

How to develop resilient infrastructure (SDG 9)

Grand Hotel Union, Miklošičeva 1
Ljubljana, Slovenia, 16-17 November 2017

BACKGROUND PAPER

Background

On 1 January 2016, the world officially began implementation of the 2030 Agenda for Sustainable Development¹—the transformative plan of action based on 17 Sustainable Development Goals (SDGs)—to address urgent global challenges over the next 15 years. A robust follow-up and review mechanism for the implementation of the new 2030 Agenda for Sustainable Development will require a solid framework of indicators and statistical data to monitor progress, inform policy and ensure accountability of all stakeholders.²

With transport playing a critical role in the 2030 Development Agenda, with targets and indicators spread across multiple goals, it is crucial that specific capacity building activities are carried out to allow the consistent measurement, monitoring of the goals, targets and indicators related to transport, with follow-up and reporting activities. In particular, the following indicators are considered of most relevance:

- 3.6.1: to halve the number of road fatalities by 2020;
- 9.1.2: measuring passenger and freight volumes, by mode of transport; and
- 11.2.1: the proportion of population that has convenient access to public transport, by sex, age and persons with disabilities.

With the aim of improving understanding and knowledge of transport-related SDGs in individual countries and facilitating the participation of member States in UNECE data collection through the Web Common Questionnaire (WebCoQ), the UNECE Sustainable Transport Division plan a series of capacity-building workshops for autumn 2017, to share the information on transport SDGs, support development of SDGs monitoring and reporting mechanism, strengthen national transport statistics capacity and improve upon data quality. The three workshops are:

1. Podgorica, Montenegro, 11-12 October 2017, for countries of South East Europe and Moldova.
2. Astana, Kazakhstan, 2-3 November 2017, principally for the Special Programme for Economies in Central Asia (Eastern Europe and SPECA) countries.
3. Ljubljana, Slovenia, 16-17 November 2017, in partnership with the European Union Strategy for the Danube Region.

The goal of the Workshops is to strengthen the transport-related SDGs knowledge of invited countries. As such, the Workshops will help participants understand how the SDGs affect their day-to-day business and how they can benefit from the activities related to the SDGs. The workshop will allow attendees to connect SDGs achievement with national transport policies, and give them information on the statistical tools to accurately measure and monitor SDGs implementation. A key aspect of the workshop will be the exchange of information and experiences of the participants in relation to gathering information for, and reporting on, the SDGs.

¹ <https://sustainabledevelopment.un.org/sdgs>

² <http://unstats.un.org/sdgs/>

The Workshops will seek to increase knowledge of transport SDGs and assist in understanding the methodology for gathering transport statistics as well as how best to make this information available to decision-makers, the transport community and the general public. UNECE will present the transport related SDGs, highlight the importance of robust transport statistics, data collection processes at UNECE level and the Web Common Questionnaire (WebCoQ). Furthermore, invited experts will present national best practices in data collection and dissemination, and how to use available data to monitor/report SDGs achievement.

Data Context

Transport is an integral part of daily life in the UNECE region. Measuring how people are traveling and goods are delivered is therefore crucial to understanding and improving sustainable transport systems in all countries.

Data availability in the UNECE region and in particular the beneficiary countries is mixed. Most countries provide some transport data on a regular basis to international organisations. But completeness, quality and comparability are not universally robust. Taking UNECE's 2017 Transport Statistics Infocards³ publication as the basis, all participating countries have at least some data for recent years (2012 onwards), and over half (eight out of fourteen) had data for (at the time) the latest year, 2014. Most of these countries' Infocards were complete for road passenger and goods traffic statistics. This is a solid achievement and shows that most countries do have some top-level data. The principal challenge therefore, is to get these data at a detailed level, and in a regular, timely manner.

Therefore, the organised workshops will share country data collection best practices and challenges and present examples of innovative uses of administrative data in order to improve the data situation in targeted countries.

UNECE Data Collection, methodology and dissemination

In the context of the 2030 Sustainable Development Agenda, the UNECE Sustainable Transport Division supports the SDGs monitoring and reporting mechanisms through three main ways:

1. By participating in the discussions on the statistical indicators used to track progress on the goals.
2. By collecting data that directly feed into the SDG indicators, notably for 3.6.1 and 9.1.2.
3. By providing internationally-agreed methodologies for these data to be collected.

UNECE's data collection is based upon two sources: an Excel road accident questionnaire, and the Web Common Questionnaire, where data are collected in collaboration with Eurostat and the International Transport Forum (ITF). The three organisations work closely together in order to minimise the reporting burden on countries, while at the same time improving harmonisation of definitions (and thus comparability).

