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METHODOLOGICAL DEVELOPMENT AND HARMONIZATION OF TRANSPORT STATISTICS

Statistics on passenger transport by buses and coaches

Handbook

Transmitted by the Task Force on Buses and Coaches of the
Working Party on Transport Statistics

Note by the secretariat

In accordance with its programme of work 2008-2012 (ECE/TRANS/2008/11), programme element 02.12.1 (a) on "Statistics on the transportation by buses and coaches (output expected in 2008)" adopted by the Inland Transport Committee on 21 February 2008 (ECE/TRANS/200, paragraph 120), the WP.6 Task Force on Buses and Coaches has prepared a handbook for collection of comparable data at the international level. The present document contains a summary of the handbook for approval by the Working Party.

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I.   SCOPE OF THE HANDBOOK

1.   There is a growing need for statistical information - comparable at international level - monitoring trends in the passenger transport, to support the actual transport policies of the European countries and other UNECE countries.

2.   One of the areas that need more statistical attention is the transportation by buses and coaches, especially the transportation over longer distances. The demand for reliable and comprehensive statistics is still increasing.

3.   Such statistics are presently compiled on the basis of different methodologies, depending on the data available. To meet the demand for data about bus and coach transportation, the Working Party on Transport Statistics, at its fifty-seventh session (7-9 June 2006), accepted the offer of the Government of The Netherlands to host a workshop on Statistics on long-distance transportation by buses and coaches.

4.   The aim of the workshop was primarily to examine calculation methods applied in the European countries for the purpose of finding best practices, and thus give impetus to the improvement of national calculation methods.

5.   The Workshop addressed the important issue of the statistical coverage of bus and coach transport and also the needs for official statistics. The transport industry and especially the companies that offer long distance transportation have a great interest in comprehensive information that covers a great number of issues and countries. This enables them to position themselves in this market.

6.   Policy makers and public administration face increasing problems in the field of decreased mobility by congestion and the strong impact of individual transport on the environment.

7.   The Workshop also paid a lot attention to users' needs and considered issues that include availability of data; their usefulness; comparability and accuracy (errors), and underlined the need to collect, estimate and supply data on different areas. Also the industry gave an important input in the workshop.

8.   It was decided to set up a task force to elaborate an overview of the best practices in data collection and dissemination. One of the instruments used was a short questionnaire to get an insight in the availability of data in different subjects. During the process it became clear that because of the friction between users' needs and possibilities the task force would have to define the scope of the work more precisely.

9.   One of the main issues was the question whether or not to include urban transport in the handbook. The term "long distance transportation" is defined differently in the consulted countries. For these reasons, there is an increasing interest in transport statistics. A good starting point to develop this statistical area was to prepare a handbook of best practices. This handbook gives an overview of the current need for statistical data and the available statistics.

10.   One of the most delicate issues (in statistical terms) is the need to distinguish between statistics that describe the situation in and around urban areas and statistics that cover the

passenger traffic on longer distances, often referred to as interurban services. Also, insight in the border crossing traffic is of major importance.

11.   The handbook is originated in the context of functional transport statistics. Consequently, the sequence of the subjects in this handbook is based on this context.

12.   After users' needs, the performance indicators such as number of passengers, passenger kilometres will be discussed. Fleet statistics and infrastructural data will complete the set of functional data. The effects of transport will be discussed in terms of safety indicators followed by the environmental impact and energy consumption. As a third block, the institutional data will be shown. Enterprise data of the bus and coach industry will be presented.

13.   Financial indicators and service quality indicators are very poor or even not covered in most official statistics. Therefore, these will only appear in the users' needs chapter and will not be elaborated further.

14.   The synthesis chapter gives a summary of possibilities for the future. Annexes on definitions and the pilot questionnaire are added. The definitions are mainly taken from the Glossary for transport statistics (4th edition). The third annex with existing data and proposed tables complete the handbook.

15.   The task force sees the scope of the handbook as a means to assist countries in improving their existing statistics on bus and coach transport or helping them setting up new statistics in this area. The handbook points to advantages and problems linked to the various methodologies, touches upon possible ways to overcome specific problems relating to an applied methodology and gives inspiring concrete examples in the UNECE Member States. Finally, the handbook should address the needs for internationally comparable statistics about bus and coach industry, recommending regular submission of a limited set of harmonized tables to UNECE, International Transport Forum and Eurostat.

