the TEN-T in Warsaw, considerably improving the opportunities for connecting Central and Western Europe with the Baltic States, Finland and north-west Russia. While the conventional operations option could take over part of the bulk cargoes carried by road or by sea, it does not appear to be able to attract a large part of intermodal cargoes due to long journey times [3]. **The Red Route recommended by the study is identified as Option A in this document.**

In its letter No .(14.-1)-D8-4190 of 8 May 2012 ”Regarding requested information“, the Ministry of Environment of the Republic of Lithuania states that the Feasibility Study does not provide sufficient grounds for amending the Master Plan of the Territory of the Republic of Lithuania, in which another route for the Rail Baltica Corridor has been provided for (starting from the Lithuanian-Polish border, it extends across the districts of Marijampolė, Kaunas and Šiauliai and is shown the master plans of the territories of the three districts). It also states that amendments to the Master Plan are only made subject to due justification and decisions on the amendments are adopted by the Seimas (Parliament) of the Republic of Lithuania.

The Ministry of Environment points out, among other things, that the Government of the Republic of Lithuania has approved, by its resolution No 1273 of 11 November 1999, a national-level plan entitled “Special Plan on the Building of the Route of the European Gauge Railway Lithuanian-Polish border – Marijampole – Kaunas (0-85.1 km)" (territorial planning document reg. No. 100002000066). Solutions of this special plan of transport infrastructure and of the Master Plan of the Territory of the Republic of Lithuania are harmonised. In the opinion of the Ministry of Environment, in order to decide on the necessity of the amendments to the Master Plan, a comparison of the route option recommended by AECOM (Rail Baltica route across Panevėžys County) with the route specified in the Master Plan (Rail Baltica route across Šiauliai) must be made. The comparison must be made from at least the following aspects: development, economic, and taking of the land for public needs. A SEA must be made leading to an explicit conclusion on the time and cost factors. Should this work demonstrate a clear benefit of the amendments and the feasibility of implementing the project otherwise than specified in the present solutions of the approved master plans, this would form the grounds for amendments. Having regard to the opinion of the Ministry of Environment, a SEA is being carried out, **with the Rail Baltica route provided for in the Master Plan of the Territory of the Republic of Lithuania identified as ”Option B“ in this SEA.**

A 2 km wide strip of land (1 km to both sides from the axis) is being assessed in both options. Upon identification of locations where the Rail Baltica line cannot be designed for objective reasons, such locations will be examined covering a longer radius in order to make proposals for local sub-options.

2.2 Geographical situation, administrative subordination and use of the area

Two options of the Rail Baltica route (Option A and Option B) are considered in the Strategic Environmental Assessment (SEA) of the European Gauge Railway Line Kaunas – Lithuanian-

Latvian Border. From territorial and administrative standpoint, both Option A and Option B fall within 8 municipal areas of the Republic of Lithuania. In the territory of the Republic of Latvia, both Options fall within 13 municipal areas. In case of Option A, the new railway line would be built in the area of Bauska municipality, and in case of Option B in the area of Jelgava municipality. In the territory of the Republic of Estonia in case of Option A the new railway line falls within 3 counties, and in case of Option B – within 6 counties.

The territorial-administrative situation of Option A and Option B is shown in Table 2.2.1 and is depicted graphically in Figure 2.2.1.

Table 2.2.1. Territorial – administrative arrangement of the Options of Rail Baltica solutions

Territory of the Republic of Lithuania	
Option A	**Option B**
Kaunas city municipality Kaunas district municipality Kaišiadorys district municipality Jonava district municipality Kėdainiai district municipality Panevėžys district municipality Panevėžys town municipality Pasvalys district municipality	Kaunas city municipality Kaunas district municipality Jonava district municipality Kėdainiai district municipality Radviliškis district municipality Šiauliai district municipality Šiauliai town municipality Joniškis district municipality
Teritory of the Republic of Latvia	
Option A	**Option B**
Bauskas novads Bauska city Iecavas novads Baldones novads Kekavas novads Salaspils novads Salaspils city Ropažu novads Stopinu novads Riga city Garkalnes novads Adažu novads Sejas novads Saulkrastu novads Saulkrasti city Limbažu novads Salacgrivas novads	Jelgavas novads Jelgava city Ozolnieku novads Olaines novads Ryga city Garkalnes novads Inčukalna novads Siguldas novads Ligatnes novads Amatas novads Cesu novads Priekulu novads Valmiera city Beverinas novads Strenču novads Valkas novads
Territory of the Republic of Estonia	
Option A	**Option B**
Parnu city Rapla city Talinn city Pernuma Raplama Harjuma	Valgama Tartuma Jegeva Jegevama Vakarų Viruma Harjuma