UNECE works on improving data harmonization through publishing the Glossary for Transport Statistics⁴, in cooperation with Eurostat and the ITF. The Glossary is a set of common definitions for all transport modes, covering infrastructure, transport equipment (vehicles), traffic measurement and safety, in addition to minor topics on transport employment, energy consumption and economic performance. This flagship methodology document means countries across the region and beyond can collect and provide data to any of the three organisations that are internationally comparable.

³ A new annual publication, available at <https://www.unece.org/trans/main/wp6/infocards.html>

⁴ Available at <https://www.unece.org/index.php?id=4190>

All data collected by UNECE are published online, available free of charge, at <http://w3.unece.org/PXWeb/en>. The transport database covers all inland modes of transport (rail, road, inland waterways and pipeline), and infrastructure, transport equipment, traffic volumes and safety. In addition to the online database, two biennial publications are produced, Inland Transport Statistics of Europe and North America (the latest version of which was released this year, <https://www.unece.org/index.php?id=45989&L=0>) and Statistics of Road Traffic Accidents of Europe and North America (the 2017 version of which should be released in October 2017) <https://www.unece.org/index.php?id=41891&L=0>.) Furthermore, the Transport Statistics Infocards (mentioned above) summarise key infrastructure, traffic and road safety data in a format that is easy to understand.

SDG 3 - Road Safety

Following the adoption of resolution 64/255 by the General Assembly in 2010, the period 2011-2020 was declared as the Decade of Action for Road Safety, with a goal to stabilize and then reduce the forecast level of road traffic fatalities around the world by increasing activities conducted at the national, regional and global levels. Around 1.25 million people died from road traffic injuries globally in 2013. Halving the number of global deaths and injuries from road traffic accidents by 2020 (SDG Target 3.6.1) is an ambitious target given the dramatic increase in the number of vehicles, which nearly doubled between 2000 and 2013.

The data provided for the most recent decade where road safety data are available (2005-2015) show that in the UNECE region progress has already been made in terms of the number of road accidents with injuries as well as the number of both fatalities and injuries in those accidents. Between 2005 and 2015, the total number of fatalities in road traffic accidents decreased by almost 24% in the UNECE region. Despite this positive trend, data on road traffic fatalities per inhabitant show large disparities between countries; in 2015, the member States with the highest fatality rates reported incident rates almost 10 times higher than those with the lowest fatality rates (see Figure 1). This is a very basic indicator of road safety as it corrects for population size, while not taking into account level of development, modal share, road safety strategies or other factors. We see from this that top-level road safety numbers of road fatalities for most UNECE countries are reported, but then data broken down (by road user, time of day, road type, etc.) are not universally available.