II.   USERS' NEEDS

A.   Introduction

16.   Passenger transport by bus and coach is widely considered to be among the safest, most environmentally-friendly and affordable modes of motorized transport.[1] It helps fighting congestion and other negative effects of transport. It is the most important mode of collective transport. The figures for bus and coach transport are often underreported as sometimes not all market segments are covered by official statistics. This is one of the reasons why passenger transport by bus and coach, in particular on interurban routes, can be described as "the forgotten mode of transport". It is therefore not surprising that it receives relatively little attention from policy makers and transport planners.

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[1] A study carried out on behalf of the American Bus Association (ABA) Foundation concluded that "the transportation service provided by the motor coach industry was the safest, most fuel efficient and least energy intensive" and therefore "the most cost effective provider of transportation service". Nathan Associates (2006): "Impacts of the Motor coach Industry on Society and the Economy: An Industry that Binds the Nation Together", p. IV.

17.   Some countries do not provide any statistical information on the performance of their bus and coach operators. In many countries, the statistical coverage of passenger transport by bus and coach is not very detailed. Often, there is no distinction between urban and interurban regular transport. Data on occasional transport services (coach tourism) are mostly completely missing. The problem is even more acute at international level (international passenger transport services by buses and coaches), where hardly any data are available.

18.   Against this background, more and more users are asking for more differentiated data on the transportation of passengers by buses and coaches. There should at least be a distinction between the following kinds of passenger transport services by bus and coach:

(a)   Regular (and special regular) <u>urban and suburban</u> services;
(b)   Occasional <u>urban and suburban</u> services;
(c)   Regular (and special regular) <u>interurban</u> services, national and international;
(d)   Occasional <u>interurban</u> services, national and international.

19.   This chapter is about the need for, and potential and actual use of data on passenger transport by bus and coach. After identifying actual and potential users of statistical information on this market, it explains why these (particular) groups are important in statistics, gives examples of topics which require such data and outlines areas where more detailed statistical information would be needed. Given the data needs and areas of use identified above, the chapter concludes with a list of variables and their breakdown ("wish list") which ideally should be covered by official statistics.

B.   Main - actual and potential - users of statistics on passenger transport by bus and coach and their data needs

20.   At the moment, there are only few sufficiently detailed data available on passenger transport services by bus and coach. Little is known about the size of the various market segments and their potential, let alone the market players and their efficiency and productivity. Moreover, the data that are available from various UNECE Member States are often not comparable. There is, however, a need for and interest in such data.

21.   The following main user groups can be identified:

(a)   Policy makers and public administrations at all levels (local, regional, national and supranational);
(b)   The industry itself (bus and coach operators and their trade associations);
(c)   Statistical authorities;
(d)   Vehicle manufacturers and other partner industries from the travel and mobility chain;
(e)   Research institutes, consultants and the like; and
(f)   The general public.

C.   Resulting (wish) list of variables and breakdowns needed for a proper monitoring of the market that deals with the transportation of passengers by bus and coach

22.   Given the various needs and areas of use identified above, the following variables and breakdowns on passenger transport by bus and coach appear to be necessary to get a sufficiently

detailed picture of the sector. The order of variables is meant to give some indication of their importance and their relevance with regard to the remit of transport statistics.

(1) Transport and traffic indicators: demand / supply / traffic volume;
(2) Transport equipment;
(3) Infrastructure (for regular services only);
(4) Accidents;
(5) Environment;
(6) Enterprises;
(7) Service quality indicators (for regular services only);
(8) Financial indicators.

III.   TRAFFIC AND TRANSPORT MEASUREMENT

23.   Public transport in general is a very important part of the transport sector. It influences economic, social as well as safety and environmental issues. Most states, through their relevant authorities, pay great attention to its support and development. In order to manage all public transport domains, it is necessary to gather all possible reliable information as a support for various decisions on all levels.

24.   Because it is not possible to contain transport within state borders, it is important to establish a link between national and international statistics. Therefore, international organizations give great importance to statistics in general, and to transport statistics as well. Data collected within these organizations, which are drawn from Member States, respect time series continuity and are therefore mutually useful. For those statistical data which have not yet been harmonized, all interested parties try to make an effort to gradually develop a common methodology to produce statistical information of a good quality.

25.   This chapter proposes a method for bus and coach transport data collection and defines a list of indicators to be possibly collected and published on the international level.

