



Mobility Consultants

Assessment of the rail market in the Western Balkans in terms of capacities, policies, economic and technical level of development of freight and passenger transport segments

MC Mobility Consultants GmbH

Mariahilfer Straße 196/Top 18
A-1150 Wien
office@vienna-mc.com
www.vienna-mc.com



Rail

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Multimodal

Task 1 Final Report

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Project sheet

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	Client	Contractor	Implementing partner
Name:	The Transport Community, represented by the Permanent Secretariat of the Transport Community	MC Mobility Consultants GmbH	
Address:	“Beogradjanka” building, Masarikova 5, 8th floor, 11000 Belgrade, Republic of Serbia	Keißlergasse 1/3 A-1140 Vienna, Austria	
Tel. number:	+381 11 3131 799/800	+4318923600	
Contact person:	Dejan Lasica Kire Dimanoski	Holger Eiletz	
Email address:	dlasica@transport-community.org kdimanoski@transport-community.org	Holger.eiletz@vienna-mc.com	
Signatures:			
Date:	07.07.2023		
Name of the Experts:	Klaus Uhl, Team Leader / EU Acquis Gordan Stojic, Rail Market Monitoring Expert Wolfgang Rohrer-Schausberger, Rail Market Expert/EU Transport acquis Frank Jost, EU Transport acquis Expert Vassilis Evmolpidis, Quality Assurance/Quality Control Expert		

Andy Zhugli, Local Expert Albania
Aleksandar Blagojevic, Local Expert Bosnia and Herzegovina
Xhevat Ramosaj, Local Expert Kosovo*
Miroslav Kukavicic, Local Expert Montenegro
Nikolce Nikoloski, Local Expert North Macedonia
Sanjin Milinkovic, Local Expert Serbia

* This designation is without prejudice to positions on status and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

Abbreviations

Abbreviation	Description
ALB	Albania
BiH	Bosnia and Herzegovina
CF	Cohesion Fund
CEF	Connecting Europe Facility
ERDF	European Regional Development Fund
EU	European Union
GHG	Greenhouse Gas
IFI	International Financing Institutions
IWT	Inland Waterway Transport
KE	Key Expert
KOS	Kosovo
MC	MC Mobility Consultants GmbH
MKD	North Macedonia
MNE	Montenegro
NKE	Non-key Expert
PSO	Public service obligations
PSC	Public service contract
RFC	Rail Freight Corridor
RMMS	Rail Market Monitoring Scheme
SEEP	South East European Parties
SRB	Serbia
TAC	Track Access Charges
TCT Secretariat	Transport Community Permanent Secretariat
TCT	Transport Community Treaty
TEN-T	Trans-European Transport Network
TODIS	Transport Observatory Database Information System
ToR	Terms of Reference

Introduction

Objectives and content of the Report

Under the Treaty establishing the Transport Community, the South East European Parties (the Republic of Albania, Bosnia and Herzegovina, North Macedonia, Kosovo, Montenegro, and the Republic of Serbia) have committed to ensure the development of the indicative extension of the TEN-T comprehensive and core networks to the Western Balkans in view of their commitment to progressively integrate their transport markets with the European Union, based on the relevant Acquis. As part of this joint effort the Permanent Secretariat of the Transport Community ("TCT Secretariat") has been tasked to support the parties to achieve their common goals.

In order to assist the Southeast European Parties, the Technical Committee on Railway was set up to deal with rail transport related aspects falling under the scope of the Transport Community Treaty (TCT). To this end, the Technical Committee on Railway with the support of the TCT Secretariat in 2020 elaborated a coherent set of concrete actions to be implemented by the South East European Parties (SEEP) in a coordinated and timely manner. It aimed in particular at regional market opening, passenger rights, governance, interoperability, improving the rail border-crossing / common crossing operations, and modernisation of the rail network.

This is the first report based on the reporting questionnaire set out in the Commission Implementing Regulation (EU) 2015/1100 on rail market monitoring¹ (the "RMMS Regulation"), destined to the SEEP.

This report was made as part of the project "Assessment of the rail market in the Western Balkans in terms of capacities, policies, economic and technical level of development of freight and passenger transport segments", which was financed from The Transport Community, represented by the Permanent Secretariat of the Transport Community Fund.

According to the ToR, the following two main results shall be achieved with the assistance of the Consultant:

1. Task 1: Create structure and data collection form for creation and delivery of report on Western Balkan Rail Market Monitoring as per Implementing Regulation (EU) 2015/1100 for 2021 as baseline year.
2. Task 2: Update of the Preliminary Implementation plan, the Transport Market Study, the Inventory of Rail Freight Facilities and the appendixes done in 2017 taking into consideration the latest updates and changes of strategies and data related to rail transport in EU and SEE.

This report presents and analyses the results of the data collected in Task 1 which are:

1. Structure and data collection form which was used for collecting data created – action 1,
2. Data for 2021 as baseline year collected from all SEEP – action 2,
3. Infographics on Western Balkan Rail Market Monitoring – action 3.

According to the ToR and based on the review of the existing situation as well as available technical, organisational, financial, and legal data, the Consultant undertook the following activities:

1. Action 1: Establish a structural and data collection form which later shall be transferred to a single database to overview the SEEP rail market. The data collection form was established in accordance with the Implementing Regulation (EU) 2015/1100. The database will become the basis for the Report on the SEEP Rail Market Monitoring. This form and data base will be used in future by the TCT Secretariat for its annual monitoring.
2. Action 2. Collect and check the data from 2021 as baseline year. The Consultant employed local experts in each SEEP, who were familiar with the topic in order to check any deviations of the requested data.

¹ Commission Implementing Regulation (EU) 2015/1100 of 7 July 2015 on the reporting obligations of the Member States in the framework of rail market monitoring, OJL 181, 9.7.2015, p. 1.

3. Action 3. Deliver the report and infographic on monitoring the railway market of the Western Balkans for 2021.

This Report is based on the 7th RMMS Report since the 8th RMMS report for EU is not yet available on the website of the European Commission.

The Report contains a presentation of the collected data and a statistical descriptive analysis of the most important indicators of the functioning of the railway system in the SEEP.

Structure

The 1st RMMS Report for SEEP is a mirror of the 7th RMMS Report of the European Union.

The executive summary presents the most important results.

The first chapter provides an overview of the main findings of the SEEP RMMS report.

The second chapter describes the applied methodology for collecting, processing, and analysing data.

Based on the available data, the third chapter presents an analysis of the role of the railway sector in the SEEP transport systems, as well as its impact on CO₂ and GHG emissions.

In the fourth chapter, the essential data of SEEP rail network are presented and analysed.

The fifth chapter has two subchapters. In the first are analysed the rail services and in the second the rail revenues in 2021.

The sixth chapter “Framework Conditions in the Rail Sector” has 8 subchapters.

1. Infrastructure charging
2. Capacity allocation and infrastructure limitations
3. Infrastructure expenditure and funding
4. Quality of rail transport services
5. Public service contracts
6. Licensing of railway undertakings
7. Market opening and utilisation of access rights
8. Employment and social conditions

For comparable data, a presentation and analysis of the corresponding data of the EU (based on the 7th RMMS Report) is given. Considering that 2021 is the base year for data collection, there was no analysis and evaluation of data for other years.

The sixth chapter presents the conclusions.

Annex 1 contains the developed databases of the RMMS questionnaire according to Commission Implementing Regulation (EU) 2015/1100 for each SEEP participant.

Annex 2 contains a special - integral database for SEEP in Excel.

Executive summary

The present SEEP rail market monitoring report is the first attempt to establish a monitoring report according to the EU rail market monitoring system (RMMS) as stipulated in Regulation 2012/34/EU.

The 7th EU RMMS Report has been taken as a benchmark since the 8th Report has not yet been published. The baseline data for the 1st SEEP Report is 2021.

Taking the results of the 7th EU RMMS Report as a benchmark, the situation in the SEEP as of 2021 is as follows.

Modal Share of rail and sustainability

With a market share 19% (tonne-km, freight) and 7% (pax-km, passenger), the rail in the SEEP has similar market shares as in the EU-27. At the same time, international corridors or border crossing points remain out of operation or disrupted for several years.

The share of rail in energy consumption of land transport accounts for only one tenth of its modal share.²

Rail network

Extensive maintenance and renewal work on what is mostly a single-track network hampered infrastructure availability.

The percentage of electrified lines is lower than in the EU27 (41% vs. 56%). One reason is the fact that Albania and Kosovo do not have any electrified networks; however, 90% of the network of Montenegro and BiH are electrified.

The average density of the network is half of the EU average. However, the average density per inhabitant is double that of the EU27 (1,026.06 km/mio inhabitants vs. 451 km/mio inhabitants).

When it comes to the public spending on rail infrastructure per inhabitant, the average value is 6 times lower³ than the EU level.

Rail services and revenues

The average propensity to travel by rail is significantly lower than in the EU27. An EU resident travels on average around 900 km per year by rail, which corresponds to only 19 km in the SEEP. In other words, travellers using collective transport mostly rely on buses and coaches for their intercity and international trips.

When it comes to freight transport, the situation is similar to the EU. In other words, the lorry dominates.

Revenues from passenger transport are broadly in the same range as in the EU (0.13 vs. 0.18 EUR per pax-km).

In freight transport, railway undertakings generate with 60.07 EUR per net ktonne-km almost double the revenues of the EU27 with 34.75 EUR/ktonne-km.

The SEEP railway undertakings generate 34.54 EUR/train-km against 20.25 EUR/train-km in the EU27, which might have two explanations. Transport costs in freight are in general higher than in the EU or the railways fully benefit from specific market conditions (mass transports without return loads against the higher level of containerisation in the EU27).

Revenues from the use of the tracks

Infrastructure managers generate 71% of their market income from track access of freight trains and 29% of passenger trains. In the EU27, the situation is vice versa. 86% of revenues come from passenger

² Due to the lack of statistics for GHG and CO2 emissions, except for Serbia, a comparison with EU27 is difficult to make.

³ Public spending is understood as not including loans taken out by railway organisations, including state guarantees.

services, and 14% from freight.

Capacity allocation and infrastructure limitations

The largest number of train paths from the annual timetabling was in Serbia and Montenegro.

Public infrastructure funding (except for bank loans)

EU grants in 2021 represented between 0% in Albania and 35% in Montenegro of public infrastructure funding. Regarding the Serbian rail network, 85% of the funding came from lenders outside the EU, mostly Russia and China.

Quality of rail transport services

Punctuality of passenger services can be called catastrophic with 43% while in the EU27, it is 93%. The highest punctuality is in Serbia with 78%, whilst in Kosovo, all passenger trains were late by more than 5 minutes.

Reliability of domestic regional and local passenger services is very poor. In North Macedonia, 26% of the passenger trains were cancelled, in Serbia only 2% which is closer to the EU27 average of 1%.

In the freight train sector, no statistics were made available.

Public service contracts

Most SEEP have public service contracts in the meaning of Regulation (EC) 1370/2007. Public service operators are exclusively incumbents through direct award. The average compensation is similar to the EU27 compensation with 10.15 EUR/train-km to 10.52 EUR/train-km.

Licensing

Serbia awarded freight licences to 21 new entrants, followed by Albania with 3 and Montenegro with 2. Montenegro granted the first licence to a new entrant in 2021.

Degree of market opening

The highest market share of new entrants in rail freight was in Albania in 2021 with more than 80%, followed by Serbia with approximately 25%. All other SEEP did not have any new entrants in 2021. The EU market share for new entrant freight undertakings is at 58%.

Employment and social conditions

The RMMS clearly shows that the railway sector is dominated by male employees. The staff is overaged with a very low number of people under 30 years. Male domination and age are significantly higher than the EU27 average. Concerning the contractual conditions, the SEEP are similar to the EU with employment contracts of indefinite duration.

1. Main Findings

Reliable monitoring of the rail market is fundamental for understanding market developments and taking informed policy decisions. Since 2007, the European Commission has started a reporting system for monitoring development of the rail market in the EU. The method has been improved over the years and was regulated by Commission Implementing Regulation (EU) 2015/1100.

Monitoring the development of the railway market in the SEE region according to Implementing Regulation (EU) 2015/1100 begins with the implementation of this project. The TCT Secretariat as well as the relevant authorities from the Southeast Europe and the Observing participants shall use in the future the database form developed in this project for reporting their annual monitoring.

This first report on railway market monitoring in SEE was compiled for the base year 2021.

The main findings for 2021 are that:

- in the SEE region, the rail modal share is approximately 19% in freight (tonne-km) and 7% in passenger transport (pax-km);
- there is no data on the share of rail transport in GHG and CO₂ emissions except for Serbia. In Serbia, the share of rail transport in GHG was only 0.51% and in CO₂ emissions only 0.47%, i.e., 2.6% of the total energy consumption in overall transportation in Serbia.
- The total length of the SEEP rail network was around 6,072 line kilometres. Serbia has the largest network (55%), and Montenegro has the smallest network (4%).
- In the SEE Region, about 41% of the total network is electrified.
- There were no high-speed lines in the SEEP area⁴.
- Average propensity to travel by rail in SEE was 18.34 pax-km per inhabitant.
- Track access for suburban and regional passenger trains in SEE averaged 1.04 EUR/train-km, for freight trains 2.56 EUR/train-km (1,000 tonnes) and 2.73 EUR/train-km (1,600 tonnes);
- There were no congested lines on the SEEP network.
- A total of 68 fatalities, 127 serious injuries and 15 significant accidents occurred in the SEE region. Still, rail remains one of the safest modes of transport, travelling by car being more than 50 times riskier than travelling by train.
- 95% of total railway pax-km (only in domestic transport) was PSO; all passenger service contracts were directly awarded.
- There are only 37 railway undertakings with active licences. The railway market in Bosnia and Hercegovina and North Macedonia is not open yet. In Montenegro, the market was liberalised in 2021.
- The average market share of new entrants versus national incumbents was (not historical/main RUs):
 - 24 % of rail freight market in Serbia and 88% in Albania.
 - 0% of passenger markets.
- At the end of 2021, just over 20,900 people were employed in the rail sector, about 10,000 of them by railway undertakings (both, incumbents, and new entrants) and 10,900 by infrastructure managers.

⁴ In the base year 2021, high-speed lines in the SEEP were not in operation.

2. Methodology

The following steps were applied.

Step 1: The data collection form

The first action was to establish structure for the data collection form, in coordination with the TCT Secretariat. The Consultant applied the top-down method (deductive method).

To this end, the Consultant analysed the legal provisions of the EU Railway Market Monitoring System in terms of procedures and responsibilities, assessed its legal framework with special reference to intertemporal and international comparability as well as harmonisation of data and reporting.

The basis was the Commission Implementing Regulation (EU) 2015/100 and the European Commission's most recent 7th Rail Market Monitoring Report.

The data collection form was developed according to the stipulations of the Implementing Regulation 2015/1100, mirroring the 7th EU Monitoring Report. The form was developed in MS Word and Excel document format and contains 11 sections.

The data collection form was adapted for future fit to the ongoing Transport Observatory Data Information System (TODIS) Project led by the TCT Secretariat⁵.

The data collection form was translated into the official languages of the SEEP. All data collection forms are bilingual (official language of the SEEP and English)

The EU 7th Rail Market Monitoring Report contains data on CEF, CF and ERDF transport funds; population of (EU) countries, GHG data, CO₂ emissions; data on road, air, water, and other means of transport; number of households by country, etc., which go beyond the requirements set up in Commission Implementing Regulation (EU) 2015/1100.

In order to make the SEEP monitoring report compatible with the EU monitoring system, the Consultant prepared a separate section (Additional data-Part 12) which was used to collect data not covered by the Implementing Regulation 2015/1100 Questionnaire.

Step 2: The data sources

The following step was to identify the SEEP data sources. In this phase, all SEEP and local experts were involved.

The following institutions/authorities have been identified as data sources:

1. Railway infrastructure managers.
2. Railway undertakings.
3. Ministries in charge of transport.
4. Regulatory bodies.
5. National safety authorities in charge of railways.
6. National statistical offices.
7. National agencies for environmental protection.
8. Eurostat and EU statistical pocketbook, 2021.
9. Other stakeholders/sources.

Step 3: Data collection process

Regional activities were organised in all SEEP in coordination with the relevant authorities or railway undertakings, supported by the Consultant's local experts.

The data collection process used existing data of the TCT Secretariat, recent feasibility studies, traffic assessments, and data from the projects on the corridors in the SEEP.

⁵ The TODIS database structure intends to include a module for Railway Market Monitoring.

Remarks: During the data collection process, certain differences were identified in the data recording of the national railway statistics. Some data were recorded in a different way than required in the questionnaire of the Implementing Regulation 2015/1100. In the case that there was no record of appropriate data according to the Commission Implementing Regulation 2015/1100/EU, a calculation was made that mostly led to obtaining the requested data. If, for 2021, there was no record of essential data, an estimation was carried out in accordance with the Implementing Regulation. Such calculation and estimation processes are explained in the “Additional comments” section of the questionnaire.

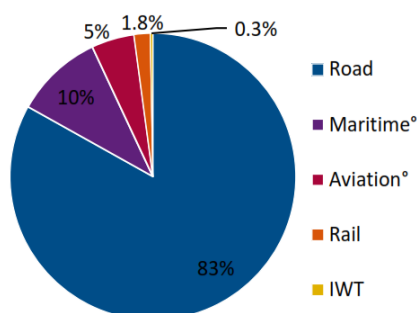
Step 4

The final phase of Task 1 involves the preparation and delivery of this report and infographic on monitoring the Western Balkan railway market for the year 2021 as a base year.

3. Rail and Sustainability

Rail and Inland Waterway Transport (IWT) are recognised as energy efficient, with lower levels of greenhouse gas (GHG) emissions and large freight capacity when compared to other modes (Figure 3-1).