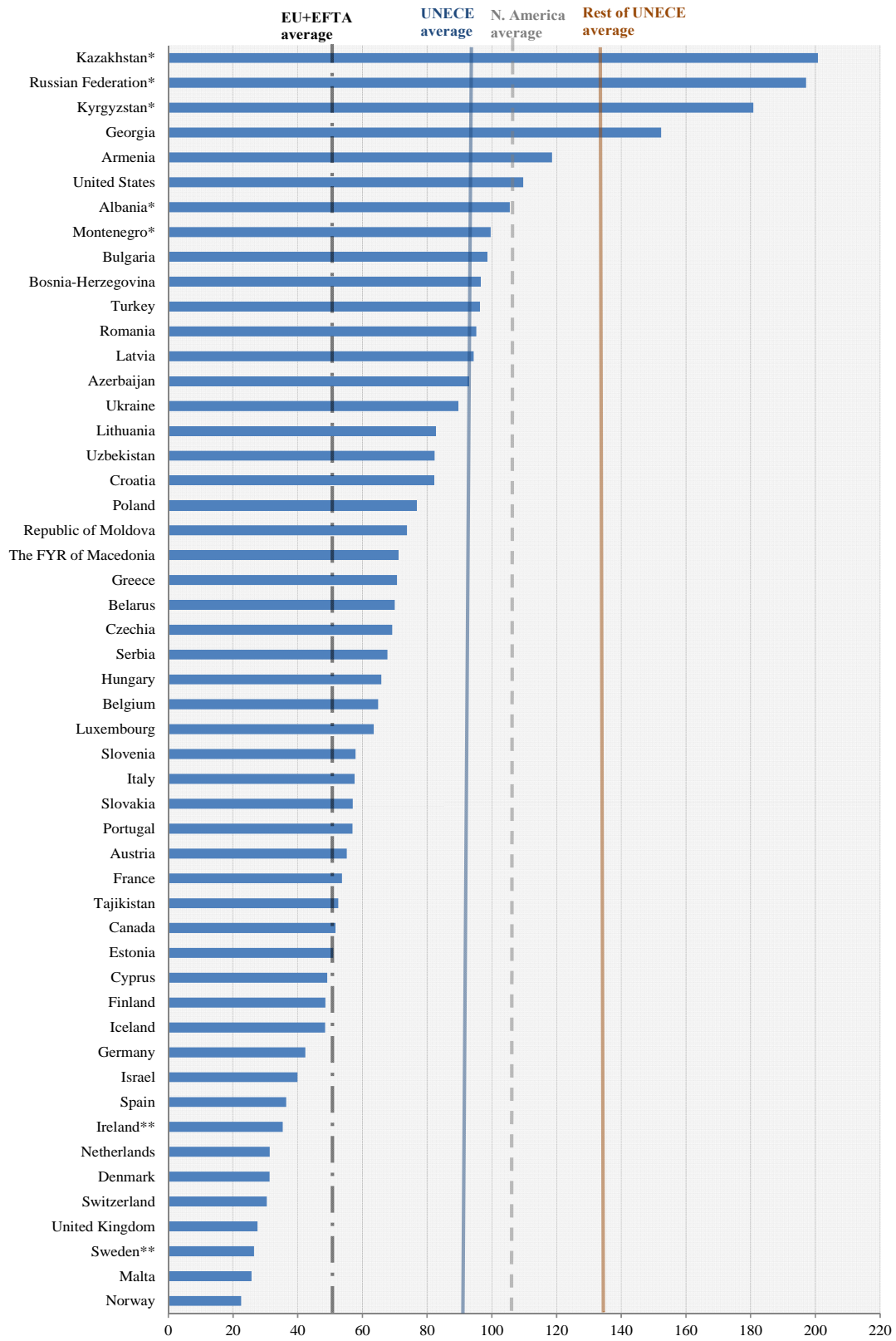


Figure 1: death rate per million inhabitants, by UNECE member State, 2015

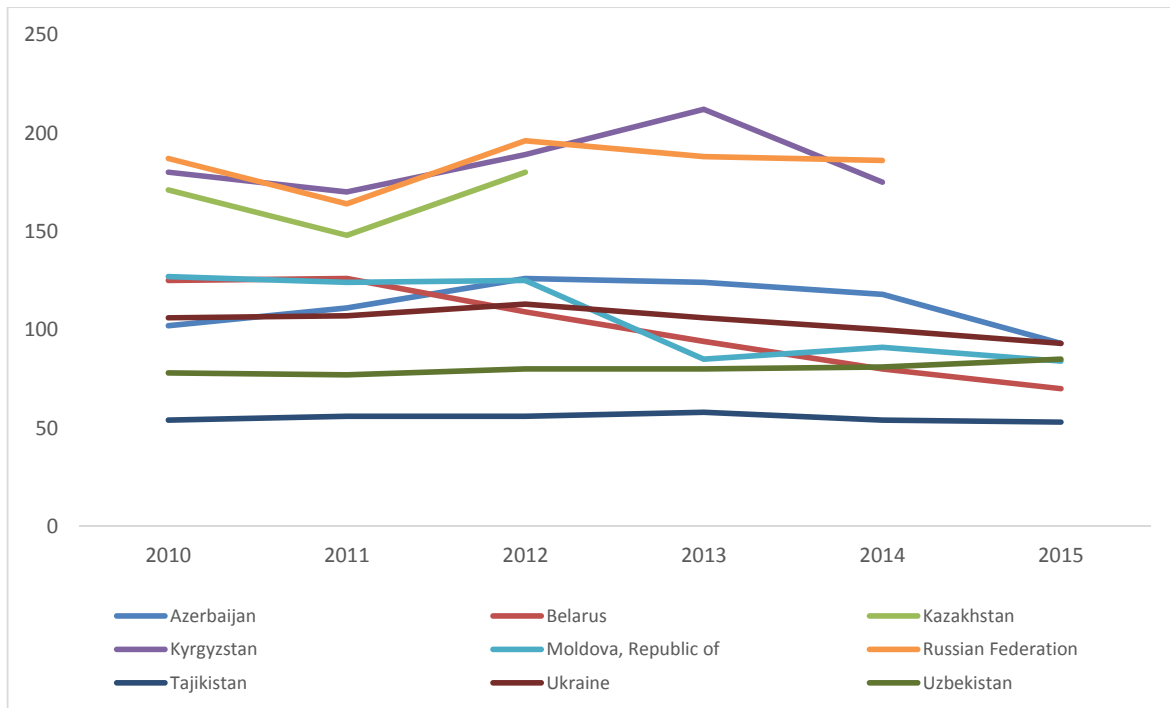


Figure 2: road fatalities per million inhabitants, Eastern Europe and SPECA region