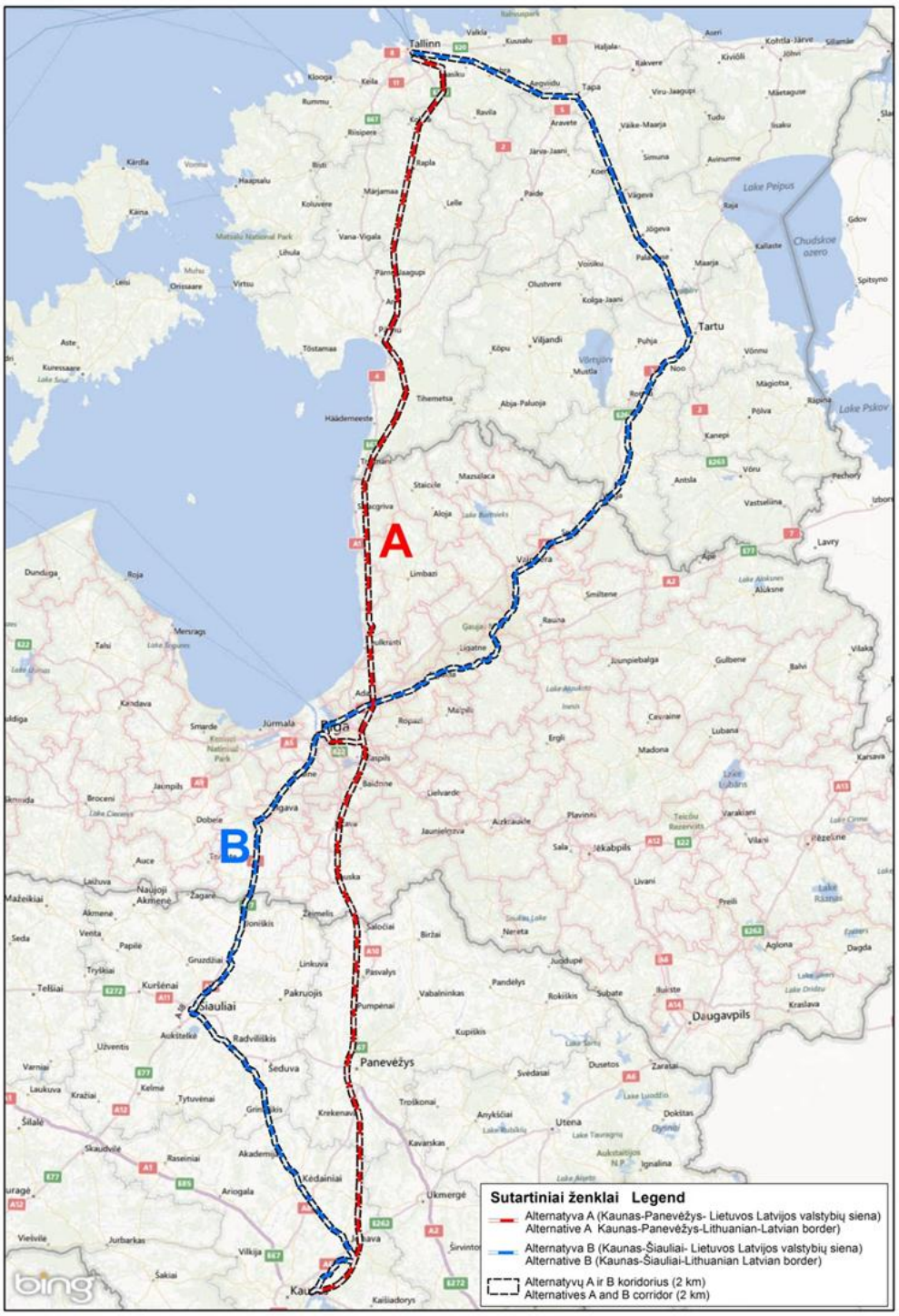

Fig. 2.2.1. Territorial – administrative arrangement of the Options of Rail Baltica solutions (in the territories of the Republic of Lithuania, the Republic of Latvia, the Republic of Estonia)