Figure 3-1: Share of the different transport modes on total external costs 2016 for EU28

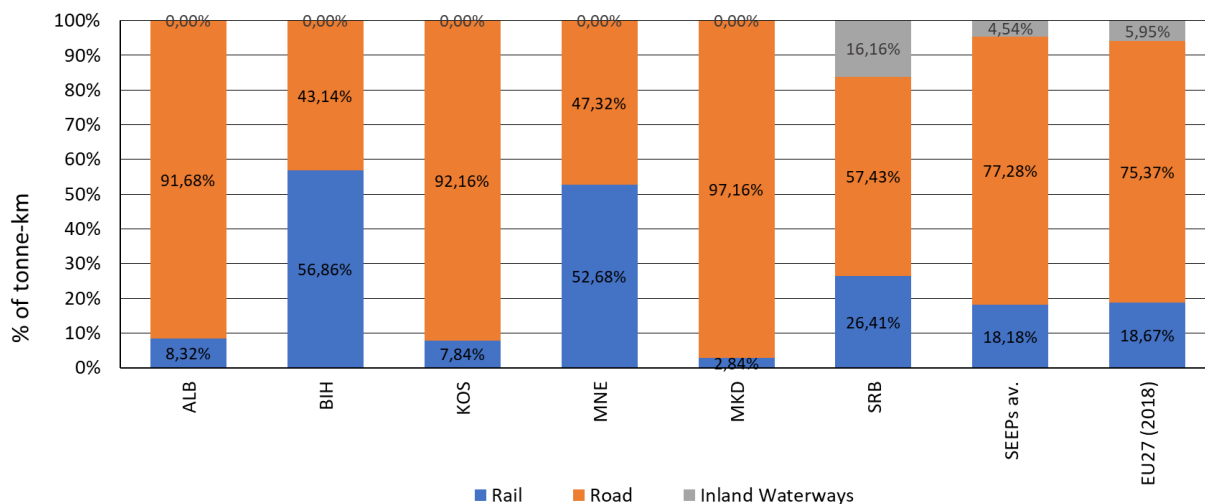


* Data for aviation and maritime: rough estimations for EU28.

Source: Handbook on the external costs of transport Version 2019 – 1.1, European Commission

The railway is one of the modes of transport that can influence the reduction of greenhouse gas and CO₂ emissions. As such, rail is comparatively less polluting and more energy-efficient than other motorised means of transport. In the SEEP region, the railway has a modal share of approximately 19% in freight (tonne-km) and 7% in passenger transport (pax-km) (Figure 3-2 and Figure 3-3).

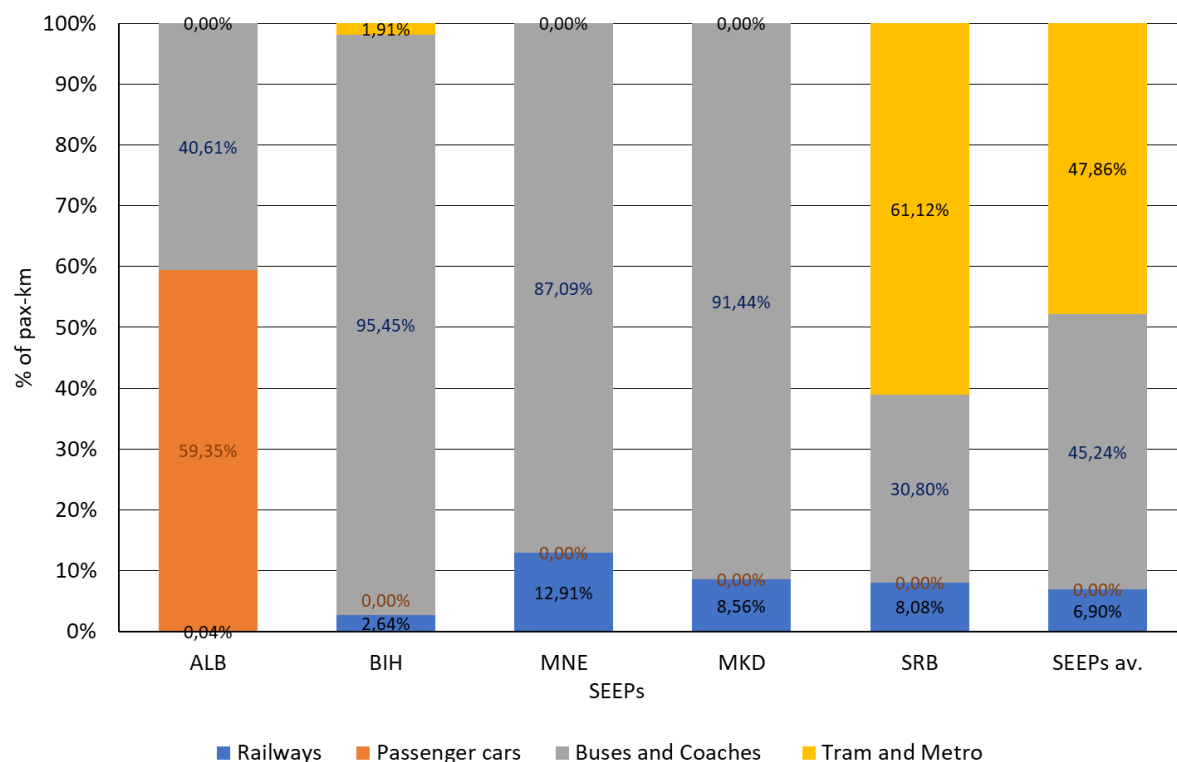
Figure 3-2: Freight transport modal split by SEEP (% in 2021)



Source: National Statistical Offices, 2021.

In the SEEP region, there is no implementation of Directive (EU) 2018/2001. There do not exist any data on the share of rail transport in GHG and CO₂ emissions, except for Serbia. Data from 2021 for Serbia show that the share of rail transport in GHG was only 0.51% and CO₂ emissions only 0.47%, i.e., 2.6% of the total energy consumption in transportation in Serbia. However, that participation is slightly higher compared to the EU27 (2018), which is 1.9%. In order to achieve the goals of the European Green Deal, railways must have a greater share in the transport of passengers and goods.

Figure 3-3: Passenger land transport modal split by SEEP

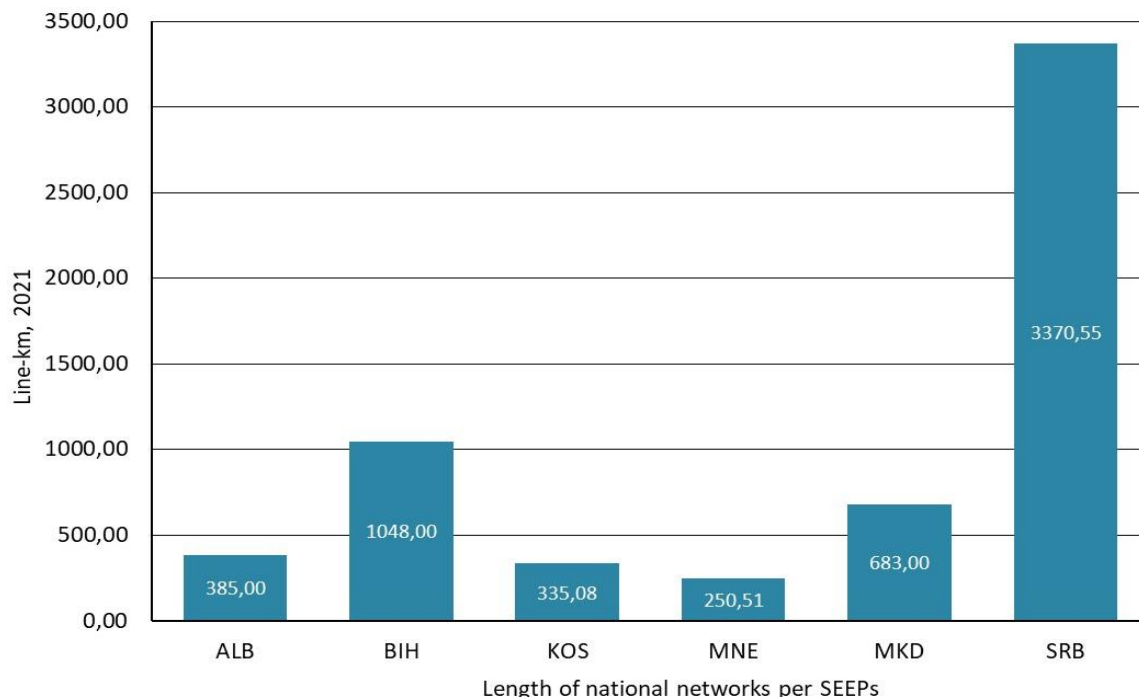


Source: National Statistical Offices, 2021 (without data for Kosovo)

4. SEEP Rail Network

The total length of the SEEP rail network in 2021 was around 6,072 line kilometres. Serbia has the largest network, and Montenegro has the smallest network (Figure 4-1).

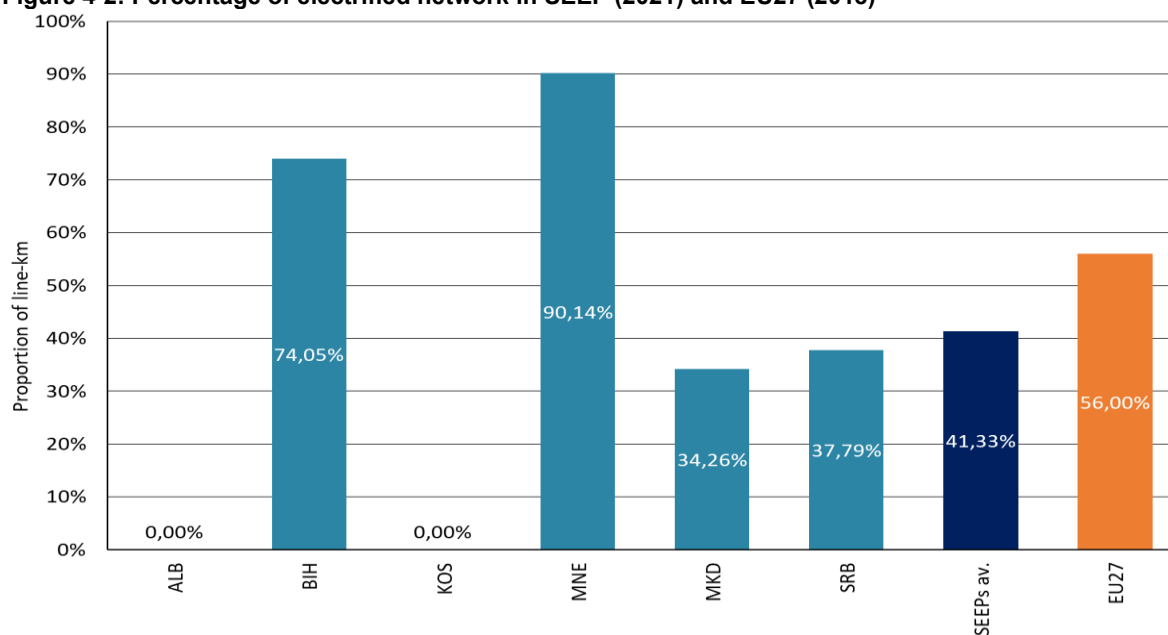
Figure 4-1: Length of national networks per SEEP (line-km, 2021)



Source: Eurostat 2021, National Statistical Offices, 2021

In the SEEP region, about 41% of the total network is electrified. This average is lower than the average for the EU27 (2018) which is 56%. MNE and BIH have the highest percentage of electrified networks, 90% and 74% respectively. Albania and Kosovo do not have electrified railways (Figure 4-2).

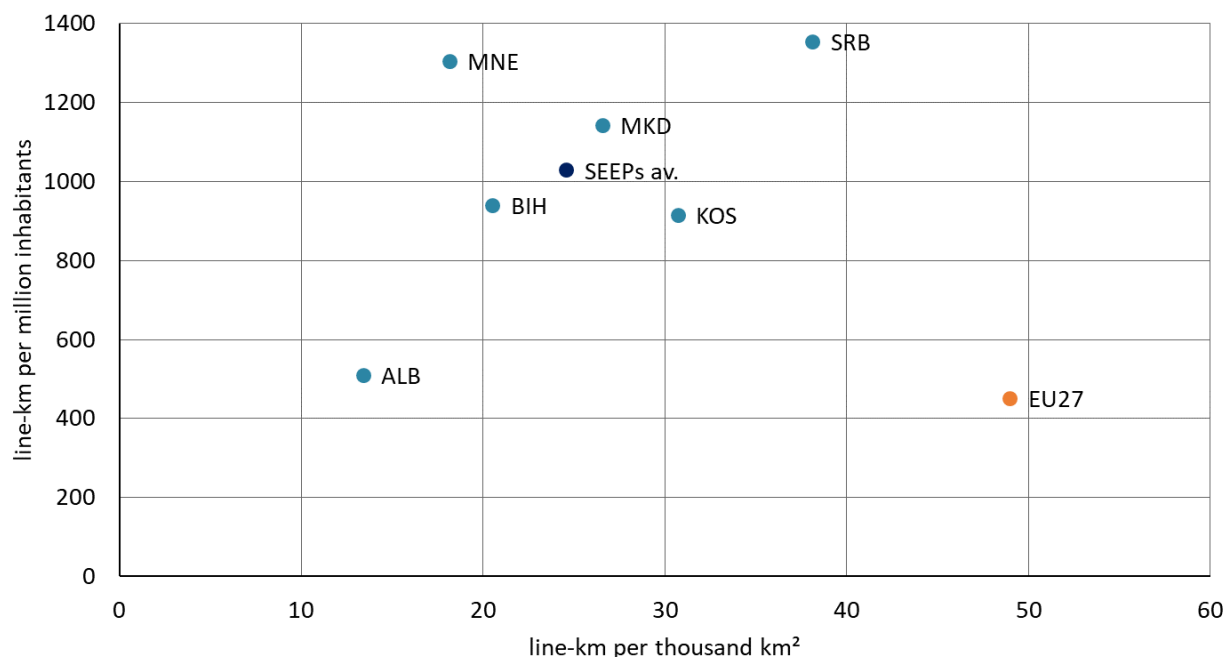
Figure 4-2: Percentage of electrified network in SEEP (2021) and EU27 (2018)



Source: National Statistical Offices, 2021

The average density of the railway network in SEEP by area is 24,57 (km/ in thousand km²) and this value is half of the EU27 average – 48,99 (km/ in thousand km²) – Figure 4-3. The average density of the railway network in SEEP per inhabitant is 1028,06 (km/in million inhabitants) and is higher than the EU27 average (451 km/in million inhabitants).

Figure 4-3: Density of railway network relative to surface area and population in SEEP and EU 27 (2018)

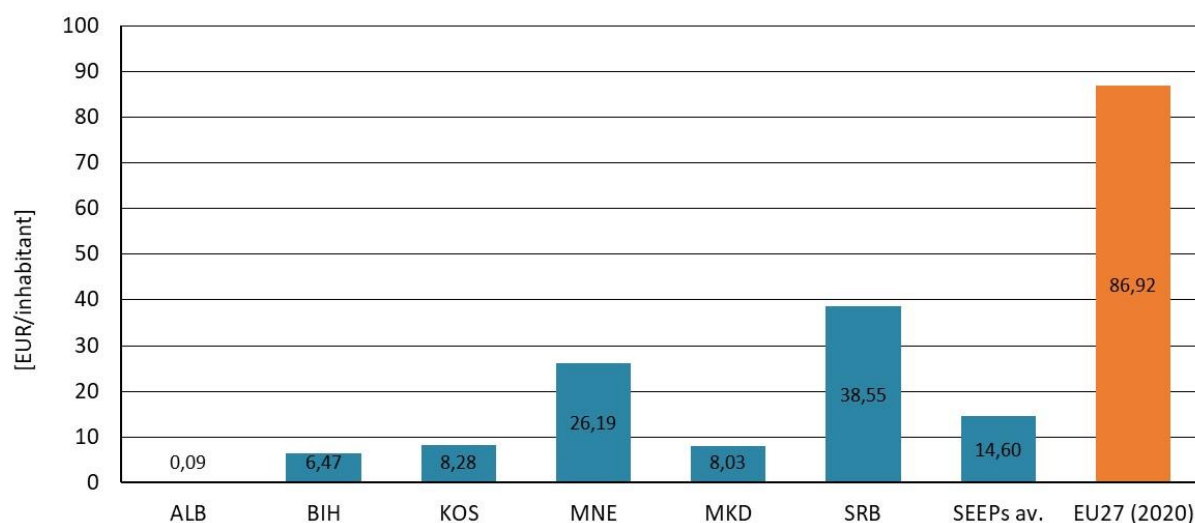


Source: Eurostat 2021, National Statistical Offices, 2021

There were no high-speed lines in operation in the SEEP area in 2021. However, Serbia is about to construct a high-speed railway between Belgrade and Novi Sad with a length of about 75 km.

The highest value of expenditure on infrastructure per inhabitant per SEEP was recorded in Serbia and Montenegro, and the lowest in Albania (Figure 4-4). The average value for SEEP is 14,6 EUR/inhabitant and it is 6 times lower than the average value at the EU level (86,92 EUR/inhabitant).

Figure 4-4: Expenditure on infrastructure per inhabitant per SEEP (EUR, 2021) and EU27 (2020)



Source: RMMS - SEEP, 2021. and 7th RMMS for EU

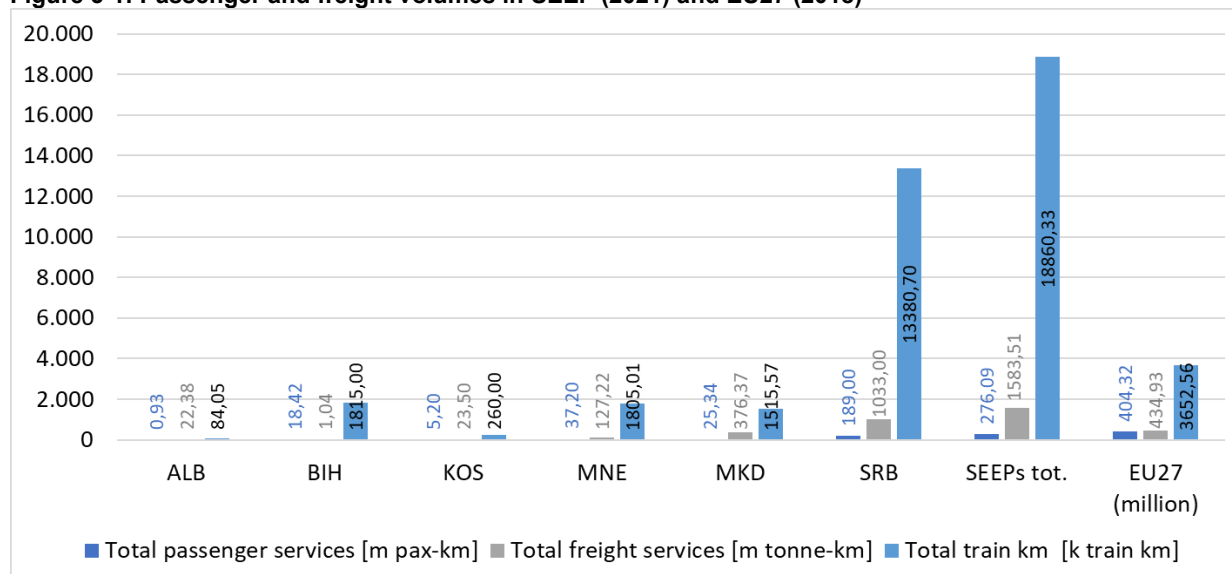
A similar relationship exists in the case of expenditure on infrastructure per household. The highest value of expenditure on infrastructure per household per SEEP was recorded in Serbia and Montenegro, and the lowest in Albania (The average value for SEEP is 46 EUR/household and it is 6 times lower than the average value at the EU level (200 EUR/household)).