Figure 2 shows the rate of road fatalities per million inhabitants for Eastern Europe and SPECA countries, 2010-2015. As can be seen in the graph, the safety record varies significantly, with Kyrgyzstan, Kazakhstan and Russian Federation having nearly triple the fatality rate reported by Tajikistan. This could be attributable to many factors, including levels of economic development (level of motorization, mobility, etc.), although there could be differences in data quality between countries. Data for Turkmenistan have not been available for recent years (for deaths or injuries).

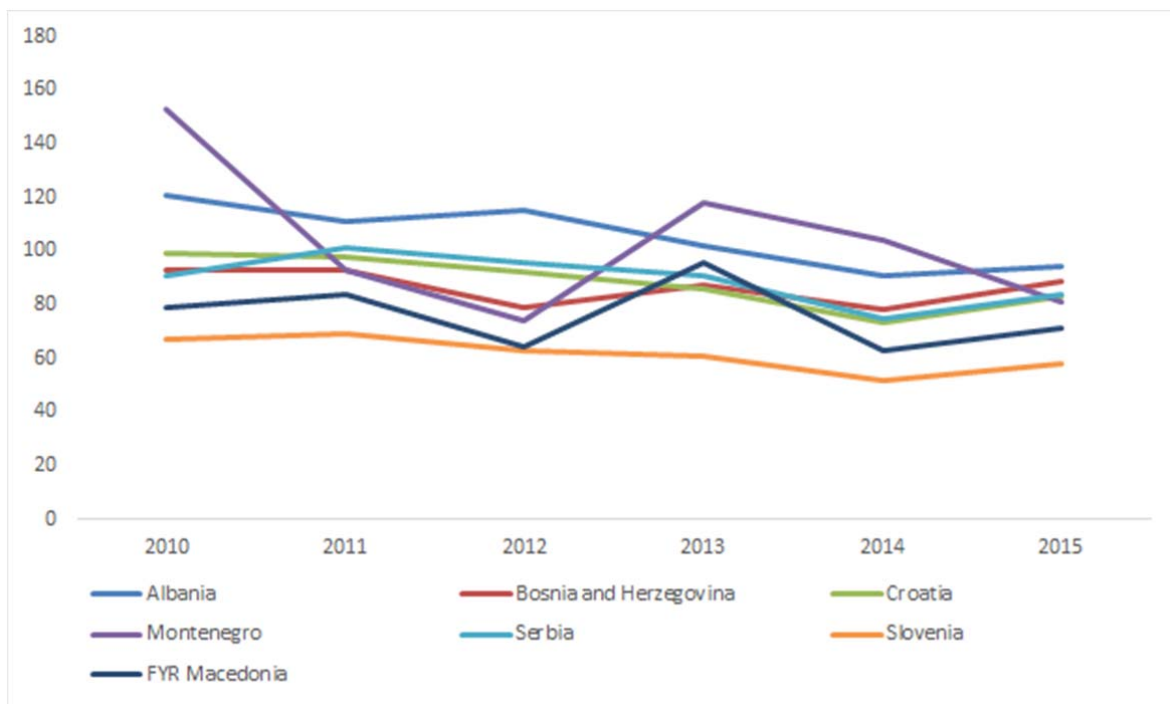


Figure 3: road fatalities per million inhabitants, Central Europe and Western Balkans

Figure 3 shows the same indicator for the Central European and Western Balkan countries. We see a broadly positive trend in the data, with most countries making progress on road safety in the period. It is also welcome to see complete, timely data for these countries, at least at the top level.

Comparing deaths versus injuries provides possible insight into the importance of harmonising definitions. For whereas in the fatality graph Russian Federation and Kyrgyzstan have two to three times the rate of fatalities as Tajikistan, when looking at the injury rate per million inhabitants (figure 4), this ratio is closer to nine times.