2.3 Socio-economic development of Lithuania and its regions

Implementation of the project on the European gauge railway line will have a substantial impact on the socio-economic development of the country, its regions and individual municipalities.

Option B is provided for in the current Master Plan of the Territory of the Republic of Lithuania, the master plans of counties and municipalities, and strategic planning documents. Selection of Option A will necessitate a review of the strategic and territorial planning documents of national, county and local levels as well as compensations for losses incurred by real estate owners.

Preparation of a SEA Report will involve an analysis of the impact of both Options upon socio-economic development of the country in terms of efficiency of integration into the European transport networks, competitiveness in the region, enabling of attraction of investments, sustainable development of the country‘s regions and reducing of regional discrepancies, job creation, and securing of quality of life. Account will be taken of the Options‘ compliance with the strategic and territorial planning documents of national, county and local levels and the need to amend them will be assessed.

3 STRATEGIC ENVIRONMENTAL ASSESSMENT PROCESS

3.1 Background information on SEA process

Project title:	European Gauge Railway Line Kaunas – Lithuanian-Latvian Border
SEA object:	Options of the route of the European Gauge Railway Line Kaunas – Lithuanian-Latvian Border (See Section 2.1): *Option A*: Kaunas – Panevėžys – Lithuanian-Latvian Border (based on recommendations provided in AECOM‘s Feasibility Study on the European Gauge Railway Line (Rail Baltica Corridor) in Estonia, Latvia and Lithuania, 2011). *Option B*: Kaunas – Šiauliai – Lithuanian-Latvian Border as marked in the Master Plan of the Territory of the Republic of Lithuania approved by Resolution of the Seimas of the Republic of Lithuania No IX-1154 of 29 October 2002 (Žin., 2002, No 110-4852)).
SEAorganiser:	Mindaugo g. 12/14, 03603, Vilnius tel. +370 5 269 2058, fax +370 5 269 2665 email: info@rail-baltica.lt Contact person: Ms Veronika Griganavičiūtė, Chief Specialist, Rail Baltica Project Directorate tel. +370 5 269 2888, email: v.griganaviciute@litrail.lt

Preparer of SEA document:	Sweco Lietuva UAB V. Gerulaičio g. 1, 08200, Vilnius tel. +370 5 219 6574, fax +370 5 261 7507, email: info@sweco.lt Contact person: Mr Tomas Varneckas, Project Director, Environmental Division tel. +370 5 219 6575, mob. tel. +370 6 699 89818, email: tomas.varneckas@sweco.lt
Authorised body responsible for transboundary consultations	Ministry of Environment of the Republic of Lithuania Jakšto g. 4/9, 01105 Vilnius Tel.: +370 5 2663661, fax: +370 5 2663663 Contact person: Mr Aleksandras Gordevičius, Head of Spatial Planning and Regional Policy Division of the Territorial Planning, Urban Planning and Architecture Department Tel.: +370 5 8706 63609, email: a.gordevičius@am.lt Ms Rasa Griškevičienė, Chief Specialist, Spatial Planning and Regional Policy Division of the Territorial Planning, Urban Planning and Architecture Department Tel.: +370 5 8706 63610, e-mail: r.griskeviciene@am.lt
Start of SEA procedure:	7 June 2013
SEA regulation:	According to the Republic of Lithuania Law on Protection of the Environment (Žin., 1992, No. 5-75; 2004, No. 36-1179), strategic environmental impact assessment is the "process of establishing, describing and assessing the potential consequences of implementation of certain plans and programmes whereby SEA documents are prepared, consulting is provided, results of the assessment and consultations are taken into account prior to adopting and/or approving a plan or programme, and information on the decision on such adoption and/or approval is provided". The SEA is carried out according to the provisions of Directive of the European Parliament and of the Council 2001/42/EC of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment and the following Lithuanian legal acts: Procedure for the Strategic Assessment of Impact of Plans and Programmes on the Environment [1]; Procedure for the Public Involvement in the Procedure for the Strategic Assessment of Impact of Plans and Programmes on the Environment and for Informing Stakeholders and the European Union Member States [2].