5. Rail Services and Revenues

5.1. Rail services

The performance measured in pax-km, tonne-km and train-km in SEEP (2021) and EU27 (2018) is shown in Figure 5-1. The highest performance was in Serbia, the lowest in terms of pax-km and train-km in Albania⁶, and for tonne-km in Albania and Kosovo.

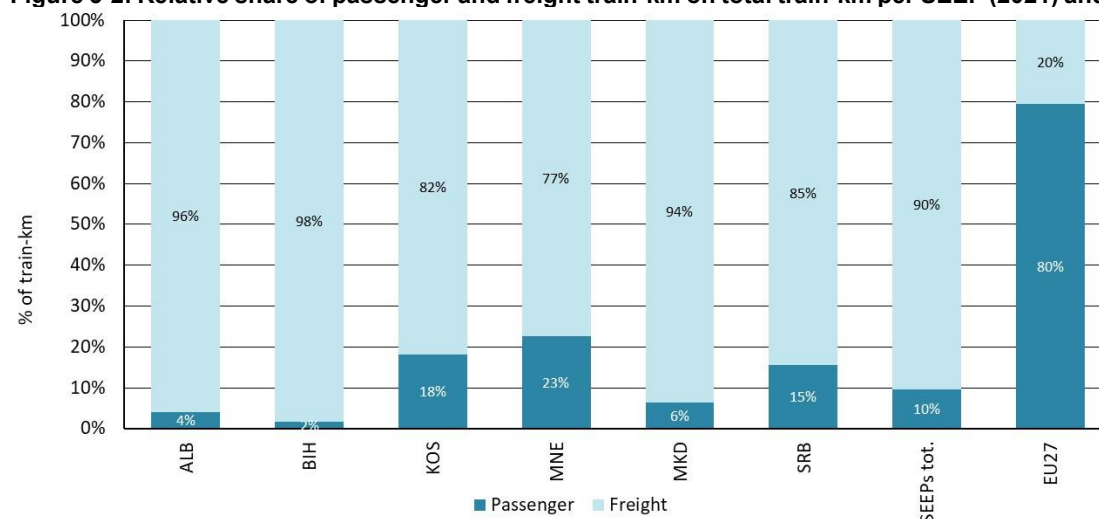
Figure 5-1: Passenger and freight volumes in SEEP (2021) and EU27 (2018)



Source: RMMS - SEEP, 2021. and 7th RMMS for EU,

The relative share of passenger and freight train-km on the total train-km per SEEP is shown in Figure 5-2. The average share of passenger and freight train-km on the total train-km in the SEEP is significantly different from the average in the EU27. At the SEEP level, the share of pax-km on the total train-km is 10%, while in the EU27 it is 80%.

Figure 5-2: Relative share of passenger and freight train-km on total train-km per SEEP (2021) and EU27 (2018)



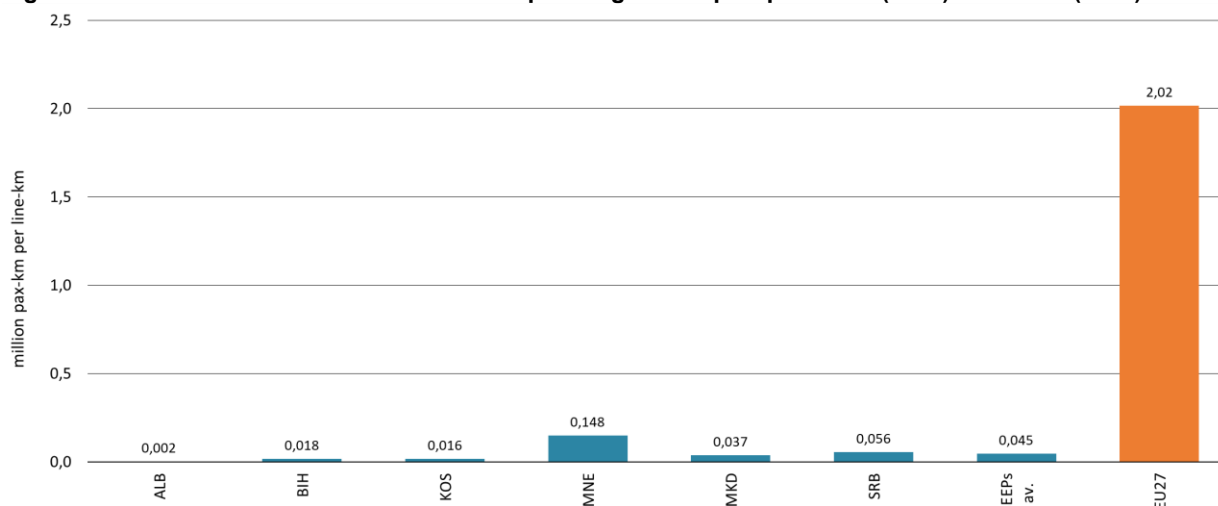
Source: RMMS - SEEP, 2021. and 7th RMMS for EU

Figure 5-3 and Figure 5-4 show the utilisation of rail infrastructure for passenger and freight transport per SEEP (2021) and EU27 (2018). The average utilisation of the rail infrastructure for passenger transport

⁶ There was no passenger traffic in Albania, according to data from HSH Railways NPM (Sheet Passengers).

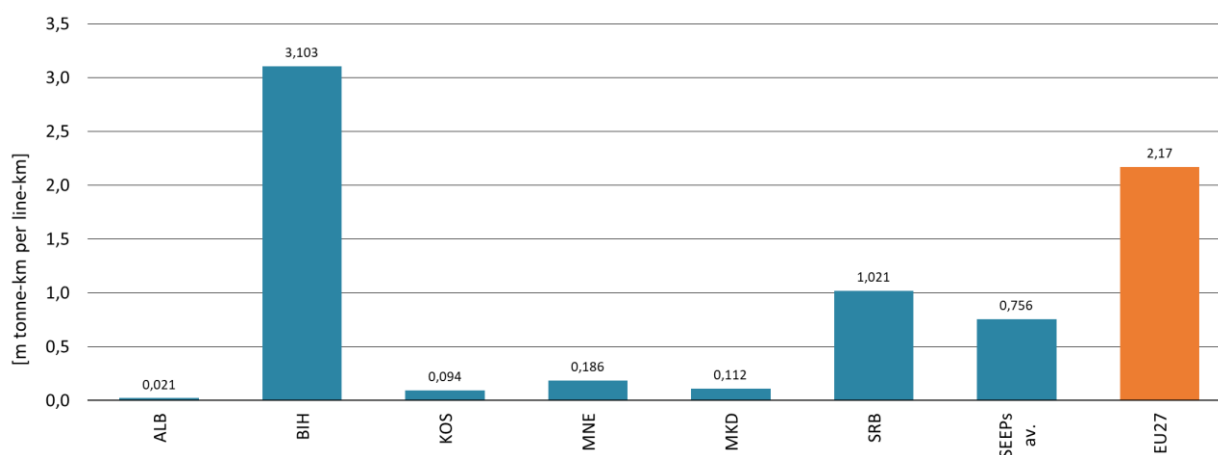
in the SEEP is significantly lower than the utilisation in the EU27, while in freight transport it is about 2.8 times smaller than the level in EU27. BiH has utilisation of rail infrastructure for freight transport 43% higher than the EU27 average.

Figure 5-3: Utilisation of rail infrastructure for passenger transport per SEEP (2021) and EU27 (2018)



Source: RMMS - SEEP, 2021. and 7th RMMS for EU

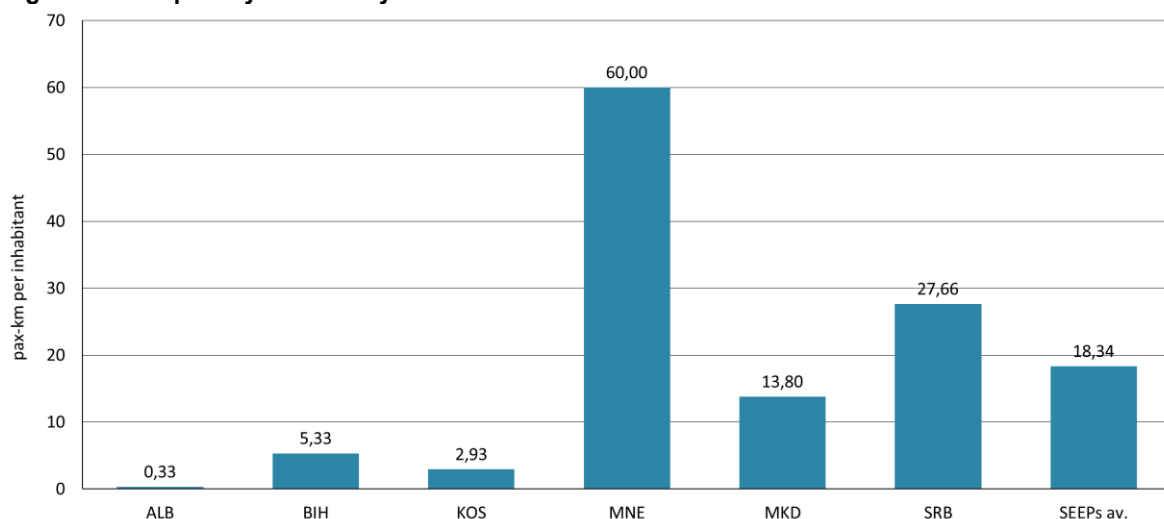
Figure 5-4: Utilisation of rail infrastructure for freight transport per SEEP (2021) and EU27 (2018)



Source: RMMS - SEEP, 2021. and 7th RMMS for EU

Average propensity to travel by rail 2021 in SEEP is 18.34 pax-km per inhabitant (Figure 5-5). Each resident of Montenegro travelled an average of 60 km by rail, a resident of Serbia 27.66 km, a resident of North Macedonia 13.8 km, etc. An Albanian resident travelled 0.33 km. These values are significantly lower than the EU27 average (an EU resident travelled an average of 909 km by rail in 2018).

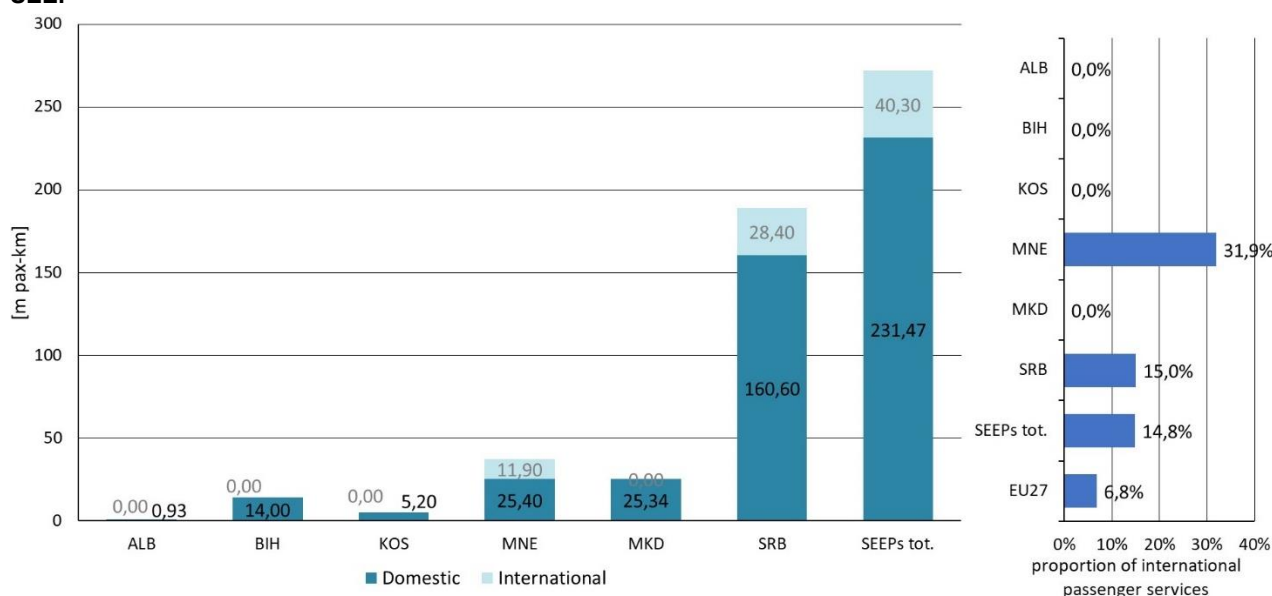
Figure 5-5: Propensity to travel by rail 2021



Source: RMMS - SEEP, 2021.

Passenger traffic volumes by rail (domestic, international and proportion of international on total) in SEEP is shown in Figure 5-6. The largest share of international traffic was in Montenegro (31.9%). The average share of international traffic at the SEEP level is 14.8% and is higher than the EU27 average of 6.8% (in 2018). Bosnia and Herzegovina, North Macedonia, and Kosovo did not have international traffic.

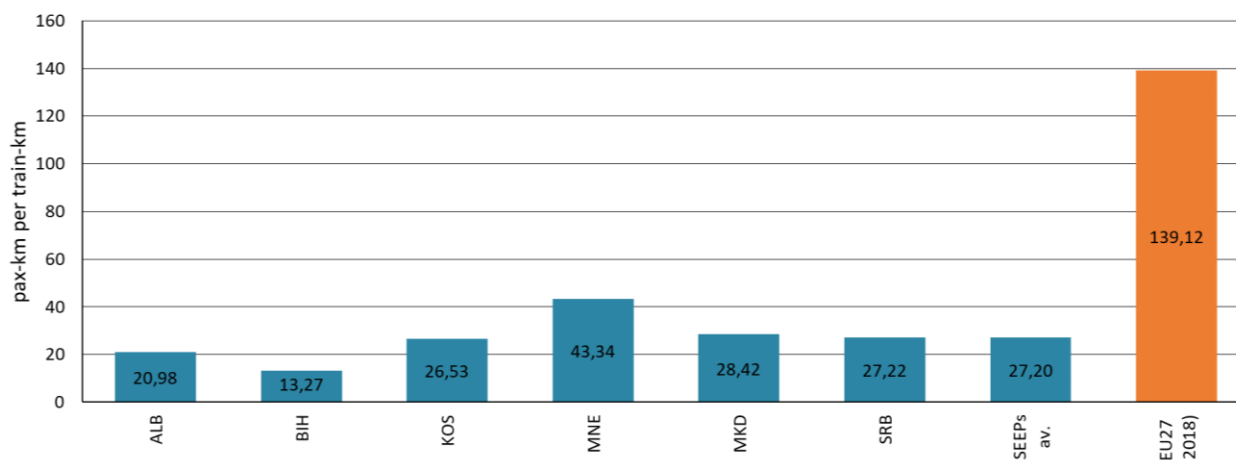
Figure 5-6: Passenger traffic volumes (domestic, international and proportion of international on total) in SEEP



Source: RMMS - SEEP, 2021. and 7th RMMS for EU

The number of pax-km per passenger train-km per SEEP (2021) is significantly lower than in the EU27 (Figure 5-7). Montenegro has the highest value of pax-km per passenger train-km and Bosnia and Herzegovina the lowest.

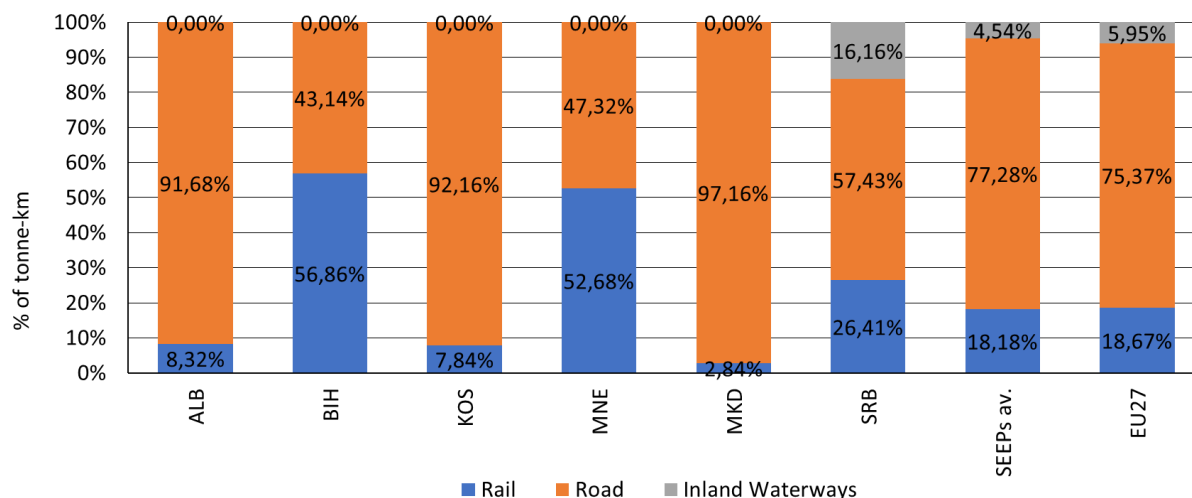
Figure 5-7: Number of pax-km per passenger train-km per SEEP (2021) and EU (2018)



Source: RMMS - SEEP, 2021. and 7th RMMS for EU

In the SEEP region, there is a significant dominance of road transport in the freight land transport modal split with 77.28% - Figure 5-8. Rail share in freight land transport modal split is 18.18% and IWW 4.54% (exists only in Serbia). The average freight land transport modal split of the SEEP (2021) is identical to the values in EU27 (2018).