26.   On the basis of the above-mentioned methodology, it is proposed to publish four summary overviews concerning the number of passengers transported, passenger-kilometres and seat kilometres in bus and coach transport and vehicle kilometres in bus and coach traffic using the following breakdown:

Country	Year	Total bus and coach transport	Regular			Occasional	
			National		International	National	International
			Urban transport	Interurban transport			

IV.   TRANSPORT EQUIPMENT

27.   Compared to the availability of statistics on road transport of goods, there is relatively little statistical data available for passenger transport by bus or coach in the European Union. Some member States publish aggregated figures covering buses and coaches without making a distinction between regular (for example: urban and interurban traffic) and occasional transport.

Some countries have accurate statistics about the urban bus and coach transport activities, mostly due to rules for contracts for carrying out public service obligations.

28.   Although the use of buses and coaches is important for policy makers at all levels, Ministries and several regional and local authorities, it is also necessary to know the fleet of buses and coaches and what kind of bus or coach is used for a special kind of transport. To make calculations, to compare information or to split up data according to vehicle specifications, it is useful to have some special and technical information about buses and coaches.

V.   TRANSPORT INFRASTRUCTURE

29.   Transport infrastructure consists of the fixed installations necessary for transport. Infrastructure could be seen to be the structural elements of an economy which allow for production of goods and services without themselves directly being part of the production process. In the past, infrastructure was typically supplied, owned and managed by local or central governments, although infrastructure may be developed and operated by private-sector or government enterprises.

30.   Generally network systems (for example, roads), point systems (for example, bus stations) and point-network systems (for example, bus lines) may be distinguished.

VI.   ACCIDENTS

31.   Bus and coach transport is in principle designed to transport significant volume of people whether it concerns urban buses and coaches operating within urban or suburban areas or regional buses and coaches which link small and large cities and urban and rural areas within a particular region or long-distance buses and coaches interconnecting regions, important urban agglomerations and ensuring international transport as well. Average bus and coach capacity being approximately 40-50 people therefore represents potential danger for injury accidents with serious consequences. Beside the most tragic consequence which is no doubt loss of a human life, one has to also consider economic losses including health and hospital care.

32.   Generally it could be stated that the number of bus and coach injury accidents related to the total number of injury accidents is not very high (around 1 per cent in the Czech Republic). However, as mentioned earlier, the share of number of fatalities and economical losses is higher. Bus and coach accidents may be (little) similar to aviation accidents where, in one single accident, consequences are extensive.

33.   It is obvious that the safety of this kind of public transport is of major concern for all involved. Good statistics provide a basis for possible measures either on national or on international level.

VII.   ENVIRONMENT

34.   There is a great need for methodologies to estimate fuel consumption and the emission of pollutants and of greenhouse gases (GHG) on national and international level. In this chapter a straightforward method is presented to estimate the absolute minimum indicators.

35.   The environmental indicators concern fuel consumption and emissions of main pollutants and greenhouse gases (GHG) especially carbon dioxide emissions.[2] In comparative studies the indicators are expressed in terms of units per passenger km or units per vehicle km.[3] Carbon dioxide is a greenhouse gas that contributes to global warming. The transportation sector is one of the main contributors in man-made CO_2 emission. Some users need the total fuel consumption and the total emission of the bus and coach sector. Building stones for the environmental unit indicators are traffic and transport volumes related to fuel consumption and emissions.

36.   In order be able to compare the energy use and emissions of buses and coaches with other land modes, it is necessary to collect some basic data. Absolute necessary are the vehicle kilometres. This indicator is a good starting point in combination with the age and fuel consumption of buses and coaches to calculate the emission of GHGs. Other characteristics of the use of vehicles are important for reporting to international organizations. Emission per passenger km, emission on national territory can be better calculated if the details of the performance indicators are accurate. The method as described above only provides a very rough indication of vehicle emissions and can be elaborated further.

VIII. ENTERPRISES

37.   Enterprise statistics are in great demand for economic analysis by a large number of users - the Commission services, the European Central Bank, national governments as well as private sector companies and financial markets. Enterprise statistics are one of the basic statistical tools for measuring and monitoring the competitiveness and entrepreneurship. Enterprise statistics are mainly produced using the data reported by enterprises for statistical questionnaires or the data of administrative registers collected for other purpose, for example taxation purposes.