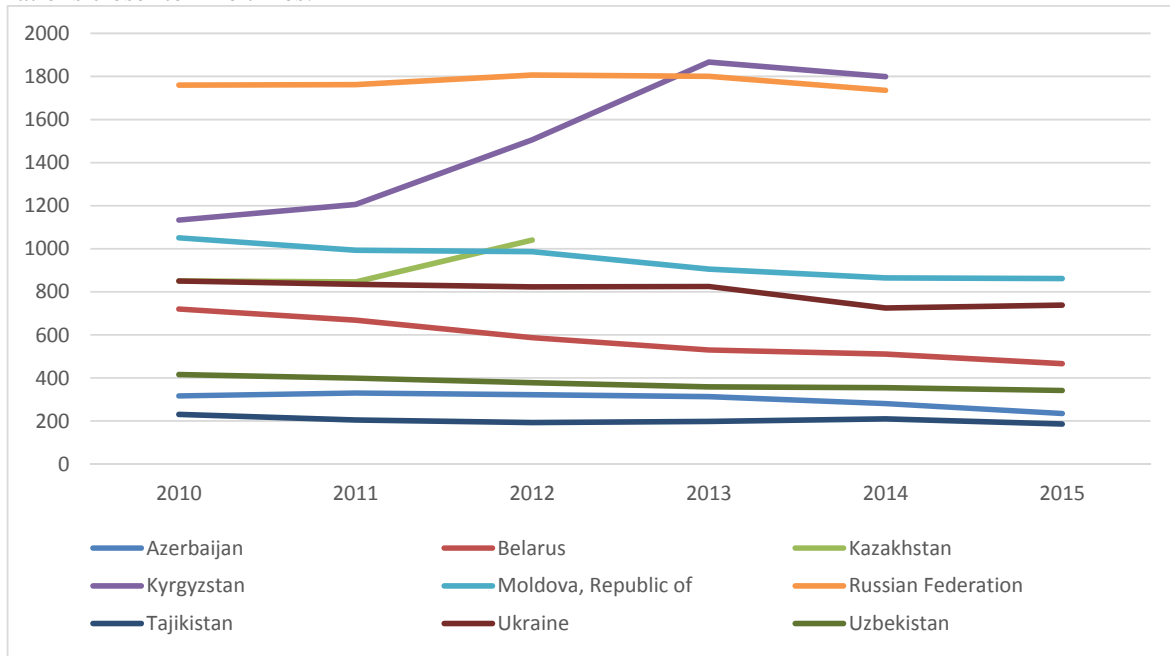


Figure 4: Road injury rate per million inhabitants, Eastern Europe and SPECA countries

Figure 5 shows the same data on injuries for Central Europe and the Western Balkans. We again see the larger disparity of accident rates as compared to death rates, further highlighting the need for the harmonised definitions of the Glossary to be better communicated to, and used by, countries.

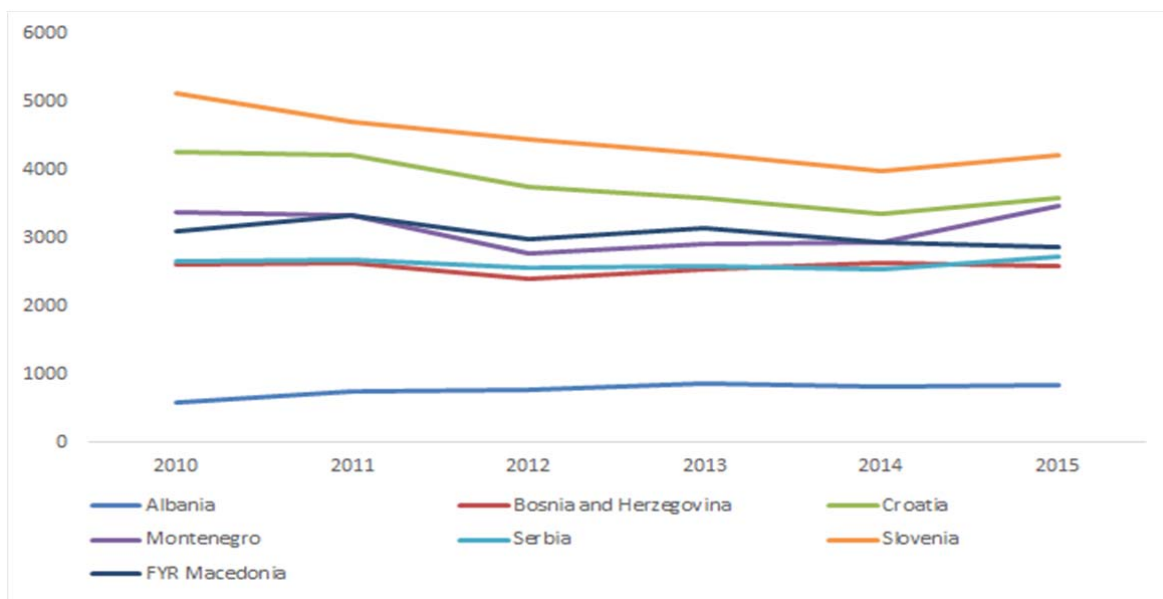


Figure 5: Road injury rate per million inhabitants, Central Europe and Western Balkan countries