Figure 5-8: Freight land transport modal split by SEEP (% in 2021) and EU27 (% in 2018)

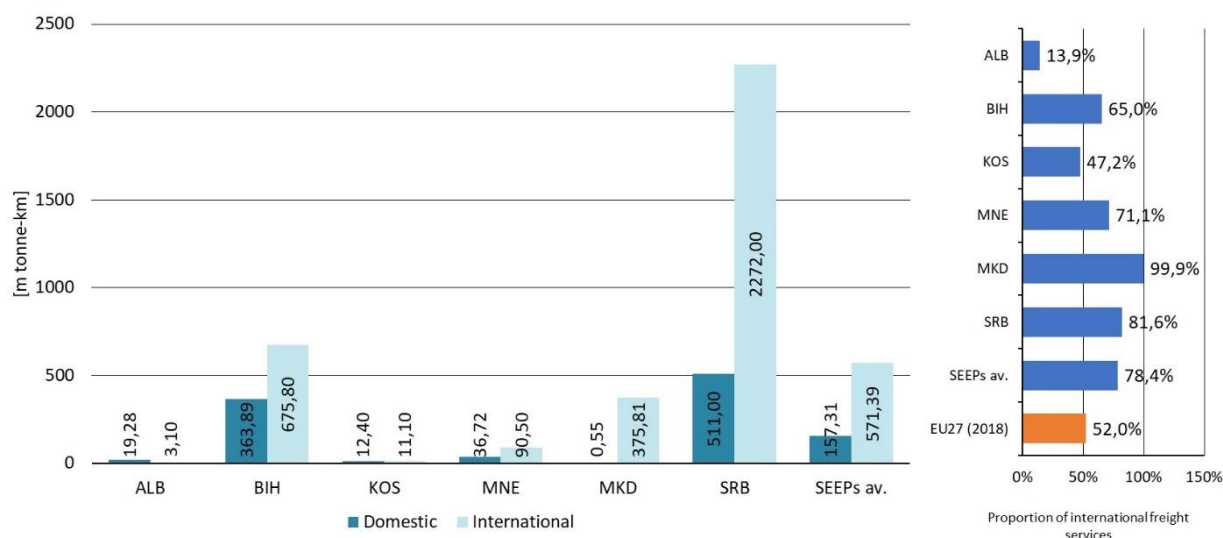


Source: RMMS – SEEP, 2021. and 7th RMMS for EU

Freight traffic volumes (domestic, international and proportion of international on total) in the SEEP are shown in

Figure 5-9. The share of international transport in the SEEP (2021) was 78.4% and in EU27 (2018) 52%. This means that international traffic is dominant in the SEEP, except in Albania. There is almost no domestic freight traffic in North Macedonia.

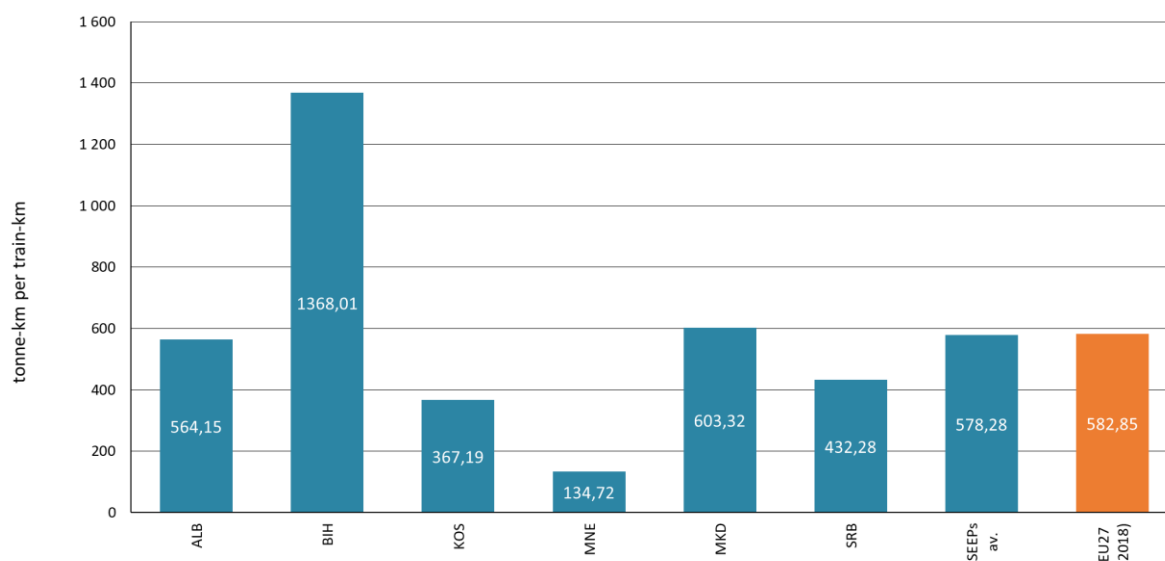
Figure 5-9: Freight traffic volumes (domestic, international and proportion of international on total) in SEEP



Source: RMMS - SEEP, 2021. and 7th RMMS for EU

The number of tonne-km per freight train-km per SEEP (2021) is at the same level as in the EU27 (Figure 5-10). Bosnia and Herzegovina has the highest value of tonne-km per freight train-km, while Montenegro has the lowest value.

Figure 5-10: Number of tonne-km per freight train-km per SEEP (2021) and EU (2018)

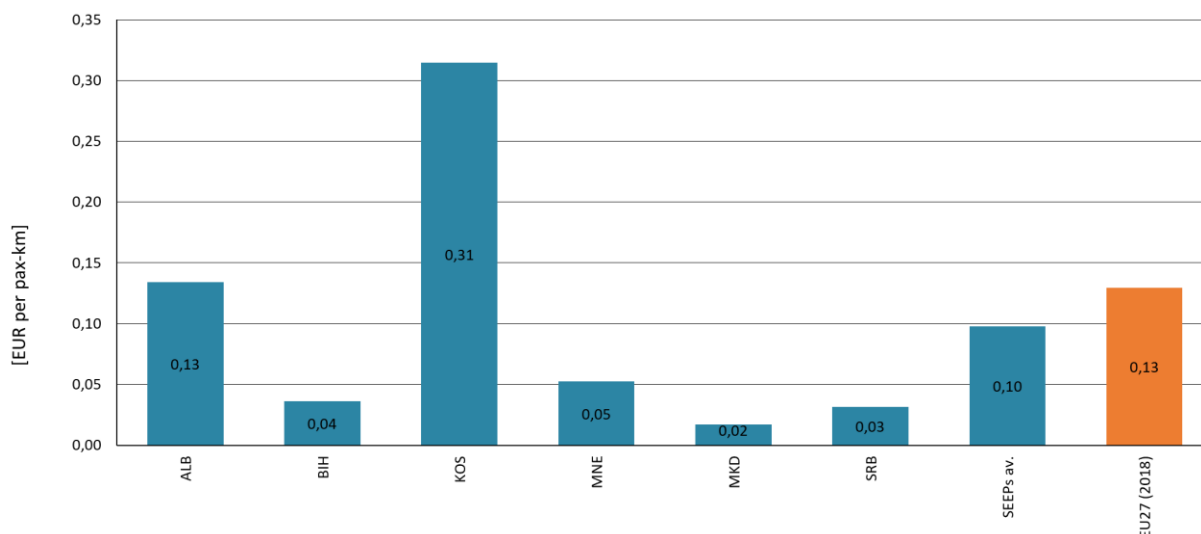


Source: RMMS - SEEP, 2021. and 7th RMMS for EU

5.2. Railway undertakings' revenues

The average revenues of railway undertakings from passenger transport services per pax-km per SEEP in 2021 amounted to EUR 0,13 and is close to EU27 revenues (2018) - Figure 5-11. The highest income was earned in Kosovo (0,31 EUR/pax-km) and the lowest in North Macedonia (0,02 EUR/pax-km).

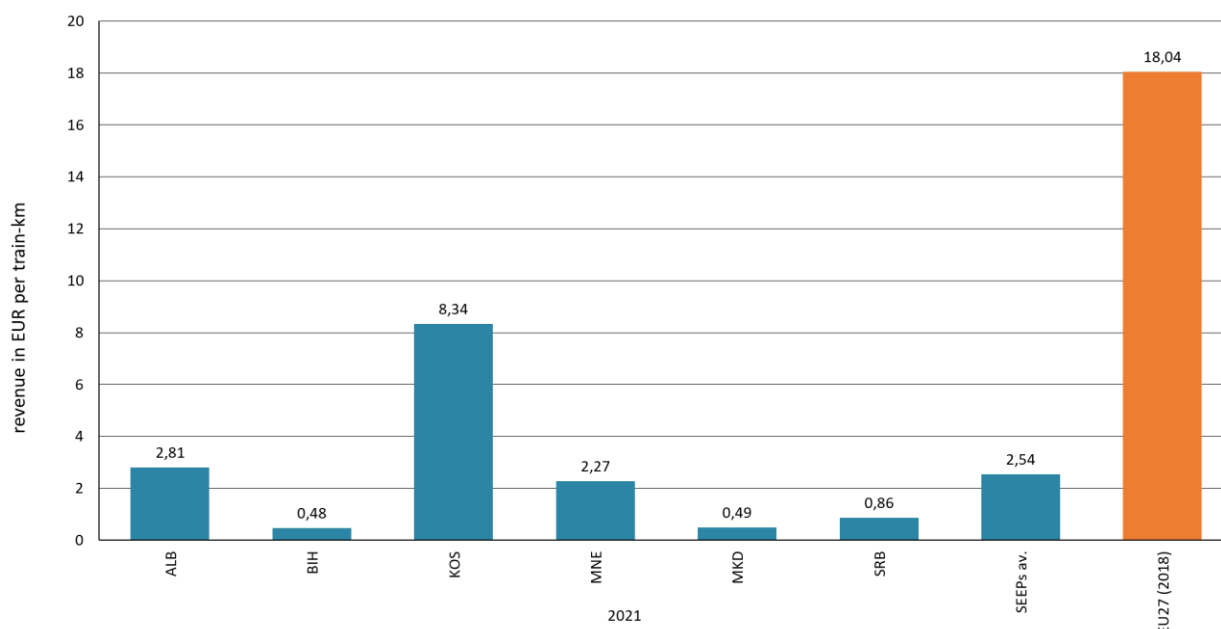
Figure 5-11: Railway undertakings' revenues from passenger transport services per pax-km per SEEP (2021) and EU27 (2018)



Source: RMMS - SEEP, 2021. and 7th RMMS for EU

The average revenues of railway undertakings from passenger transport services amounted to 2.54 EUR/train in SEEP. It is significantly lower than the revenues of the EU27 (18,04 EUR/train-km) – Figure 5-12. The highest value of revenues per train-km is in Kosovo (8,34 EUR) and the lowest in Bosnia and Herzegovina (0,48 EUR).

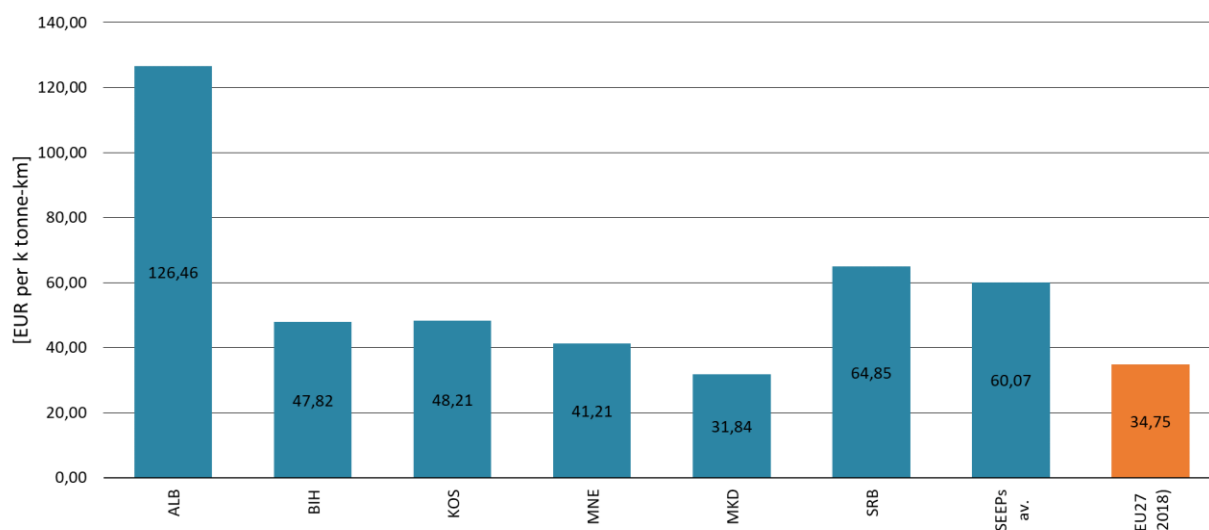
Figure 5-12: Railway undertakings' revenues from passenger transport services per train-km per SEEP (2021) and EU27 (2018)



Source: RMMS - SEEP, 2021. and 7th RMMS for EU

The average revenue of railway undertakings from freight transport services in tonne-km per SEEP is 60.07 EUR/tonne-km and is higher than the average value in the EU27 (34.75 EUR/tonne-km) –Figure 5-13. The highest revenue from freight transport services is in Albania (126.46 EUR/tonne-km) and the lowest in North Macedonia (31.84 EUR/tonne-km).

Figure 5-13: Railway undertakings' revenues from freight transport services per tonne-km per SEEP (2021) and EU27 (2018)

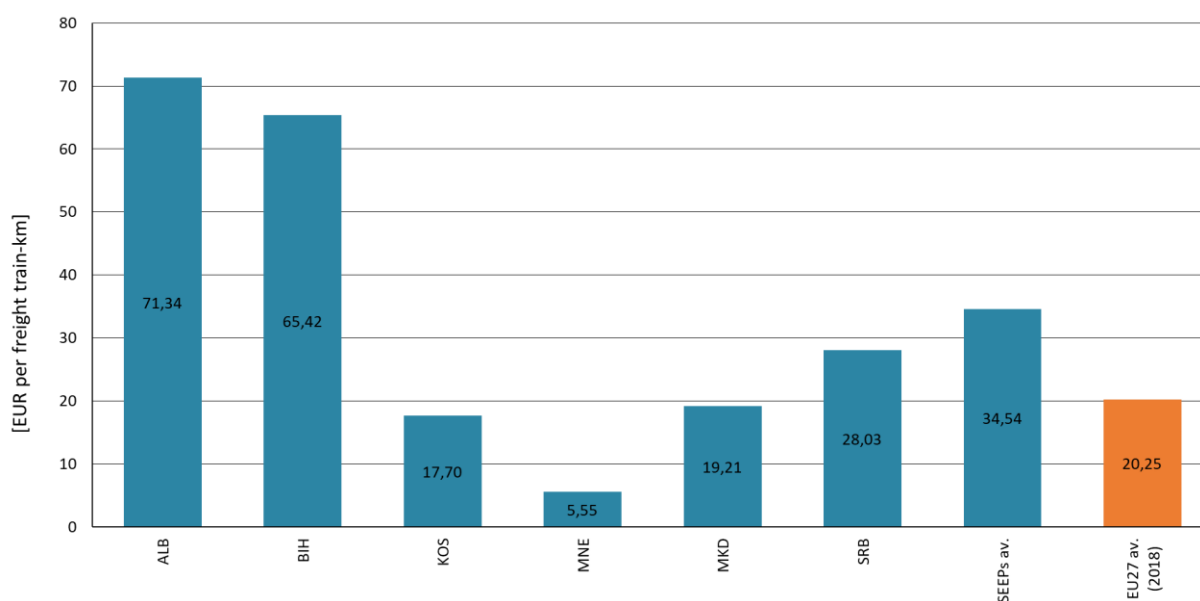


Source: RMMS – SEEP, 2021. and 7th RMMS for EU

The revenues of railway undertakings from freight transport services in freight train-km per SEEP (2021) and EU27 (2018).

The average revenue of railway undertakings from freight transport services in freight train-km per SEEP is 34,54 EUR/train-km and is higher than the average value in the EU27 (20,25 EUR/train-km) – Figure 5-14. The highest revenues from freight transport services are in Albania (71,34 EUR/train-km) and Bosnia and Herzegovina (65,42 EUR/train-km), and the lowest in Montenegro (5,55 EUR/train-km).

Figure 5-14: Railway undertakings' revenues from freight transport services per freight train-km per SEEP (2021) and EU27 (2018)



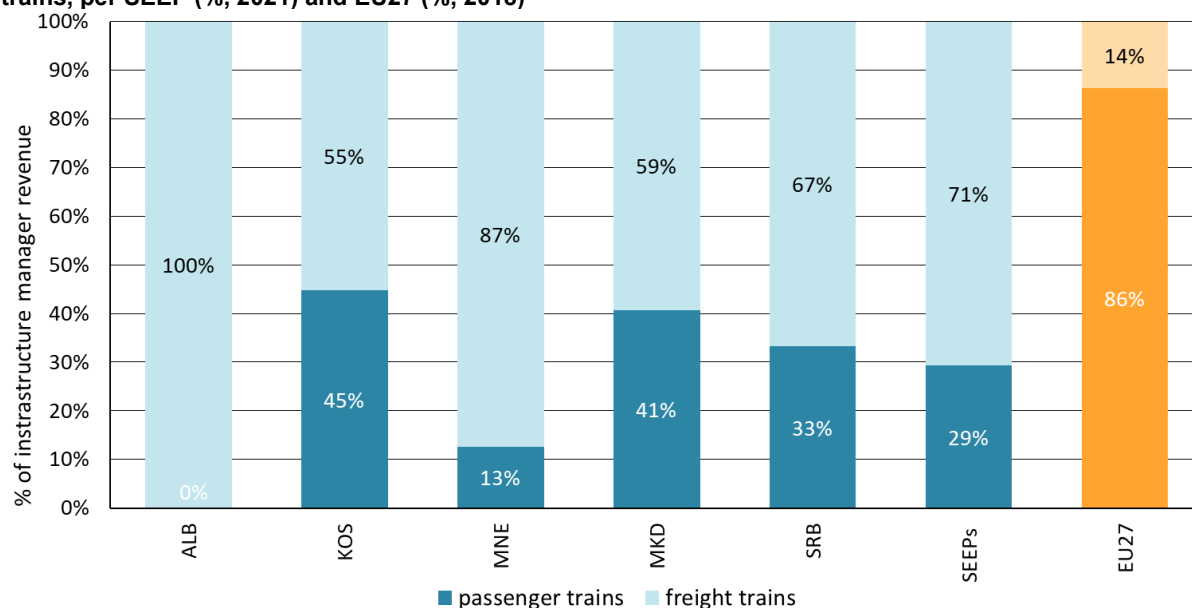
Source: RMMS - SEEP, 2021. and 7th RMMS for EU

6. Framework Conditions in the Rail Sector

6.1. Infrastructure charging

Infrastructure managers in SEEP earn 71% of their income from Track Access Charges - TACs (plus station charges or terminal charges) from freight trains and 29% from passenger trains (Figure 6-1). This ratio is very different than the EU27 (2018) where 86% of revenues are from passenger traffic and 14% from freight traffic. In Albania 100% of revenues from TACs are from freight trains. There are no passenger services in Albania. Bosnia and Herzegovina does not yet have track access charging.