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[2] Generally spoken there are two different groups of emissions:
Emissions of pollutants (which are harmful for the environment and our health) such as carbon monoxide CO, hydrocarbons HC, methane CH_4 (which is also a GHG) and oxides of nitrogen NO_x and even smoke (means particles suspended in the exhaust stream of a diesel engine which absorb, reflect, or refract light).
Emissions of greenhouse gases (GHG) (which are harmless for our health, but contribute to the global warming effects and increase the risk of climate change threats) such as carbon dioxide CO_2, methane CH_4, nitrous oxide N_2O, etc.
[3] More or less all vehicles in service comply either to UNECE Regulations Nos. 83 (Emissions of pollutants) and 101 (Fuel consumption and CO_2 emissions) for passenger cars and UNECE Regulations Nos. 49 (Emissions of pollutants) and 24 (Smoke) for heavy-duty vehicles, buses and coaches. However, according to the test requirements mentioned in the above mentioned Regulations the emissions from passenger car engines are measured and expressed in g/km (the fuel consumption in l/100km) and the emissions of heavy-duty vehicles, buses and coaches in g/kWh). The data regarding the emissions can be found for each type of vehicle engine family in the type approval documentation available at the type approval authority of each Contracting Party applying the Regulation concerned. Please note that the measurement procedure for the fuel consumption and CO_2 emissions from engines of heavy-duty vehicles, buses and coaches is not yet included in Regulation No. 49.

38.   A good source for enterprise statistics are the variables produced according to the council regulations concerning structural business statistics and short-term statistics. The disadvantage is that these statistics are produced only for the member states of the European Union. Also the statistics are produced only for certain activities and in a certain detail. While using the data collected and published according to the Council Regulations on enterprise statistics, one has to take into account that the annual bus and coach transport statistics are available from the reference year 2008 and onwards. For earlier years it is available only for activity "other land transport", including taxi operation and urban bus, tram and trolley transport. Short-term statistics are available for activity land transport and transport via pipelines, including besides bus and coach transport enterprises also rail transport, taxi operation, urban bus, tram and trolley transport, road freight transport and transport via pipelines.

39.   In addition to the variables collected according to Structural business Statistics (SBS) and Short-Term Statistics (STS) regulation, the supplementary indicators of enterprise statistics for domestic needs could be produced. To obtain Gross Domestic Product (GDP) frequently both annual and quarterly data on expenses, stock, investments, etc. are collected. Also the breakdown of activity groups, size groups, etc. may vary according to national needs. Based on national needs, the main variables could be produced also by type of transport service offered, by size classes, etc.

40.   For those countries that do not produce enterprise statistics or do not follow the council regulations on enterprise statistics, the practices of different countries and the methodology of surveys could be followed while introducing or improving the national survey.

IX.   SYNTHESIS

41.   The discrepancy between users' needs and available statistics cannot be solved easily. Therefore, we suggest to narrow the scope and use this context to create a maximum output without setting up new questionnaires. In fact grouping the existing information is already a big step in compiling statistics on buses and coaches. The major problem is to obtain data on the market segment of regular long distance (interurban) transport of buses and coaches. Most of data collections are based on total transport or on urban and suburban transport.

42.   Besides, the definition problem is hard to solve. The definition of "long distance" differs depending which data collections are considered. Tables that are produced should have an indicative character. The field of statistics on buses and coaches is a cross section through all transportation statistics. Some of the subfields are very poorly developed. However, some countries have very detailed statistics on subsets. This makes it hard to give a general conclusion. Aiming too high will stop the process, aiming to low will give no added value.

43.   Therefore, the specific section of the bus and coach industry involved in long distance interurban regular transport should be placed in the context of the total industry. This means that in some cases only totals are available. For the specific segment an estimation methodology should be developed.

44.   The attached pilot questionnaire focuses primarily on traffic, transport measurement and transport equipment. Accident data are already being collected, as shown in the chapter on accidents. Traffic indicators are basic input for environmental indicators. Enterprise data for the

bus and coach market segment cannot be derived at the moment. Further detail of the NACE classification is not foreseen in the near future.

45.   The following table indicates the minimum output that is possible at the moment without major changes in data collection methods.

Frequency: yearly
Market segments:

       (a)   Regular (and special regular) and occasional;
       (b)   National and International;
       (c)   Urban (incl. suburban) and interurban services.