Main SEA procedures during the Project:	Preparation of a document setting the SEAscope, consultations with SEAstakeholders and members of the public, obtaining and evaluating their proposals and comments on the SEA quality; Preparation of SEA Report; Publication of SEA Report and its presentation to members of the public, obtaining and evaluating their proposals and comments on the solutions and the SEA Report quality; Consultations with SEA stakeholders, obtaining and evaluating their proposals and comments on the solutions and the SEA Report quality.
Participants in SEA process:	Organiser: Lietuvos Geležinkeliai AB; Preparer of SEA documentation: Sweco Lietuva UAB; The public; SEA stakeholders: Ministry of Environment, Ministry of Health, Protected Areas Service under the Ministry of Environment, Ministry of Culture and 12 municipalities whose territories are crossed by the railway line route Options.
Transboundary consultations:	In the process of SEA of the two Options of Rail Baltica Project (Option A and Option B), possible transboundary consequences for the environment in Latvia and Estonia will be assessed and measures to mitigate or eliminate such consequences will be identified. Transboundary consultations will involve the appropriate publicity and agreement procedures to be carried out with the Latvian public and stakeholders according to Resolution of the Government of the Republic of Lithuania No 967 of 18 August 2004 “Concerning approval of the Procedure for the Strategic Assessment of Impact of Plans and Programmes on the Environment“.
Public involvement procedures:	Notice of the start of the SEA; Public presentation of the SEA Report; Information of the decision adopted by the organiser.
Publication of information on SEA process:	Website of the preparer of SEA documentation (www.sweco.lt); Website of the organiser (www.rail-baltica.lt); Websites and notice boards of municipalities whose territories are crossed by the

	routes of the Options considered; National press (*Lietuvos Žinios*) and regional press.
Main SEA objectives:	Establish, describe and assess the potential consequences of implementation of the solutions upon the environment; Ensure that consultations with certain state and local authorities and the public are held and results of such consultations and other publicity measures are taken into consideration; Ensure that the organisers have detailed and reliable information on the potential consequences of implementation of the solutions upon the environment and take it into consideration.

Schedule of SEA procedures is presented in Figure 3.1.1.

	2013					
	June	**July**	**August**	**September**	**October**	**November**
Setting Scope of SEA						
Publicity: Notice of the start of SEA procedure						
SEA scoping document coordination with authorities/institutions						
SEA report						
Preparation of SEA report						
Publicity: publication of SEA report						
Publicity: Public hearing, presentation of SEA report						
SEA report coordination with authorities/institutions						
Decision on SEA						

Fig. 3.1.1. Schedule of SEA procedures

3.2 Strategic environmental assessment in a transboundary context

Assessment of environmental impact of plans and programmes in transboundary context is governed by the following legal acts:

- Directive of the European Parliament and of the Council 2001/42/EC of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment;
- Protocol on Strategic Environmental Assessment to the 1991 Convention on Environmental Impact Assessment in a Transboundary Context.

On national level, the assessment of environmental impact of plans and programmes in transboundary context is governed by the following Lithuanian legal acts:

- Republic of Lithuania Law on Ratification of the First and Second Amendments to the 1991 Convention on Environmental Impact Assessment in a Transboundary Context and of the Protocol on Strategic Environmental Assessment to the 1991 Convention on Environmental Impact Assessment in a Transboundary Context, No. XI-1113 (Žin., 2010, No. 137-7010).

- Resolution of the Government of the Republic of Lithuania No 967 of 18 August 2004 Concerning approval of the Procedure for the Strategic Assessment of Impact of Plans and Programmes on the Environment (Žin., 2004, No. 130-4650).