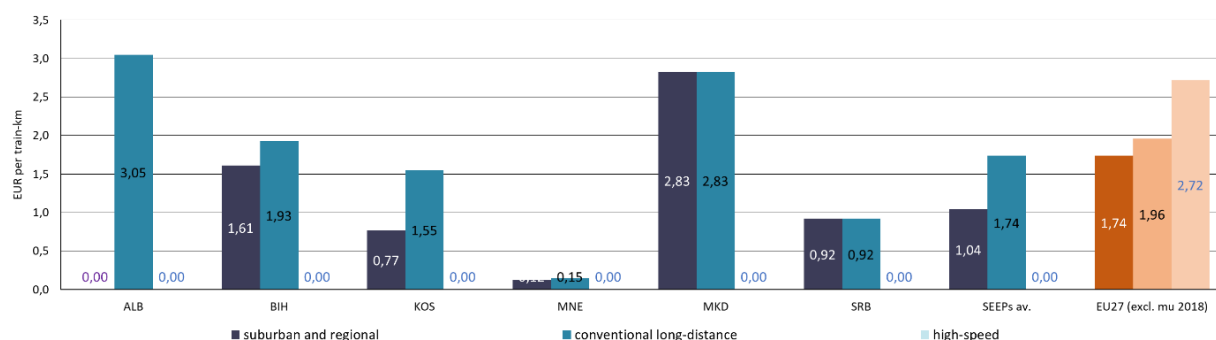
Figure 6-1: Share of passenger and freight charges on infrastructure managers' total revenues earned from trains, per SEEP (%), 2021) and EU27 (%), 2018)



Source: RMMS - SEEP, 2021. and 7th RMMS for EU. In the methodologies in SEEP, TACs are generally given for including mark-ups.

Track access charges for suburban and regional trains (including mark-ups) in the SEEP averaged 1.04 EUR/train-km and are lower than the EU27 average (1.74 EUR/train-km excl. mark-ups) - Figure 6-2. The situation was the same with conventional long-distance trains. For these trains, TACs (incl. mark-ups) amounted to an average of 1.74 EUR/train-km and in the EU27 1.96 EUR/train-km. In 2021, there were no high-speed trains in the SEEP region in the base year.

Figure 6-2: Access charges (including markups) for different categories of passenger trains, by SEEP (EUR per train-km, 2021) and EU (2018)

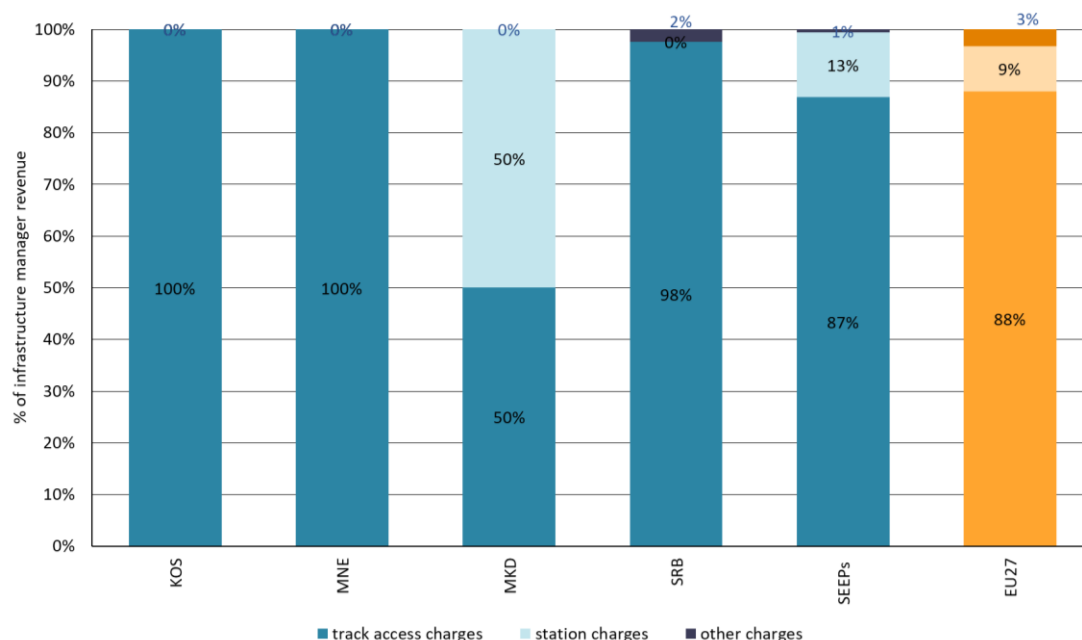


Source: RMMS - SEEP, 2021. and 7th RMMS for EU. In the methodologies in SEEP, TACs are generally given for including mark-ups. Determination of fees for the use of railway infrastructure in BiH is based on the category of line, type of train, on the basis of which the unit price is determined, expressed as the ratio of BAM to train kilometer.

In SEEP passenger transport (without Albania and Bosnia and Herzegovina), revenues from TACs,

amount to 87% of the total revenues for infrastructure managers, which is the same as in the EU27 (2018) - Figure 6-3. Revenues from station charges in the SEEP amounted to 13% and in the EU27 to 9%.

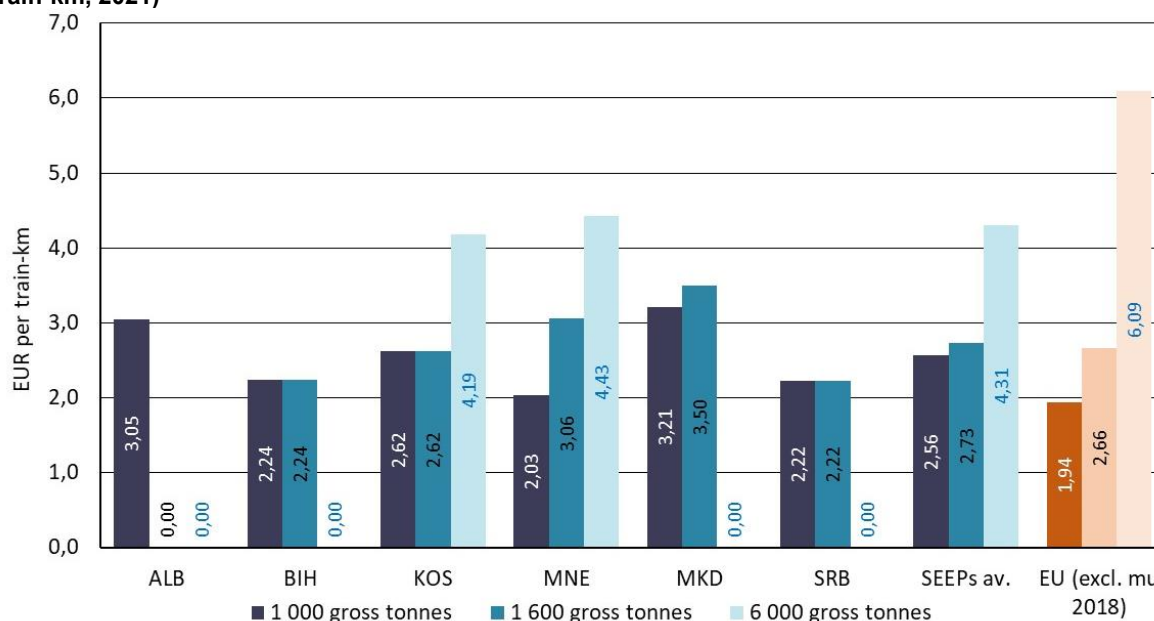
Figure 6-3: Proportion of infrastructure managers' revenue earned from TACs, station charges and other charges on total charges paid by passenger trains per SEEP (% , 2021) and EU27 (2018)



Source: RMMS - SEEP, 2021. and 7th RMMS for EU. In the methodologies in SEEP, TACs are generally given for including mark-ups.

Freight charges (including markups) according to Implementing Regulation (EU) 2015/1100 are monitored for three different maximum gross tonnages (1000, 1600 and 6000).

Figure 6-4: Access charges (including mark-ups) for different categories of freight trains, by SEEP (EUR per train-km, 2021)

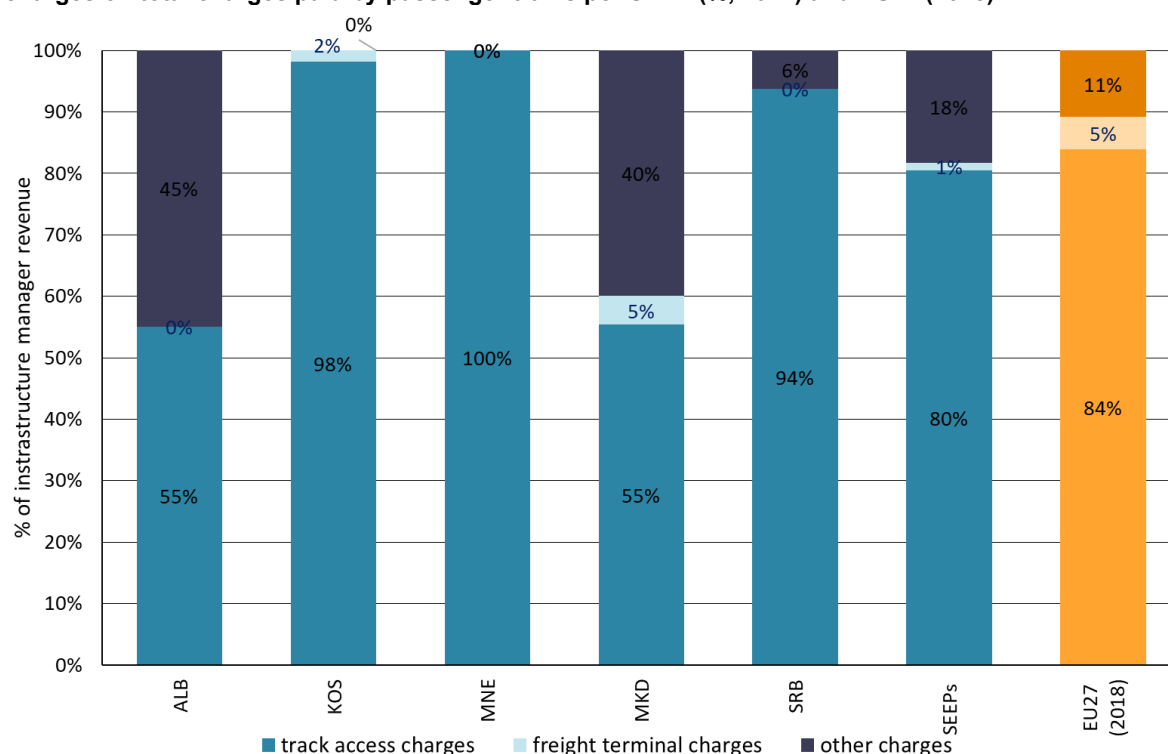


Source: RMMS - SEEP, 2021. and 7th RMMS for EU. In the methodologies in SEEP, TACs are generally given for including mark-ups. Determination of fees for the use of railway infrastructure in BiH is based on the category of line, type of train, on the basis of which the unit price is determined, expressed as the ratio of BAM to train kilometre.

In most SEEP, track access charges increase with train size, although not necessarily with tonnage. However, in Serbia, North Macedonia, Bosnia and Herzegovina, and Albania, the category of trains weighing 6,000 tonnes is not defined in the tariffs for TAC and other regulations (Figure 6-4). In Albania, the category of trains of 1,600 tonnes has not been defined either. For trains weighing 1,000 tonnes, the average TACs in SEEP was 2.56 EUR/train-km, while the average for the EU was lower (1.94 EUR/train-km). For trains weighing 1,600 tonnes – 2.73 EUR/train-km and in the EU – 2.66 EUR/train-km. In Kosovo for trains weighing up to 6,000 tonnes TACs amounted to 4.19 EUR/train-km and in Montenegro it was 4.43 EUR/train-km. The average in the EU27 was 6.09 EUR/train-km.

In SEEP freight transport (without Albania and Bosnia and Herzegovina), revenues from TACs accounted for 80% of the total revenues of the infrastructure managers, slightly lower than in the EU27 (2018) - Figure 6-5. Revenues from freight terminal charges in the SEEP amounted to 1% and in the EU27 to 5%.

Figure 6-5: Proportion of infrastructure managers' revenue earned from TACs, station charges and other charges on total charges paid by passenger trains per SEEP (% , 2021) and EU27 (2018)

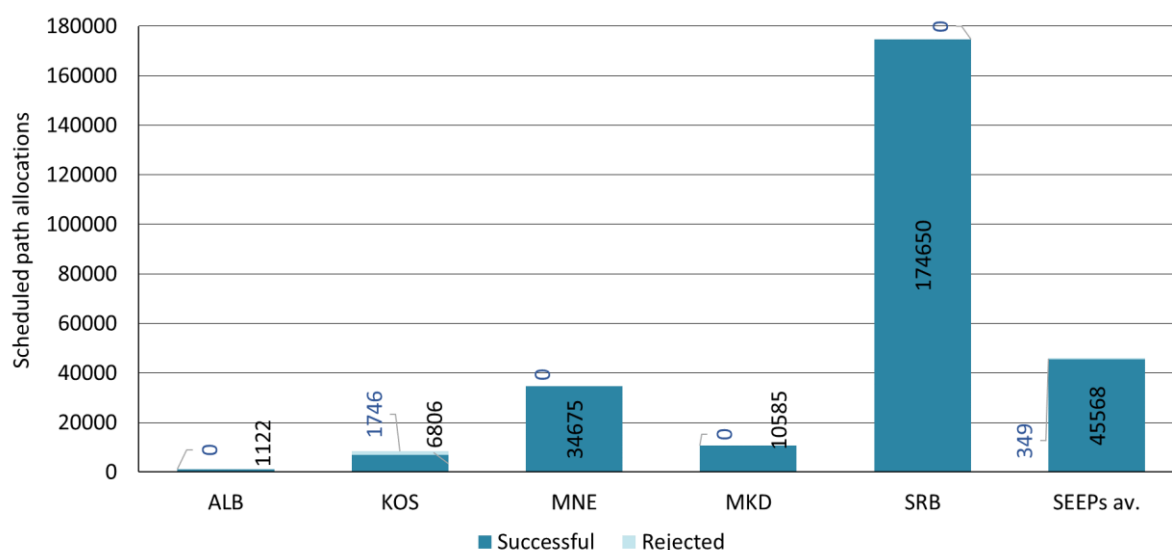


Source: RMMS - SEEP, 2021. and 7th RMMS for EU. In the methodologies in SEEP, TACs are generally given for including mark-ups.

6.2. Capacity allocation and infrastructure limitations

The annual number of successful and rejected path allocations for scheduled path allocations per SEEP is shown in Figure 6-6. The largest number of train paths according to the schedule was in Serbia and the smallest in Albania. Rejected path allocations were only in Kosovo, with about 20%.

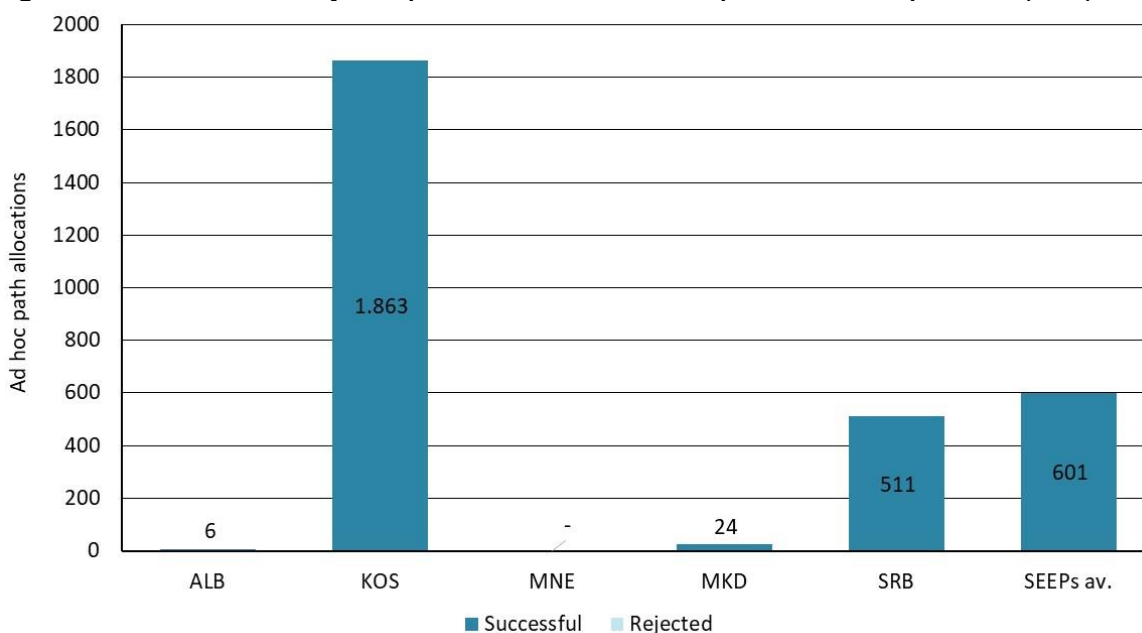
Figure 6-6: Successful and rejected path allocations for scheduled path allocations per SEEP (2021)



Source: RMMS - SEEP, 2021. The Bosnia and Herzegovina did not has application Methodology for TAC.

The largest number of assigned ad hoc routes was in Kosovo and the smallest in Albania. In Montenegro, there were no ad hoc requests for path allocations (Figure 6-7). As can be seen from the figure below, no ad hoc route allocation requests were rejected.

Figure 6-7: Successful and rejected path allocations for ad hoc path allocations per SEEP (2021)



Source: RMMS - SEEP, 2021. The Bosnia and Herzegovina did not has application Methodology for TAC.