These classifications can be combined in a different way.
Starting with the regular/occasional perspective:

Table 1

Total bus and coach transport	Regular			Occasional	
	National		International	National	International
	Urban transport	Interurban transport			

If some subcategories are missing, subtotals can be introduced to make the table meaningful

Table 2

Total bus and coach transport	Total national	Total international	Regular						Occasional		
			Total regular	International	National			Total occasional	National	International
					Total	Urban	Interurban			
(a+b+c+d)	(b+c+d)	(a+e)	(a+b+c)	(a)	(b+c)	(b)	(c)	(d+e)	(d)	(e)

There are other possible hierarchies
(the column indicators correspond with those above):

Table 3

Total bus and coach transport	National				International	
	Regular		Occasional		Regular	Occasional
	Urban transport	Interurban transport				
	(b)	(c)	(d)		(a)	(e)

Table 4
Suggested basic indicators and variables

Subfield	Key indicators	Main classifications
Traffic and Transport measurement	Number of vehicle kilometres Number of passenger kilometres Number of passengers Number of seat kilometres	National/international
Transport Equipment	Number of buses and coaches Number of seat (total) Number of first registrations	Fuel type Age Emission code Vehicle type
Infrastructure	Number of terminals Number of regular lines Length of regular lines	
Accidents	Number of injury accidents involving buses and coaches Number of injuries Number of persons killed	Driver/passenger
Environment	Emission of greenhouse gases Fuel consumption	Emission type Fuel type
Enterprises	Number of enterprises Turnover Number of persons employed	

46.   The end result depends on the outcome of the methodology questionnaire developed by this task force. Financial indicators and service quality indicators are poorly developed or absent in most UNECE countries and are not considered achievable. Therefore these indicators are left out. At this stage, proposals for new tables are difficult to make. Therefore, the suggested indicators and classifications in table 1 represent the most feasible output. Annex III and some fact boxes in the previous chapters are examples of what is available now.

X.   METHODOLOGY

47.   This task force began its work by only addressing the area of long distance transportation of buses and coaches, but after a while if became obvious that all kinds of bus and coach transport should be included into its work. Discussions revealed that the knowledge about the actual range of the transport market for buses and coaches was limited and that it was difficult to have an overview of the market as a whole. Also, the structure of this market is not fully known. Statistical data on these transport related issues are necessary for policymaking. In addition, there is a need for common definitions, common standards and increased harmonization.

48.   A first questionnaire was sent out to UNECE countries to see whether statistics were collected in this area. The first questionnaire is included in the end of this chapter (summary of answers is available at
<http://www.unece.org/trans/main/wp6/transstatac6wdoc.html>).

49.	Among the answers received from 24 countries, eight countries did not collect data in this area. In most countries that do collect data, the collection is regulated by law. There was a specific question about the definition of long distance transport. Two main definitions were used: either transport longer than 100 km or transport between countries.

50.	Eight of the 16 nations that collected data in 2006 had surveys that were regulated by law. Ten of them had long distance transport as a variable in their survey. Thirteen of them divided long distance transport into national and international travels. Eight of them divided it into regular and occasional transport. Eleven of them had urban transport as a variable in their survey and three nations had done these kinds of surveys only once.

51.	Following the questionnaire asking whether or not statistics were collected in this area, the question was raised as to what kind of data was collected and in what way.

52.	With the chapter "Users' needs" as a starting point, a new questionnaire was prepared. It consisted in a spreadsheet in which respondents were asked to indicate which questions they could answer. This second questionnaire is also included in the end of this chapter. The questionnaire was distributed to the countries that had participated in the task force group.

53.	The five nations included in the task force group were asked to mark with an x in the spreadsheet which variables they collected in their surveys. The variables were sorted under six different main categories. The first main category "Transport/traffic indicators" was the category which most respondents were able to answer, especially regarding questions about national regular traffic. The questions about occasional traffic were also frequently marked in the sheet.

54.	As to the second main category, "Fleet statistics", most countries indicated that collected figures represented a total, but nearly none of them could divide them into sub-groups. Nearly the same result was achieved for the main category "Enterprise statistics". The sub-groups of "Fleet statistics" showed the worst results. Response to the three other main categories was not so good. The best result for those three was the regular traffic in the main category "Financial data", but as a whole there were very few marks in these category boxes.

55.	After analyzing which questions seemed relevant based on respondents' answers another questionnaire was sent out to participating members of the task force group. Respondents were then asked to comment on the new version of the questionnaire. After taking these comments into consideration, the final version of the questionnaire was issued.

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