- Order of the Minister of Environment of the Republic of Lithuania No. D1-455 of 27 August 2004 "Concerning approval of the Procedure for the Public Involvement in the Procedure for the Strategic Assessment of Impact of Plans and Programmes on the Environment and for Informing Stakeholders and the European Union Member States" (2004 No 136-4970; Žin., 2010, No 53-262).

According to legal acts, SEA must be carried out for the transport systems' development plans and programmes and forms the basis for the development of projects listed in Annex 1 to the Republic of Lithuania Law on the Assessment of Impact on the Environment by Planned Economic Activities. The Rail Baltica Project can be classified as economic activity "Engineering Structures: Building of Main Public Railway Lines" listed in Annex 1 to this Law.

The project "European Gauge Railway Line Kaunas – Lithuanian-Latvian Border" is classified as a project under the heading "Construction of motorways, express roads and lines for long-distance railway traffic and of airports with a basic runway length of 2,100 metres or more" in the list of projects in Annex I to the Protocol on Strategic Environmental Assessment to the 1991 Convention.

The Ministry of Environment of the Republic of Lithuania is responsible for the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context (1991, Espoo). The Ministry of Environment informs the relevant EU Member State about potential consequences of implementation of plans and programmes being prepared in the Republic of Lithuania for the Member State's environment prior to adopting and/or approving the plan/programme. On receipt of the Member State's response expressing the wish to take part in transboundary consultations, agreement on the length of consultations is reached and the consultations on the potential consequences and the measures to mitigate/eliminate them are started. In addition, agreement on the detailed procedures for informing the authorities and the public of the affected Member State is reached. Such procedures must ensure that the authorities and the public of the affected Member State are informed about the decision adopted, the way of familiarising themselves with the approved plan/programme, the argumentation for the selection of a certain option, measures to monitor the consequences of implementation of the plan/programme, the integration of environmental issues in the plan/programme, and the way of taking the information in SEA Report, the conclusions of SEA stakeholders, proposals from members of the public and results of transboundary consultations into consideration.

4 INFORMATION ON THE COMPONENTS OF THE ENVIRONMENT AND CONSEQUENCES COVERED BY THE SEA

4.1 Basic provisions of the strategic environmental impact assessment of solutions

The SEA will be based on the following main provisions:

- The SEA will be carried out in accordance with the requirements set out in the current Lithuanian and European Union laws, regulations, guidelines and methodologies;
- The current status of the environment is that of the year 2012. The status of 2012 is considered to be zero status, i. e. if the solutions are not implemented, the environmental status indicators would reflect the situation in the year 2012. The year 2013 is not selected as at the time of preparation of the SEA Report the requisite summarised information will not be yet available;
- the assessment will be made for the consequences for the environment and for the socio-economic environment;
- the assessment will be carried out for the following territorial Options:

  Option A: Kaunas – Panevėžys – Lithuanian-Latvian Border (based on recommendations provided in AECOM's Feasibility Study on the European Gauge Railway Line (Rail Baltica Corridor) in Estonia, Latvia and Lithuania, 2011).

- **Option B:** Kaunas – Šiauliai – Lithuanian-Latvian Border as marked in the Master Plan of the Territory of the Republic of Lithuania approved by Resolution of the Seimas of the Republic of Lithuania No IX-1154 of 29 October 2002 (Žin., 2002, No 110-4852));

Depending on the assessment results, local sub-options for individual sections can be considered:

- Option 0 – solutions will not be implemented;
- the SEA process will include an assessment of transboundary impact and the requisite publicity and agreement procedures (provided that the Latvian and Estonian authorities express a wish to take part in the SEA process);
- as the solutions fall within the sphere of regulation of the Law on EIA, a thorough assessment and detailing of the preferred Option selected during the SEA process can take place during the EIA process and the special planning process.

The title of the SEA Report will be "European Gauge Railway Line between Kaunas and the Lithuanian-Latvian Border. Strategic Environmental Assessment. Report".

The preliminary content, subjects to be examined and components of the environment – potential objects of consequences are specified below.