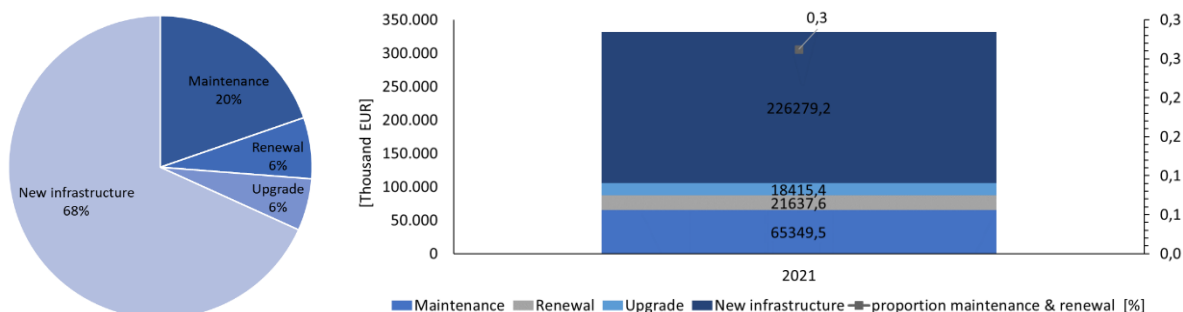
There were no congested tracks on the SEEP network in 2021.

On the section of the main route Stara Pazova - Novi Sad in Serbia, modernisation and reconstruction works ended by the end of 2021. Passenger service had been completely discontinued during the works, whereas freight services had been redirected to the alternative route Belgrade – Pancevo – Orlovat – Novi Sad.

6.3. Infrastructure expenditure and funding

The total infrastructure expenditure (percentage and total by type of expenditure) is shown in Figure 6-8. The largest part of infrastructure costs in 2021 was related to the construction of new railway infrastructure. 95% of investments in new infrastructure were carried out in Serbia and 5% in North Macedonia. The largest amount of maintenance costs was in Serbia and Bosnia and Herzegovina.

Figure 6-8: Percentage of infrastructure expenditure in SEEP (2021)

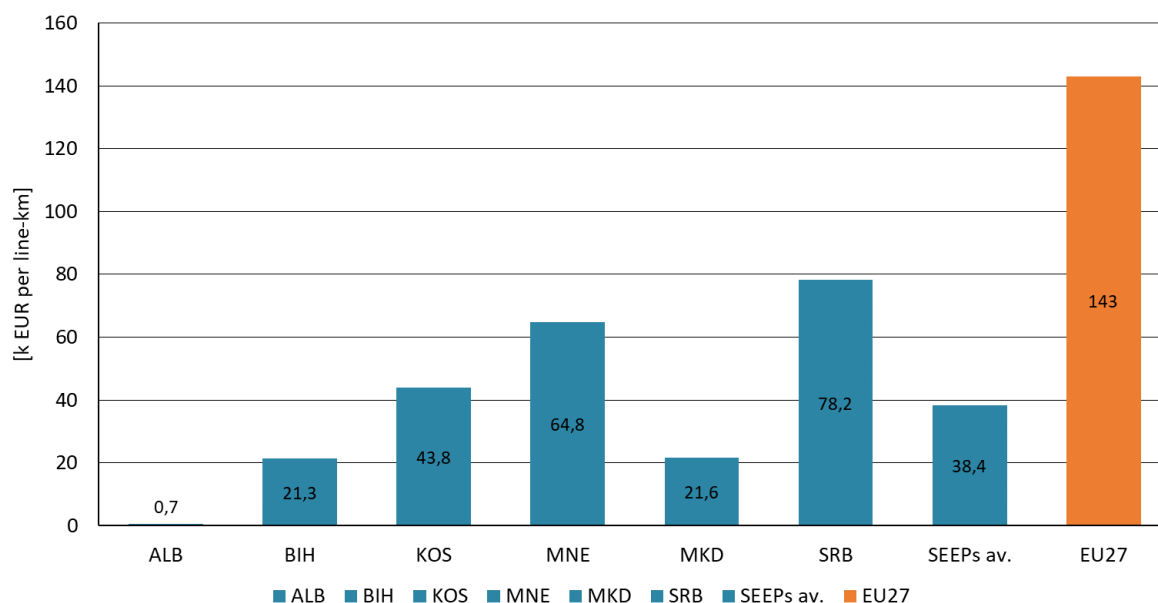


Source: RMMS - SEEP, 2021.

The highest percentage of maintenance & renewal in 2021 was in Albania (100%), followed by Montenegro (93%) and Bosnia and Herzegovina (82%), and the lowest in Kosovo (10%).

Figure 6-9 shows the expenditure on maintenance, renewal, and enhancement per line-km per SEEP and EU. On the average, in the SEEP, these costs amount to about 38,400 EUR/line-km, while at the EU level they are almost 3.7 times higher, amounting to about 143,000 EUR/line-km. In 2021, Serbia and Montenegro had the highest expenditure on maintenance, renewal, and enhancement, while Albania had the lowest.

Figure 6-9: Expenditure on maintenance, renewal and enhancement per line-km per SEEP (2021) and EU (2020)

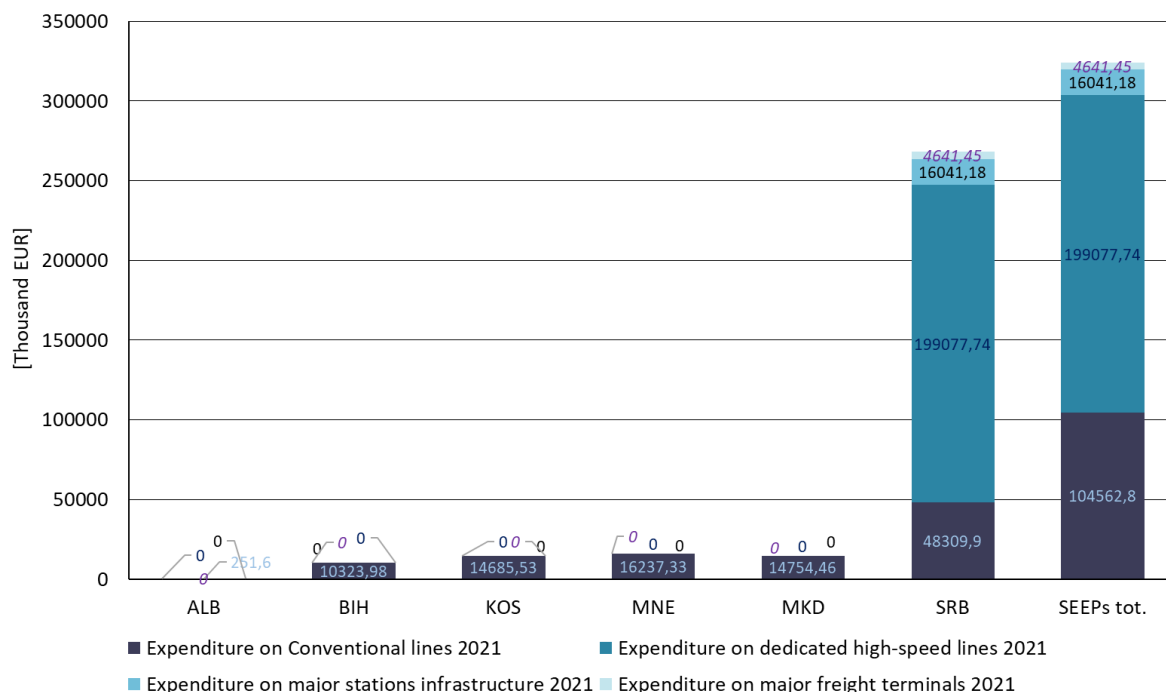


Source: RMMS - SEEP, 2021. and 7th RMMS for EU

Infrastructure expenditure by line category in the SEEP is shown in in

Figure 6-10. 46% of the total expenditure on conventional lines in 2021 was carried out in Serbia. The average share of Kosovo, Montenegro, and North Macedonia is 15% each, in BiH about 10%. Expenditure on future high-speed lines in 2021 existed only in Serbia.

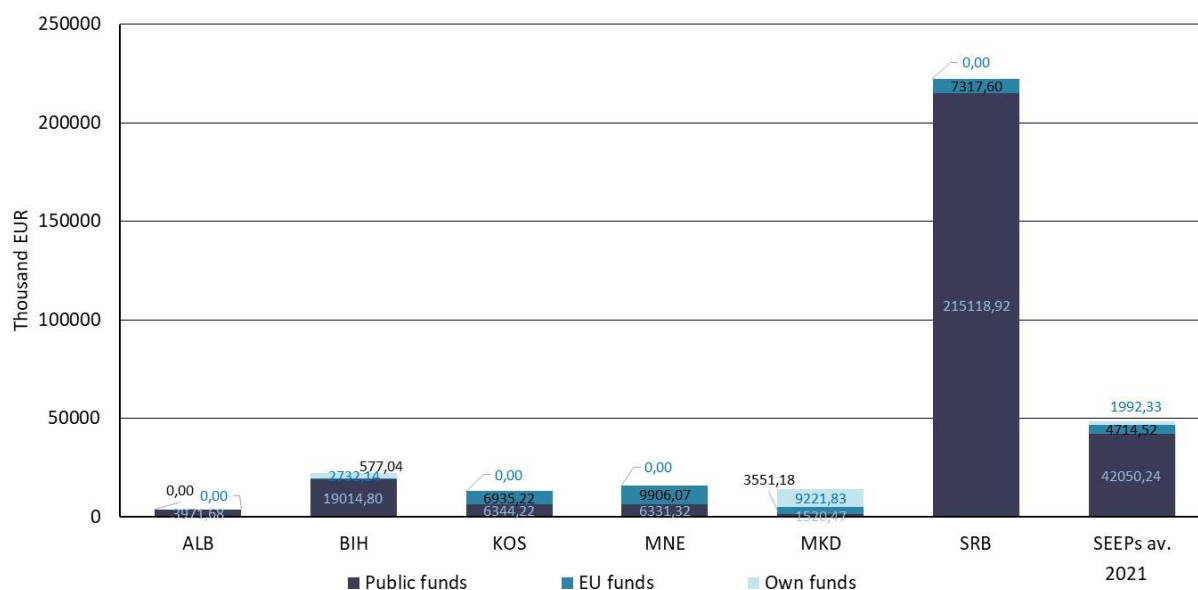
Figure 6-10: Expenditure on maintenance, renewal and enhancement per line-km per SEEP



Source: RMMS - SEEP, 2021.

Figure 6-11 shows the rail infrastructure funding by source in SEEP. The participation of EU funds ranged from 0% (Albania) to 35% (Montenegro). In 2021, 85% of Serbian infrastructure was funded from non-EU funds.

Figure 6-11: Rail infrastructure funding by source in SEEP



Source: RMMS - SEEP, 2021.

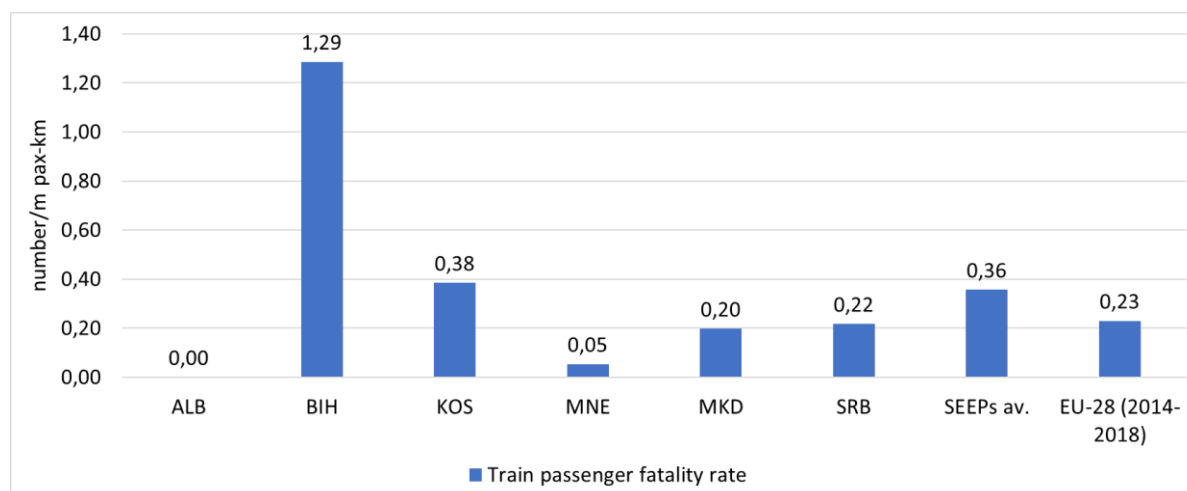
6.4. Quality of rail transport services

The assessment of the safety of railway traffic in relation to other modes of transport and especially in relation to road traffic for the year 2021 in the SEEP region cannot be analysed. The reason is that no data for pax-km of passenger car traffic are available for all SEEP, and for Albania and Kosovo also for bus traffic. In the absence of the data, the Consultant opted for the available 2020 Eurostat statistics, according to which 181 people died in road traffic accidents in Albania, 125 in North Macedonia, 48 in Montenegro and 492 in Serbia. Eurostat data for 2021 are not available. The Consultant assumes that there were no significant changes in 2021 compared to 2020.

The number of people who died in railway accidents in 2021 was: Albania 0, Bosnia and Herzegovina 18, Kosovo 2, Montenegro 2, North Macedonia 5 and Serbia 41 persons. In 2021, there were no fatalities in the SEEP in air traffic.

Train passenger fatality rate in SEEP is shown in Figure 6-12. The average rate is about 55% higher than the EU average (2014-2018). There is a significant deviation in Bosnia and Herzegovina (1,29), which is 5 times higher than the EU average. There were no fatalities in Albania. The largest number of people killed in railway accidents occurred at road-railway crossings.

Figure 6-12: Train passenger fatality rate in SEEP

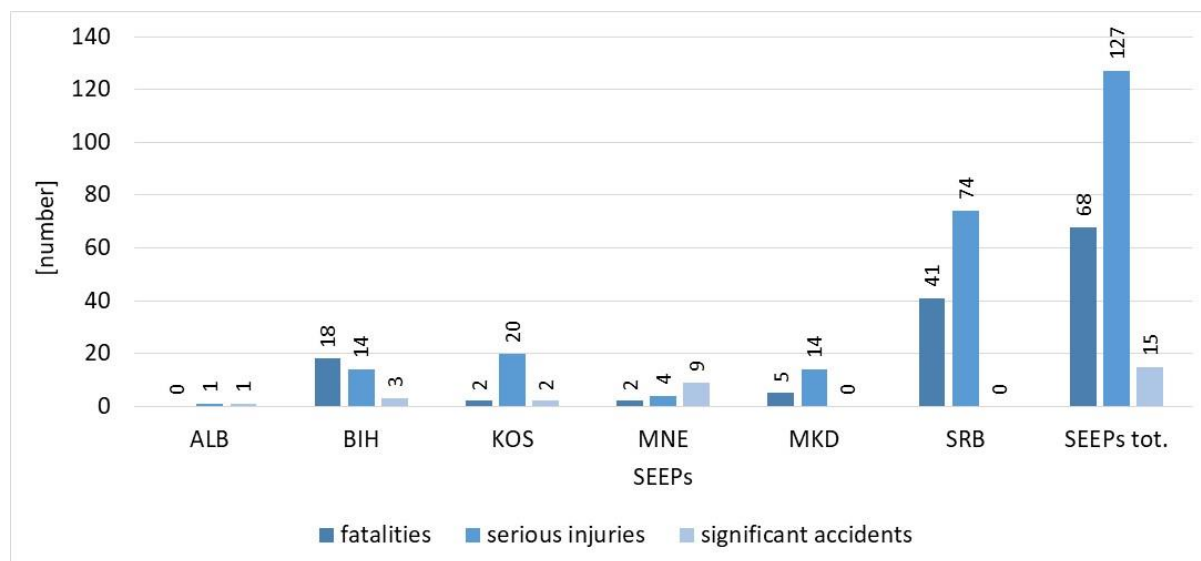


Source: RMMS – SEEP and Additional Questionnaire (part 12 – SEEP), 2021.

A total of 68 fatalities, 127 serious injuries, and 15 significant accidents occurred in the SEEP (Figure 6-13). According to data from the European Union Agency for Railways (ERA), a total of 855 fatalities, 750 serious injuries, and 1671 significant accidents occurred in the EU in 2018. That is, average per EU member state: 32 fatalities, 28 serious injuries, and 62 significant accidents. The highest number of fatal accidents and serious injuries in 2021 occurred in Serbia, respectively 41 and 74. Albania had the lowest number of railway accidents.

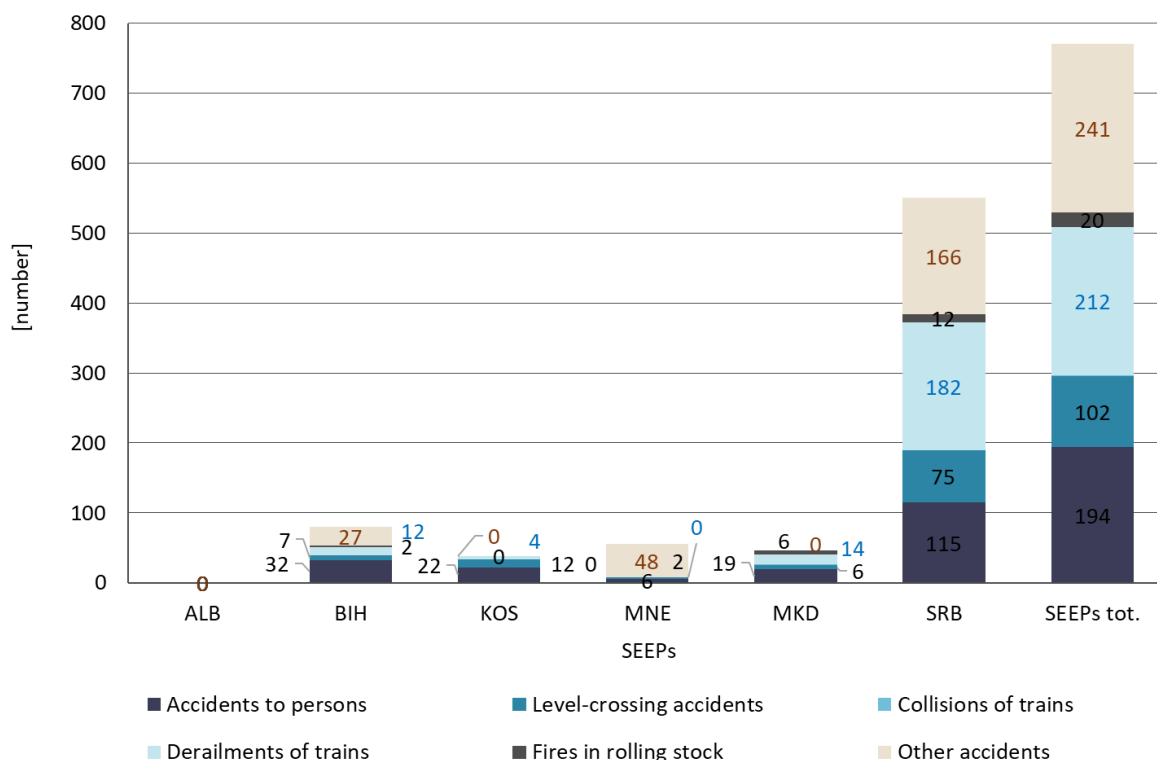
Significant rail accidents by type of accident per SEEP is shown in Figure 6-14. In the SEEP, the largest number of accidents was caused by derailments of trains (27,5%), followed by accidents to persons (25,2%) and level-crossing accidents (13,2). There are also many other (especially unclassified) type of accidents (31,3%).