UNECE traffic injury and fatality data typically come from police reports of traffic accidents. However, accidents are not always reported to the police, and some countries may use hospital data (or other sources) to calculate accident numbers while some may use the police data. This may explain bigger differences seen in accident numbers, and is an area where more collaboration on definitions and better metadata could improve data comparability.

SDG 3: These data as collected can feed directly into measuring SDG target 3.6.1, which aims to halve the number of road accidents and fatalities by 2020.

SDG 9 - Road transport

Measuring sustainable road transport is essential to tracking progress on SDG 9, which aims to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. In 2015, approximately 4780 billion passenger km and 2537 billion ton-km occurred on the roads of the UNECE Europe region, (covering countries reporting data to the UNECE Secretariat in recent years⁵). This took place over a road network of around 5.7 million kilometres, nearly 200,000 kilometres of which is designated as motorway. These journeys were made in approximately 337 million passenger cars, 2.7 million coaches and buses, and 42 million lorries.

Looking more generally at the statistics situation, basic infrastructure data and vehicle fleet information are reported by many member States. Yet passenger and freight volumes are harder to come by. To a certain extent this reflects that infrastructure and vehicle data can often be derived from existing administrative data sources, while vehicle traffic movements require their own dedicated collection activities (although in the case of freight carried this may be partly available from customs information).

Figure 6 shows the length of “Other” roads (roads not classified as motorways) for countries of the Western Balkans region and Moldova. Unsurprisingly, there is not a lot of variation in these figures over time, as these countries have a well-developed highway system. Data for Montenegro are not available.

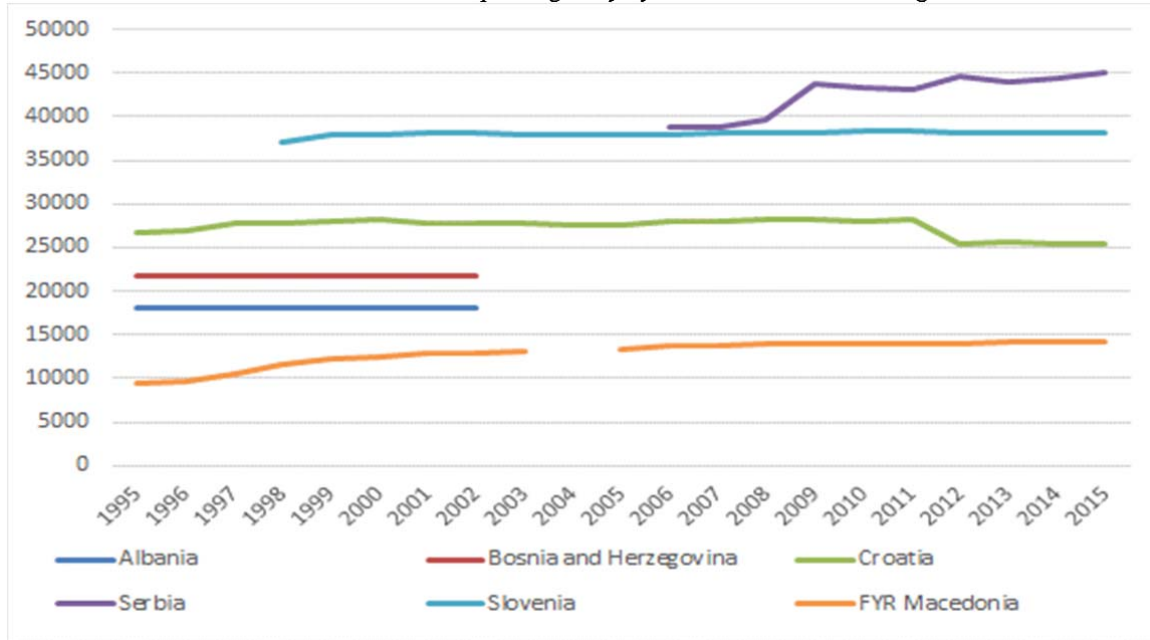


Figure 6: Length of “Other” road networks, km, Central Europe and Western Balkan countries