1	Potential object of impact / component of environment	Ambient air and climate change
1.1	Potential consequences during construction/implementation	In both Options, short-term consequences related to pollution from mobile sources (vehicles and other installations) are expected during construction. In dry periods, dust raised by vehicle traffic can be expected.
1.2	Potential consequences during operation	In both Options, periodic consequences related to pollution from mobile sources (railway vehicles) can be expected.
1.3	Impact mitigation/localisation measures planned	Upon assessment of potential consequences, additional measures to avoid and mitigate the consequences will be provided for.
1.4	Assessment methods planned	Analysis of available information sources and investigations data, calculations, identification of pollution sources.

2	Potential object of impact / component of environment	Surface water
2.1	Potential consequences during construction/implementation	In both Options, crossing the present surface water bodies (rivers, ponds, canals etc.) may be required; for this purpose building or reconstruction of bridges, installation of conduits etc. will be necessary). Therefore, direct upon water in the period of solutions implementation can be expected (change in bed parameters, increase in turbidity, impact upon biodiversity in water environment etc.).
2.2	Potential consequences during operation	Negative consequences during normal operations are unlikely. Potential risk in case of emergencies.
2.3	Impact mitigation/localisation measures planned	Upon assessment of potential consequences, additional measures to avoid and mitigate the consequences will be provided for.
2.4	Assessment methods planned	Analysis of available information sources and investigations data, calculations, GIS.

3	Potential object of impact / component of environment	Interior of the earth
3.1	Potential consequences during construction/implementation	While building bridges, earth banks and other structures or installation and during earthworks, the upper lithosphere layer may be affected and groundwater as well as deeper-occurring aquifers can be reached. There can be consequences of the temporary

		hydrodynamic impact and there is a risk of chemical contamination. In both Options, individual route sections fall within the limits of wellfields' SPZs and the limits of explored deposits of mineral resources. Consequences during construction of facilities are possible.
3.2	Potential consequences during operation	Negative consequences during normal operations are unlikely. Potential risk in case of emergencies.
3.3	Impact mitigation/localisation measures planned	Upon assessment of potential consequences, additional measures to avoid and mitigate the consequences will be provided for.
3.4	Assessment methods planned	Analysis of available information sources and investigations data, calculations, GIS.

4	**Potential object of impact / component of environment**	**Soil**
4.1	Potential consequences during construction/implementation	In both Options, earthworks of a very large scale would be carried out, during which the fertile soil layer would be completely removed within the construction area; on completion of works, part of the damaged territories would be recultivated and part of them would be built up. In part of the territory, soil can be damaged (compressed, mixed etc.) by heavy-weight vehicles. Consequences during construction of facilities are possible.
4.2	Potential consequences during operation	Negative consequences during normal operations are unlikely. Potential risk in case of emergencies.
4.3	Impact mitigation/localisation measures planned	Upon assessment of potential consequences, additional measures to avoid and mitigate the consequences will be provided for, together with investigations and monitoring required.
4.4	Assessment methods planned	Analysis of available information sources and investigations data, calculations, GIS.

5	**Potential object of impact / component of environment**	**Landscape**
5.1	Potential consequences during construction/implementation	In both Options, individual route sections fall within or cross territories of the natural framework, protected nature areas or protected landscape segments. Consequences of various levels of significance are possible.
5.2	Potential consequences during operation	Negative consequences during normal operations are unlikely. Potential risk in case of emergencies.
5.3	Impact mitigation/localisation measures planned	Upon assessment of potential consequences, additional measures to avoid and mitigate the consequences will be provided for.
5.4	Assessment methods planned	Analysis of available information sources and investigations data,

		GIS, AutoCAD.

6	Potential object of impact / component of environment	Protected natural areas
6.1	Potential consequences during construction/implementation	In both Options, individual route sections fall within or cross protected nature areas. Consequences are possible, therefore, during SEA optimal solutions for avoiding negative consequences must be sought.
6.2	Potential consequences during operation	Negative consequences during normal operations are unlikely. Potential risk in case of emergencies.
6.3	Impact mitigation/localisation measures planned	Upon assessment of potential consequences, additional measures to avoid and mitigate the consequences will be provided for.
6.4	Assessment methods planned	Analysis of available information sources, GIS.