Figure 6-13: Significant rail accidents and resulting casualties per SEEP (2021)



Source: RMMS – SEEP and Additional Questionnaire (part 12 – SEEP), 2021.

Figure 6-14: Significant rail accidents by type of accident per SEEP (2021)



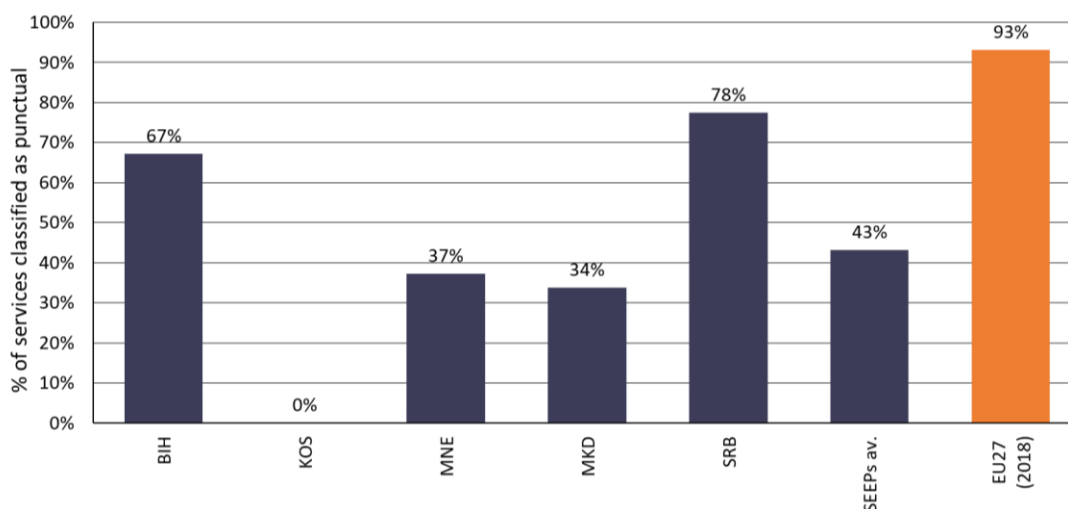
Source: RMMS – SEEP and Additional Questionnaire (part 12 – SEEP), 2021.

Based on the definition of punctuality used in RMMS⁷ the average punctuality of regional and local rail passenger services per SEEP amounted to 43%, which is significantly lower than the average for the EU27 (93%) - Figure 6-15. The highest punctuality was in Serbia at 78%. In Kosovo, every train was delayed for more than 5 minutes. There was no passenger traffic in Albania.

In 2021, there were no long-distance and high-speed passenger services in the SEEP.

⁷ RMMS considers a passenger train to be punctual if it is delayed by 5 minutes or less.

Figure 6-15: Punctuality of regional and local passenger services per SEEP (% , 2021)

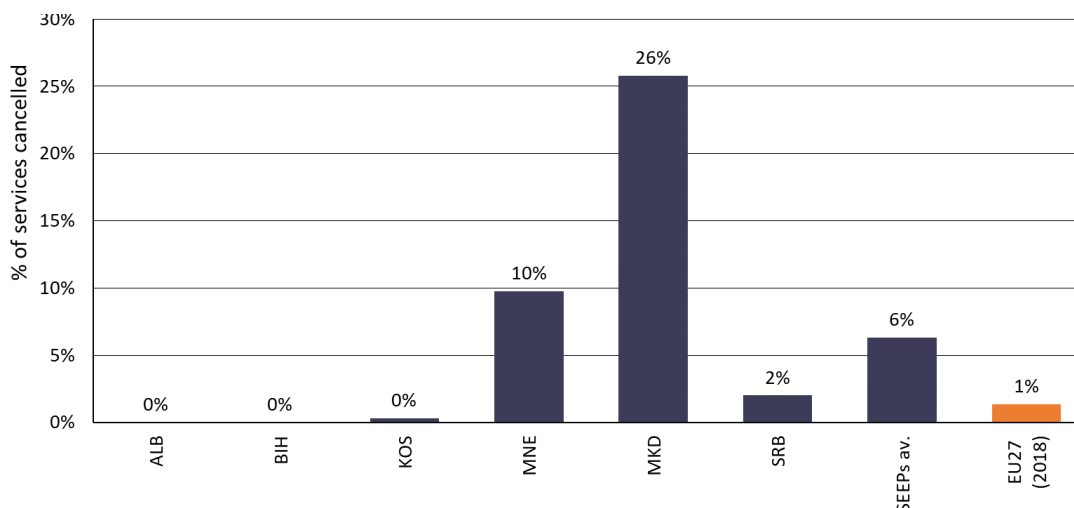


Source: RMMS – SEEP, 2021.

There is no special record of punctuality of freight services in the SEEP (individual and collective). Such data can be determined for each train individually on the basis of the real timetable diagrams, which are in the hands of the infrastructure manager. Based on such data, the collective punctuality can be calculated for all freight trains.

The highest number of cancelled passenger services was in North Macedonia (26%) and the lowest number in Serbia, 2% (Figure 6-16). The average SEEP level is 8%, while in the EU27 it is 1%.

Figure 6-16: Reliability of regional and local passenger services per SEEP (% , 2021)



Source: RMMS – SEEP, 2021.

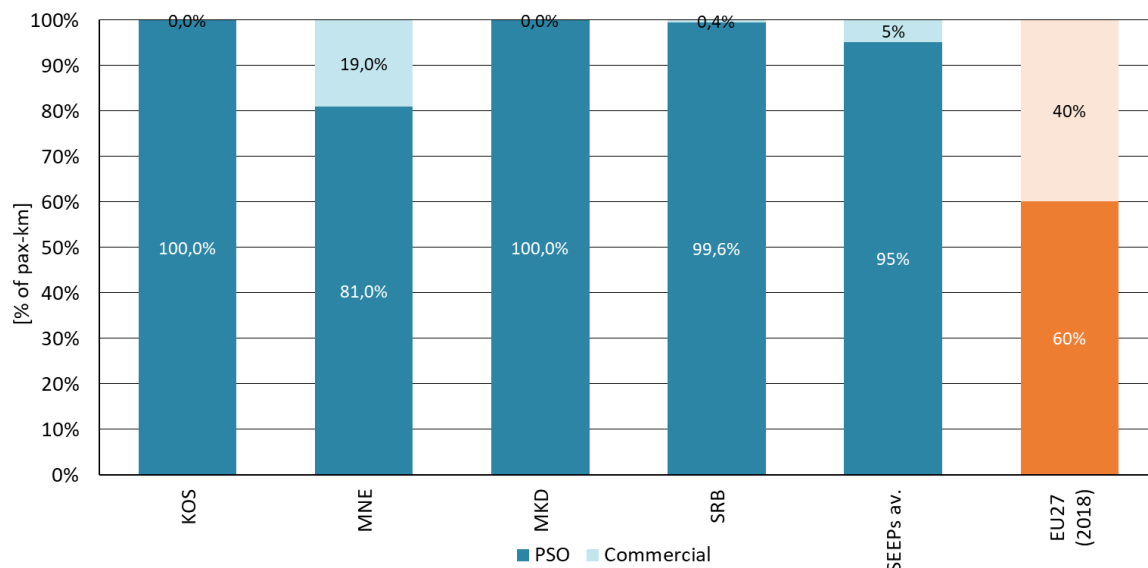
Data on cancelled freight services were recorded in Kosovo, 69% in domestic and 40% in international transport, and in North Macedonia, 18% in domestic transport. In other SEEP, freight trains were introduced as needed (ad hoc path allocation). Therefore, there was no record of the number of cancelled trains.

6.5. Public service contracts

In 2021, 95% of the total railway passenger kilometres in the SEEP were performed under public service obligations (PSO), while in EU27 (2018) it was 60% (Figure 6-17). PSO rail services in the SEEP were

carried only in domestic transport. In the EU, the share of domestic PSO services was 98,3%.

Figure 6-17: Share of passenger traffic offered respectively under PSO and commercial rail services per country (% of pax-km, 2021)

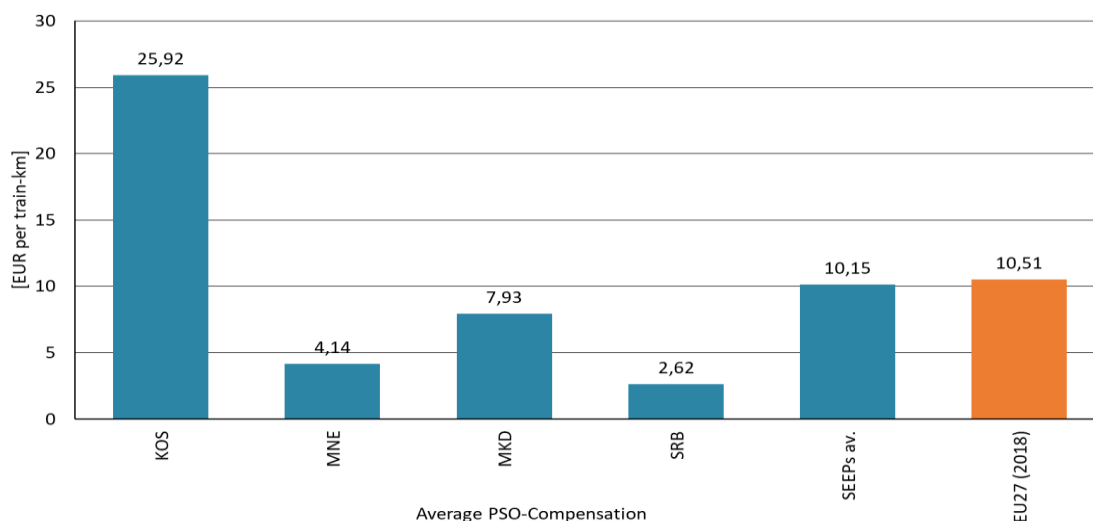


Source: RMMS – SEEP, 2021.

In the SEEP, excluding ALB and BiH, there were only directly awarded PSO services.

Average PSO compensation in the SEEP amounted to 10.15 EUR/train-km, similar to EU27 average (2018) with 10.51 EUR/train-km - Figure 6-18.

Figure 6-18: Apparent average PSO compensation per SEEP (2021)



Source: RMMS – SEEP, 2021.

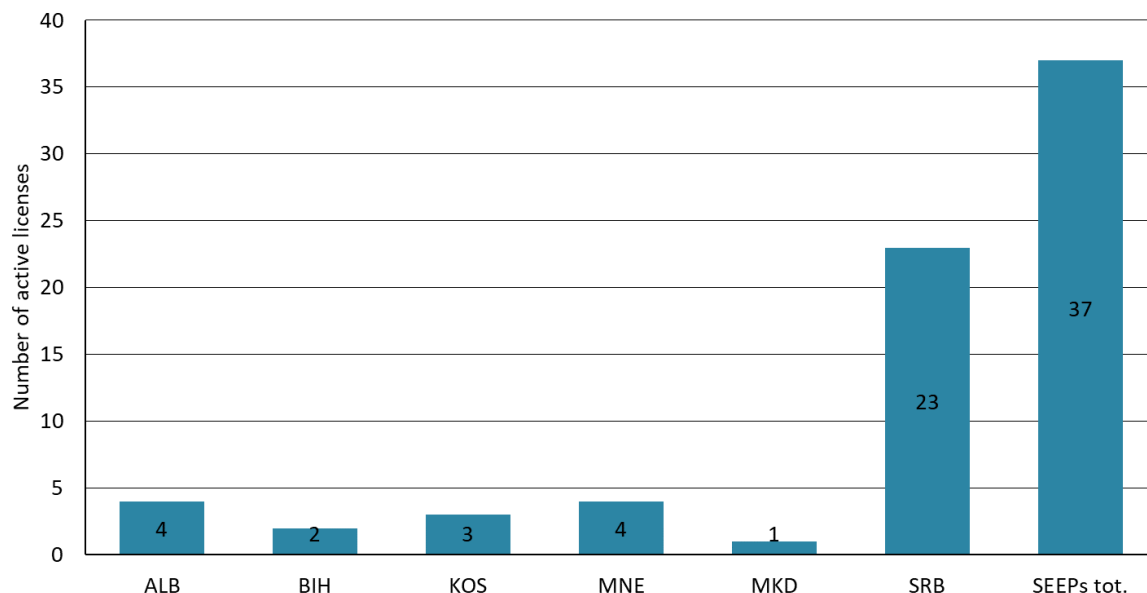
6.6. Licensing

In 2021, 37 railway undertakings disposed of licenses in the SEEP. Serbia reported the highest number (23), North Macedonia the lowest (1) – Figure 6-19. The railway market in Bosnia and Hercegovina and North Macedonia was not open yet in 2021.

The average fees required to obtain a licence in 2021 varied from EUR 8.7 in Kosovo to EUR 12.00 in

North Macedonia. The average in the EU27 (2018) was 4,749 EUR.

Figure 6-19: Number of active railway licences per SEEP (2021)



Source: RMMS – SEEP, 2021.

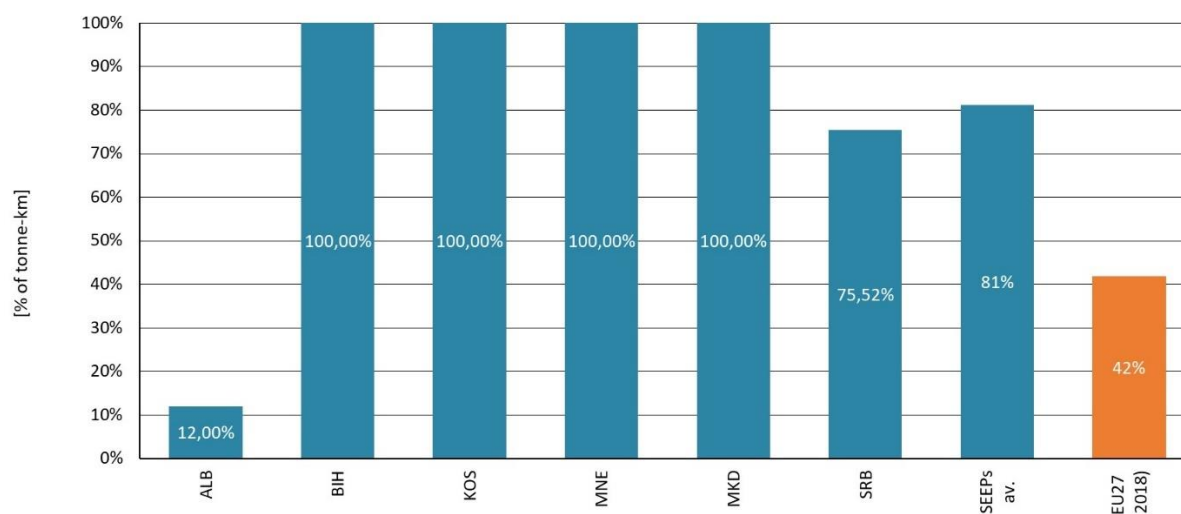
Kosovo and Montenegro reported the longest average time to obtain a licence (90 and 75 days respectively).

6.7. Degree of market opening and utilisation of access rights

The market share for new entrants as opposed to the state-owned incumbents in the SEEP rail freight market is shown in

Figure 6-20. The railway markets in Bosnia and Hercegovina and North Macedonia were not open in 2021. The rail market in Montenegro was liberalised in 2021.

Figure 6-20: Incumbent market share in the rail freight market per SEEP (% in 2021)



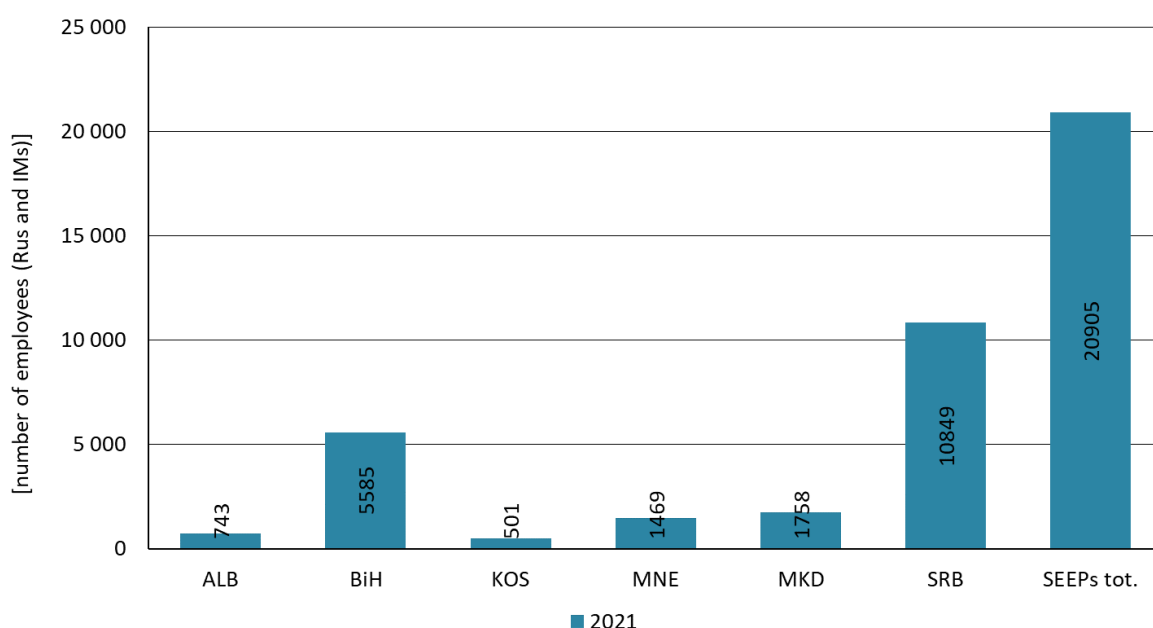
Source: RMMS – SEEP, 2021. The market share of freight services in SRB is calculated according to gross-tonne kilometers

The market share of the incumbent railways in PSO passenger traffic is 100%. In other words, no new entrants have won passenger service contracts in the SEEP. In the EU27, the average market share of new entrants was 16.2%. The implementation of Regulation (EC) 1370/2007 in Bosnia and Hercegovina began in 2022. So far, no PSC have been concluded.