⁵ All of the numbers in this paragraph are derived from the UNECE statistical database at <http://w3.unece.org/pxweb/en/>, and have used data for either 2015 or the last available year

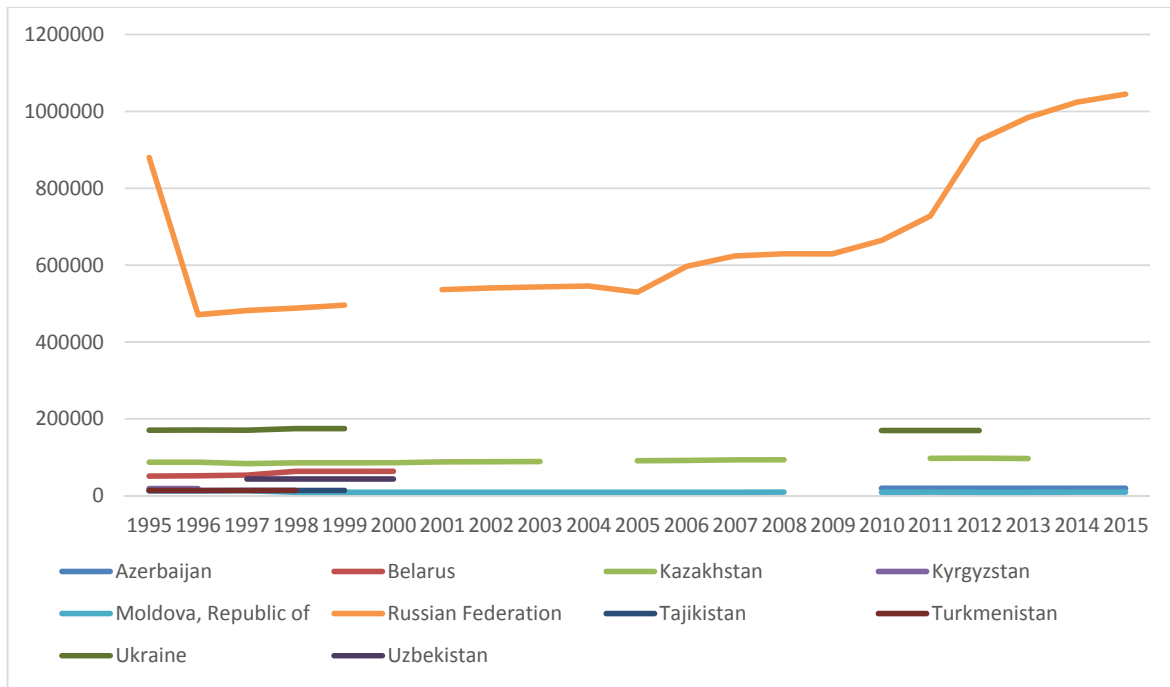


Figure 7 Length of "Other" road networks, km, Eastern Europe and SPECA countries

Figure 7 shows that for SPECA countries, again highlighting the lack of variability but showing that better data are needed for recent years.

For freight transport, data for million tonne-km are available for most countries invited to the workshops. Table 1 shows the recent figures for Eastern Europe and SPECA countries (data for Turkmenistan were unavailable). Russian Federation and Kazakhstan have by far the largest figure out of these countries, even after population values are taken into account. This somewhat reflects the huge size of the country, and gives an insight into the transport challenges faced by large nations, such as adequate fuel supply and the challenge of timely movements of perishable goods.

Tonne-kilometres (millions)	2010	2011	2012	2013	2014	2015
Azerbaijan	11325	12356	13307	14140	14516	15532
Belarus	..	..	22031	25603	26587	..
Kazakhstan	80261	121074	132297	..	..	..
Kyrgyzstan	1071	1095	1143	..	..	..
Moldova, Republic of	3230	3597	3955	4423	4307	..
Russian Federation	199341	222823	248862	250054	246784	232549
Tajikistan	5005	..	5783	..	5783	..
Ukraine	53918	57308	57453	..	..	..
Uzbekistan	..	..	..	29182	31464	33916

Table 1: Million tonne kilometres for goods by road, Eastern Europe and SPECA countries

Table 2 shows the same indicator for the Central European and Western Balkan countries. Here Slovenia and The former Yugoslav Republic of Macedonia have the largest values, despite not being the largest countries by size nor population.