7	Potential object of impact / component of environment	Biodiversity (Flora)
7.1	Potential consequences during construction/implementation	In both Options, individual route sections can cross territories overgrown with plants (including protected species). The need to remove plants (cut trees, remove grass layers etc.) may arise in the course of implementation of solutions.
7.2	Potential consequences during operation	Negative consequences during normal operations are unlikely. Potential risk in case of emergencies.
7.3	Impact mitigation/localisation measures planned	Upon assessment of potential consequences, additional measures to avoid and mitigate the consequences will be provided for, together with investigations and monitoring required.
7.4	Assessment methods planned	Analysis of available information sources, GIS.

8	Potential object of impact / component of environment	Biodiversity (Fauna)
8.1	Potential consequences during construction/implementation	Potential consequences of destruction of places of living, breeding, nutrition or migration and disturbance of the environment.
8.2	Potential consequences during operation	Potential consequences of destruction of places of living, breeding, nutrition or migration and disturbance of the environment.
8.3	Impact mitigation/localisation measures planned	Upon assessment of potential consequences, additional measures to avoid and mitigate the consequences will be provided for, together with investigations and monitoring required.
8.4	Assessment methods planned	Analysis of available information sources, GIS.

9	Potential object of impact / component of environment	Cultural heritage sites
9.1	Potential consequences during construction/implementation	Potential consequences of destruction of archaeological sites that have not been studies as yet, or restriction of opportunities for investigating them.
9.2	Potential consequences during operation	Negative consequences during normal operations are unlikely.
9.3	Impact mitigation/localisation measures planned	Upon assessment of potential consequences, additional measures to avoid and mitigate the consequences will be provided for, together with investigations required.
9.4	Assessment methods planned	Analysis of available information sources, GIS.

10	Potential object of impact / component of environment	Public health and socio-economic living environment
10.1	Potential consequences during construction/implementation	Temporary consequences are possible during construction, installation and dismantling of facilities due to noise and dust raised by vehicles. Potential positive consequences due to creation of temporary jobs, increase in the demand for construction works and services.
10.2	Potential consequences during operation	The main negative factors affecting public health during planned operations: • noise (from railway vehicles); • air pollution (by railway vehicles); • vibration (from railway vehicles); • physical isolation (the railway line would cross individual territories); • psychoemotional impact (stress due to land ownership problems, impact upon environment, health, traffic safety, risk of emergencies etc.); • socio-economic impact (jobs, land expropriation, servitude and compensation issues). Potential positive consequences due to implementation of strategic national objectives, economic development and improvement of transport conditions, creation of temporary and permanent jobs etc.).
10.3	Impact mitigation/localisation measures planned	The SEA Report will consider and assess the planning options, the need for monitoring, considerations related to selecting measures to mitigate the negative consequences, and compensations.
10.4	Assessment methods planned	Analysis of available information sources and results of investigations, qualitative assessment of factors affecting public

		health (socio-economic, lifestyle, psychological) based on the experience gained in planning and assessing other sections of Rail Baltica.

4.2 Assessment principles and methodology

The methodology for the comparative multi-criterion analysis of the Options has been formulated following the principles of sustainable development. Sustainable development as a global issue was included in political agendas in 1992. Seeking to tackle problems raised by the economic development and the need to protect the environment, the EU adopted its Sustainable Development Strategy which considers a range of economic, social and financial aspects. To promote the use of new, more environmentally friendly technologies, the tasks identified in the Lisbon Strategy and in the Göteborg European Council (2001) were linked together. The EU legal acts also aim at mainstreaming the environmental protection issues into other EU policies (Figure 4.2.1).

The EU Sustainable Development Strategy outlines the guidelines for sustainable development in the European Union, covering the economic, social, environmental and financial aspects; the EU policies and consistent governance on all levels including the use of globalisation (trade) for sustainable development; fighting poverty and promoting social development; sustainable management of natural and environmental resources; improved governance on all levels (promoting civic society, ensuring lawful, consistent and effective management in economic, social and environmental protection areas); funding of sustainable development (Figure 3.2.1). In broad terms, sustainability means a balance of social, economic and environmental factors/aspects:

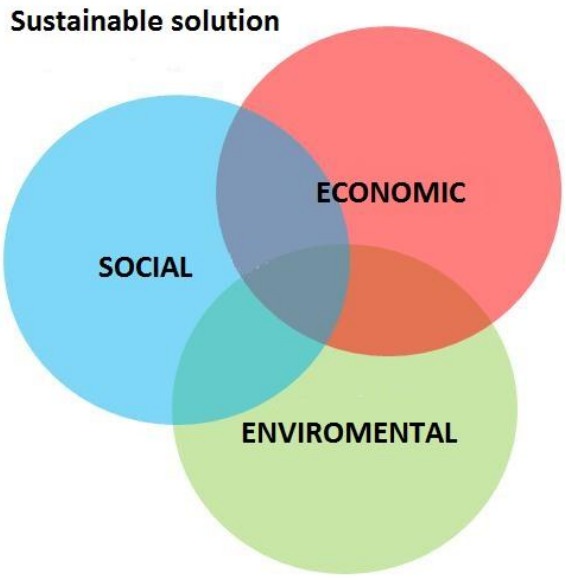

Fig. 4.2.1. Sustainable development concept and relationship between assessment factors

All the sustainable development factors (hereinafter - “the factors“) is considered to have equal importance, i. e. the relative share (weight) of each factor is 1/3 (33.3%). The aspects describing the factors ((hereinafter - “the aspects“) are specific/individual for each activity and location being considered. There is no absolute and indisputable method to define the importance of and the relationship (i.e. the relative weight compared with the other aspects) between the aspects. This is the matter of agreement between participants in the process – the preparer of the plan, the planning organiser and the assessment stakeholders. In this particular case, the agreement is sought through the procedure for setting the scope of SEA and open discussions with the SEA stakeholders as well as through the provision of proposals and evaluations by experts in the SEA Report preparation process.

The social factor is assessed from the following aspects:

S1. Integration into the European TEN-T

S2. Impact upon public health

S3. Compliance with territorial planning documentation and municipal development plans

S4. Consistent/sustainable development of regions and areas of the country

S5. Improving quality of life

S6. ...

The environmental factor is assessed from the following aspects:

A1. Impact upon water

A2. Impact upon landscape and natural framework

A3. Impact upon biodiversity

A4. Impact upon protected areas

A5. Impact upon cultural heritage

A6. Impact upon climate

A7. ...

The economic factor is assessed from the following aspects:

E1. Economic viability of the project

E2. Land compulsory purchase costs

E3. Creation of new jobs

E4. Attracting investments

E5. Increasing competitiveness of regions

E6. Feasibility of the project

E7. ...

Each aspect is assessed using a six-point system. The purpose of the assessment is to compare the Options, therefore, the assessment is **relative** rather than absolute: the "best" option is assessed from each aspect in the six-point scale where one (1) is the lowest and six (6) is the highest assessment. The overall score of an Option in terms of a factor is calculated from the formula:

$$Įv_{vksn} = \sum_{aspkt} \left(Įv_{aspkt} * Sv_{aspkt} \right) / Sv_{vksn}$$

where

$Įv_{vksn}$ is the overall score of a factor,

$Įv_{aspkt}$ is the score of an aspect,

Sv_{vksn} is the relative weight of a factor,

Sv_{aspkt} is the relative weight of an aspect.

The overall score of an Option is calculated as the arithmetic average of the scores of all the there aspects.

The relative weight of each aspect forming a factor will be determined by an expert in the relevant area during the preparation of the SEA Report, taking account of the comments and opinions expresses by the stakeholders in the SEA scope-setting phase.

REFERENCES

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3. AECOM Limited and SIA Savant (2011). Feasibility Study on a European Gauge Railway Line (Rail Baltica) in Estonia, Latvia and Lithuania. Final Report.

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5. P. Telička, Coordinator of European Priority Project No. 27 (2012). Annual Report on Implementation of Priority Project No. 27 for 2011-2012. Section Warsaw-Kaunas-Riga-Tallinn-Helsinki of RAIL BALTICA line.

6. European Commission. White Paper 2011. Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system. 28 March 2011.

ANNEXES

ANNEX 1

SUMMARY INFORMATION TO THE NOTIFICATION

ANNEX 2

ALTERNATIVE A AND ALTERNATIVE B REVIEW SITE MAP OF RAILWAY LINES (IN THE REPUBLIC OF LITHUANIA)