6.8. Employment and social conditions

At the end of 2021, just over 20,905 people were employed in the SEEP railway sector, about 9,987 of them by railway undertakings (both incumbents and new entrants). 10,918 were employed by the infrastructure managers (Figure 6-21).

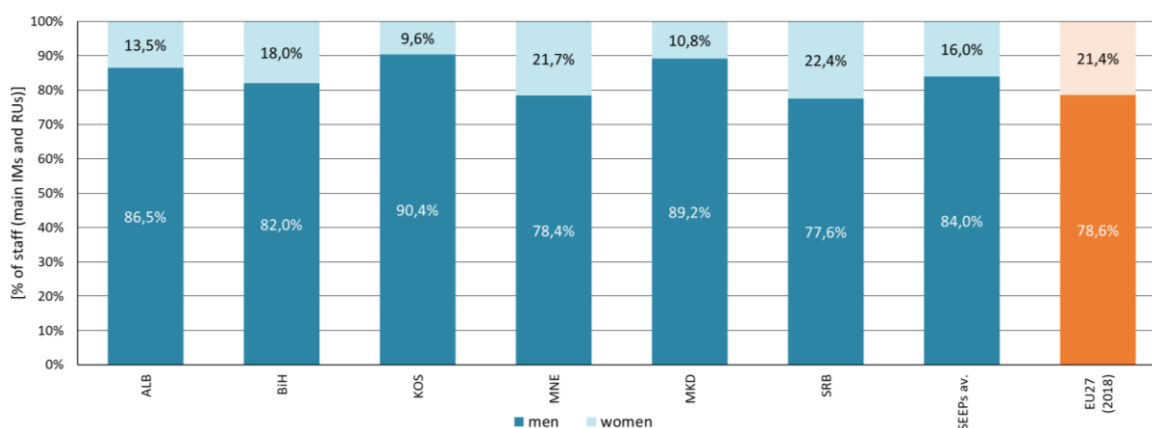
Figure 6-21: Total number of employees in the rail market (infrastructure managers plus railway undertakings) per SEEP (number, 2021)



Source: RMMS – SEEP, 2021.

The rail workforce in SEEP is predominantly male. On the average, only 16% of employees are women (in the EU27 21.4%) – Figure 6-22. The proportion of female staff varies between 22.4% in Serbia and 9.6% in Kosovo.

Figure 6-22: Total employees (main infrastructure managers plus railway undertakings) by gender structure, SEEP (% in 2021)

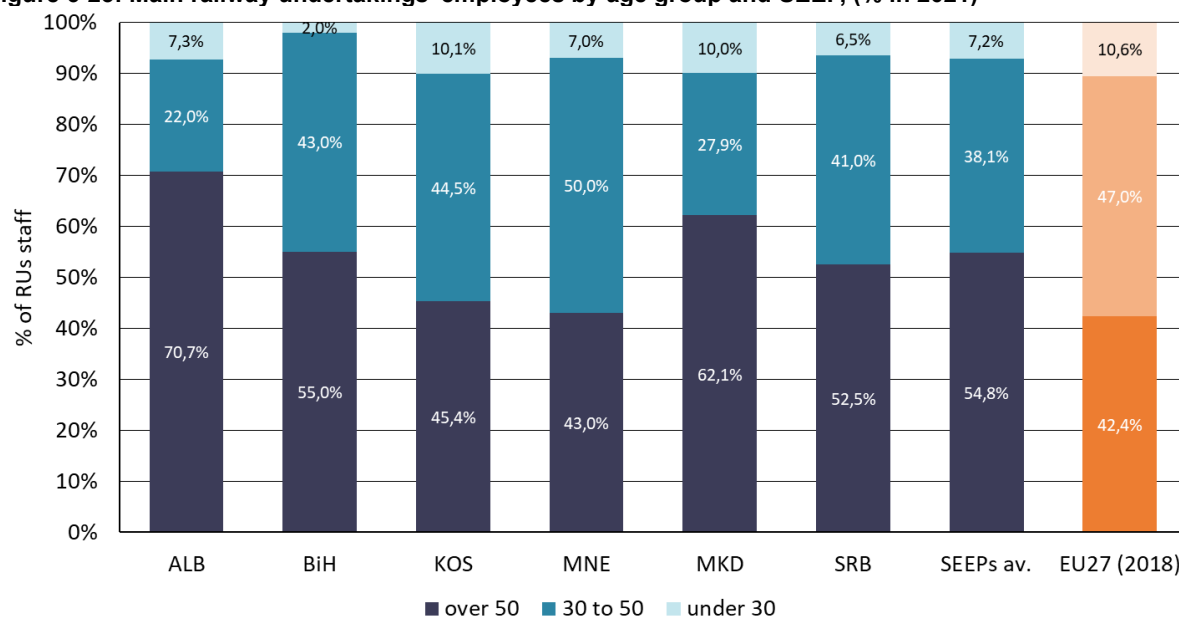


Source: RMMS – SEEP, 2021.

In incumbent railway undertaking at the level of SEEP, employees over 50 years dominate (54.8% on average), in Albania, the share is even 70.7% -

Figure 6-23. The share of younger employees (below 30 years) is on the average 7.2%, which is less than the EU27 average (2018 10.6%). The lowest number with only 2% can be found in Bosnia and Herzegovina.

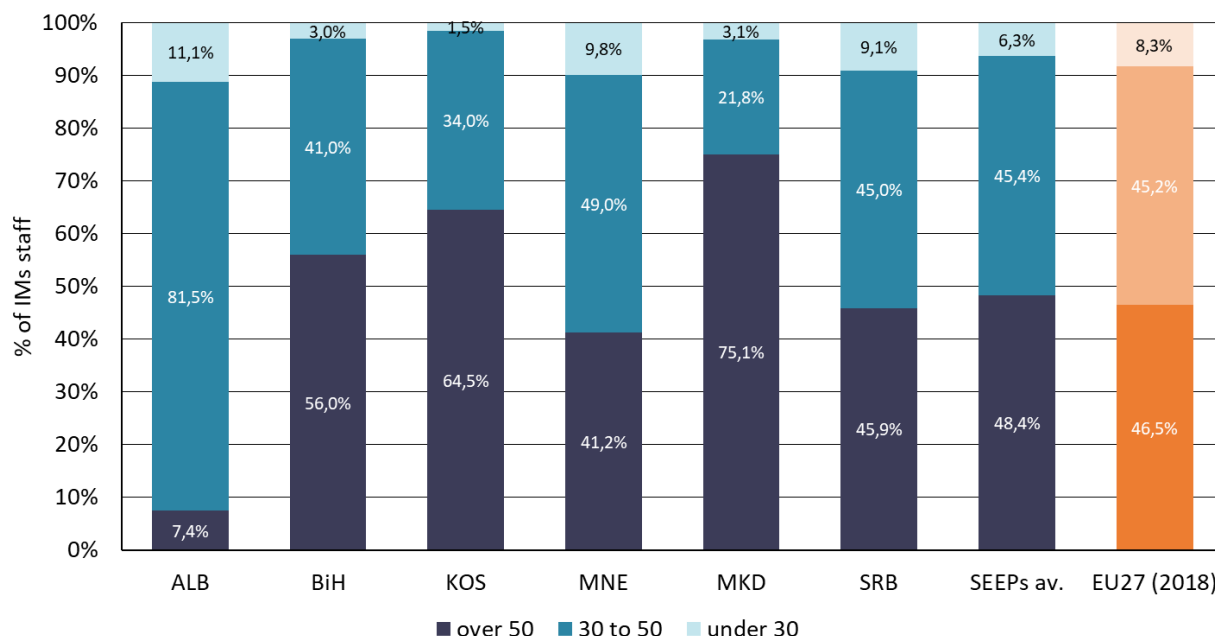
Figure 6-23: Main railway undertakings' employees by age group and SEEP, (% in 2021)



Source: RMMS – SEEP, 2021.

The situation is similar with the incumbent infrastructure managers. Persons over the age of 50 dominate (on average 48.4%) - Figure 6-24; in North Macedonia, even 75.1%. The share of younger employees (below 30 years old) is 6.3%, which is slightly less than the EU27 average (2018) with 8.3%. The lowest number of young people was in Kosovo, with only 1.5%.

Figure 6-24: Main infrastructure managers' employees by age group and SEEP, (% in 2021)

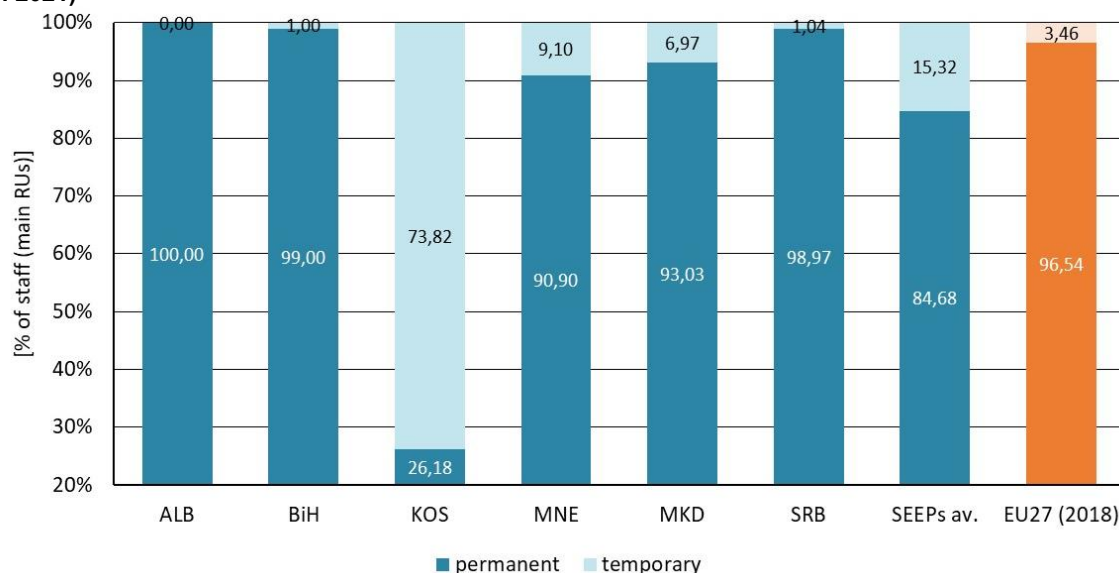


Source: RMMS – SEEP, 2021.

84.68% were employed with contracts of indefinite duration in the incumbent railway undertakings in the SEEP (

Figure 6-25), in the EU27 (2018), it is 96.54%. The proportion of contracts of employment of indefinite duration varies between 100% in Albania and 26.18% in Kosovo.

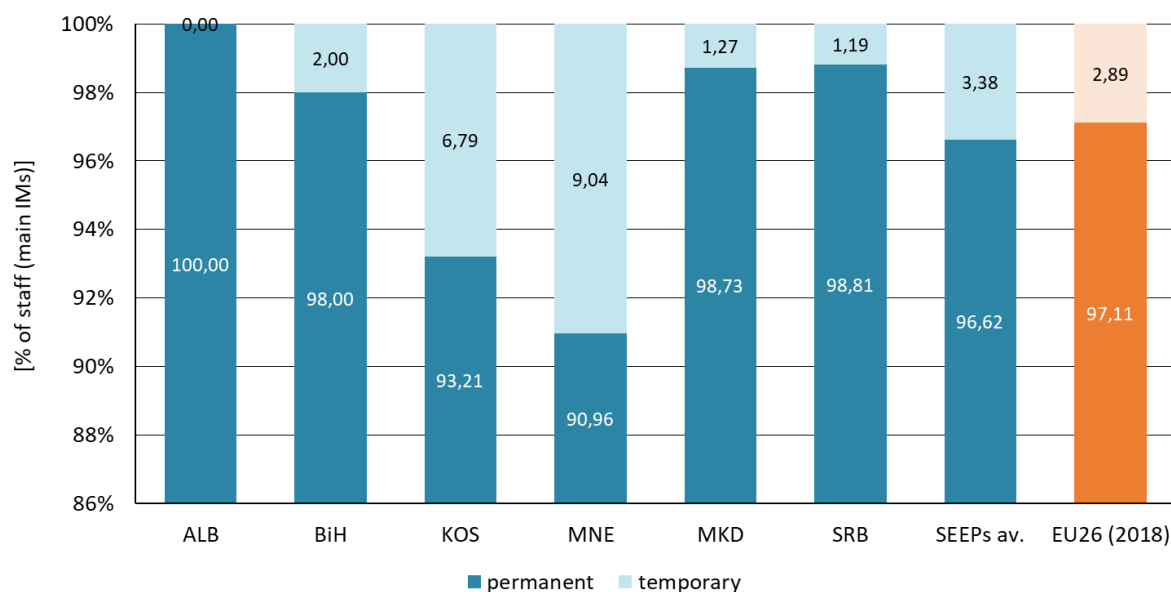
Figure 6-25: Employees of main railway undertaking by contract type (permanent or temporary) per SEEP, (% in 2021)



Source: RMMS – SEEP, 2021.

In the case of infrastructure managers, 96.62% are contracts of employment of indefinite duration (Figure 6-26), almost the same level as in the EU27 for 2018. The proportion of contracts of employment of indefinite duration varies between 100% in Albania and 90.96% in Montenegro.

Figure 6-26: Employees of main infrastructure manager by contract type (permanent or temporary) per SEEP, (% in 2021)



Source: RMMS – SEEP, 2021.

Full-time employment is the most common status for employees of both infrastructure managers and railway undertakings (over 98%).

7. Conclusions

Rail and sustainability

Regional rail market shares are at 19% for freight and 7% for passenger mirroring the low preference of users for this transport mode.

SEEP should gather and publish GHG and CO₂ emission data according to EU standards to facilitate the tracking and assessment of the environmental performance of their rail systems.

Rail network

The level of public spending on rail infrastructure per inhabitant is 6 times lower than in the EU. Public funds for infrastructure maintenance in SEEP are significantly lower than the EU27 average (3,7 times less per line-km and 4,5 times per inhabitant).

The density of the rail network is much higher than in the European Union. Maintaining a larger network with less funds that carries less traffic is an equation that cannot work. It is up to the regional partners, not the infrastructure managers, to decide on phasing out lines that do not have economic perspective in the medium term. The legal obligation of a medium-term financial equilibrium of the infrastructure managers will require the pruning of unprofitable regional lines.

The EU legislation requires multi-annual infrastructure contracts (MAIC) between the state and the railway infrastructure manager. This legal instrument sets out the performance obligations of the infrastructure manager as to reconstruction and maintenance in return for financial compensation, separately from project funds for enhancing or upgrading infrastructure. The MAIC also introduces incentives necessary to implement the measures according to the agreed timelines and quality.

With the existence of such MAICs, it will be easier for financing institutions to allocate the respective funds to the measures since this will increase the reliability that the funds are used for the measures intended and the measures will be carried out in the timeframe concluded.

Infrastructure maintenance is focused on the main corridors or on alternative routes to the main corridors (with a view to continue the service). Significantly less funds were invested in the maintenance of regional and local railway infrastructure. Insufficient funds for infrastructure maintenance affect the possibility of regular maintenance, which increases the poor condition of the infrastructure, especially on those lines where the volume of traffic is smaller. This also reduces traffic safety. The main funds for maintenance are provided from national budgets. There is no participation of regional and local self-government in providing funds for infrastructure maintenance.

Rail services and revenues

The RMMS has clearly shown that the SEEP face the same challenges as the EU27. With market-oriented rail services, they might increase the propensity to travel by rail or use the railways for freight transport.

Infrastructure charging

The data on infrastructure charging clearly shows the need for an infrastructure charging system based on direct costs, as stipulated in the EU with Commission Implementing Regulation (EU) 2015/909. Mark-ups should only be levied to the extent that market segments are not excluded from the use and the states do not provide the funds needed to meet the obligations under the MAIC. Moreover, the strategic questions will have to be solved at a political level whether the SEEP rail infrastructure shall be predominantly used by passenger services, mostly under PSO rules, as it is the case in the EU27 or continue to be a predominantly freight rail sector, as it is presently the case in the SEEP.

Capacity allocation and infrastructure limitations

There does not seem to be a problem for passenger and freight railway undertakings to receive the paths they wish to have.

Quality of transport services

Punctuality is a big problem in the SEEP. One measure used in the EU27 is to include incentives or penalties in the agreements between the infrastructure manager and the railway undertakings and between the railway undertakings and the customer, who are the competent authorities for PSO.

Public service contracts

Railway undertakings concluded PSO contracts with national authorities. Regional and local authorities did not recognize the importance of PSO. The exception is the City of Belgrade and the city's "BG train" system.

Existing commercial fares and the volume of passenger transportation cannot ensure profitable business for railway undertakings.

The PSO Regulation (EC) 1370/2007 has not yet been fully implemented in all SEEP. Moreover, the existing public service contracts are exclusively with the incumbents, based on direct awarding. More competition in the PSO market shall contribute to an improvement of the service quality as has been seen in the EU27. Lastly, it would help to render rail passenger traffic more attractive if local competent authorities (municipalities, provinces) were given the right to conclude public service contracts, as in Serbia. Indeed, the "BG train" system might constitute a model for the Region.

Licensing and degree of market opening

Open access has a significant impact on the evolution of the modal share of railways, as new entrants generate new volumes due to the market-orientation of their services. The number of active safety certificates would shed further light on the degree of market opening.

Employment

The overaging will require systematic measures in order to attract younger people and avoid in the future an increasing lack of specialised workforces because of retirement. On the other hand, female employees should be attracted to railways.

Annexes:

Annex 1. Individual RMMS Questionnaires and Additional Questionnaire (part 12) for SEEP

(in separate files: Data collection-SEEP.zip)

Annex 2. Integral report in Excel

(in separate file: 2023-1st-RMMS-report-SEEP v2.0.xlsx)