Tonne-kilometres (millions)	2010	2011	2012	2013	2014	2015
Albania	..	..	..	..	3500	..
Bosnia and Herzegovina	2039	2309	2301	2658	3216	3405
Croatia	8780	8926	8649	9133	9381	10439
Montenegro	167	102	76	67	122	140
Serbia	1689	1907	2474	2824	2959	..
Slovenia	15931	16439	15888	15905	16273	17912
The former Yugoslav Republic of Macedonia	4235	8933	8965	7466	10622	10192

Table 2: Million tonne kilometres for goods by road, Central Europe and Western Balkans

Looking at total mobility (measured by vehicle-kilometres), there are only recent data for Russian Federation. Vehicle movement data are often collected from a combination of direct vehicle measurement (with manual or automatic traffic counters) and odometer readings (taken for example when vehicles are put through a periodic road worthiness test), and these data may be more challenging for countries to collect.

Passenger mobility (passenger-kilometre) data however, are more widely available, shown in Table 3 for Eastern Europe and SPECA countries (Turkmenistan data were unavailable) and Table 4 for Central Europe and Western Balkans (Slovenian data were unavailable). This may reflect that these values are typically be derived from household and business surveys, either transport-specific ones or more general data collections. These surveys are generally inexpensive and straightforward to carry out.

Total Passengers-km	2011	2012	2013	2014	2015
Azerbaijan	3936	20034	21880	22992	23825
Belarus	..	12074	12628	11808	..
Kazakhstan	164201	184825	..	..	..
Kyrgyzstan	7379	7943	..	..	..
Moldova, Republic of	3086	3250	3542	3303	..
Russian Federation	138567	133306	126379	127353	126622
Tajikistan	..	7234	..	7306	..
Ukraine	51498	50320	..	..	..
Uzbekistan	..	..	83327	88869	94962

Table 3: passenger kilometres by road, millions, Eastern Europe and SPECA countries

It should be noted however, that for countries reporting figures, documented issues exist with the numbers. A common problem is that only public transport (and/or taxi) passenger-kilometre data are reported, as these are the only ones available (from administrative data sources). This will evidently only represent a minority (and often, only a very small fraction) of the total passenger-kilometres, as it excludes private car use which makes up the majority of passenger-kilometres.

Total Passengers-km	2011	2012	2013	2014	2015
Albania	..	..	..	8650	..
Bosnia and Herzegovina	1926	1925	1764	1665	1690
Montenegro	80	111	109	108	110
Serbia	4652	4640	..	4223	..
Slovenia	..	..	..	..	..
The former Yugoslav Republic of Macedonia	1640	7110	7944	9243	9263

Table 4 Passenger-kilometres by road, millions, Western Balkans

SDG 9: Data on passenger and tonne kilometres in the road sector can feed directly into SDG Target 9.1.2, which measures passenger and freight volumes for all modes of transport.

SDG 11 – Sustainable cities

UNECE through the Inland Transport Committee provides best practices and policies for the development of sustainable urban transport systems, i.e. systems that are efficient, interconnected, affordable, safe and environmentally friendly allowing greater wider mobility and access for all within dense urban environments. For example, in the publication: Sustainable Urban Mobility and Public Transport in UNECE Capitals⁶, many best practices in the role of public transport and non-passenger mobility are presented, and specifies how the quality of public transport and its infrastructure and networks as well as the infrastructure for non-motorized transport can impact preferences for citizen's mobility.

In UNECE, data specifically on SDG Target 11.2.1 (proportion of population that has convenient access to public transport by sex, age and persons with disabilities) are not collected.

Conclusion

- Sub-regional cooperation on improving transport-related SDG knowledge and SDGs achievement could give a boost to national efforts to create efficient and sustainable transport systems.
- Presently the data situation for the beneficiary countries varies widely. Some countries are not providing any data at all in recent years, whereas most provide some data but with room for improvement on the breakdown. Capacity building workshops hope to improve data completeness and timeliness.
- For road safety data, countries are encouraged to provide as much data as they have, and embrace internationally-agreed methodology for metadata collection, notably the Glossary for Transport Statistics.
- For road transport data, most countries already collect some freight data. Improvements in timeliness and quality of passenger transport data could be considered a priority.
- Countries are encouraged to be pragmatic on estimation, exploring administrative data sources and making reasonable estimates based on firm facts whenever they can.
- UNECE is offering a whole spectrum of technical assistance in transport statistics to member States in their data collection, and help on technical matters such as how to submit their data to UNECE through WebCoq.

⁶ <http://www.unece.org/index.php?id=41845>