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**METHODOLOGICAL DEVELOPMENT, HARMONIZATION AND
RECONCILIATION OF TRANSPORT STATISTICS**

Harmonization of environment statistics in transport

Results of the Eurostat/ECMT/ECE Pilot Survey on Road Vehicle Fleets

Note by the secretariat

I. BACKGROUND AND MANDATE

1. At its forty-eighth session (3-5 November 1997), the Working Party on Transport Statistics considered a proposal submitted by Eurostat to collect more detailed information on road vehicle fleets as a first step toward obtaining improved statistics on the environmental impact of transport. The Working Party asked the secretariat to circulate a pilot questionnaire, based on the Eurostat proposal, in an effort to assess the availability of data according to these more detailed breakdowns as well as pertinent definitions. Depending on the availability of information, the Working Party could thereafter decide whether, and in what manner, to include these breakdowns in future editions of the Common Questionnaire and the Glossary (TRANS/WP.6/133, paras. 47-48).

II. RESPONSE RATE

2. As of 5 June, 1998, 27 (51%) ECE member countries had provided data: Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, France, Germany, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Malta, Netherlands, Norway, Poland, Romania, Russian Federation, Slovakia, Slovenia, Switzerland, The former Yugoslav Republic of Macedonia, Turkey and the United States of America. In the case of Kyrgyzstan, there seems to have been a problem in understanding the questionnaire. No Russian version of the questionnaire had been prepared, thus the response from the Russian Federation has not been included in the summary of results, although it does provide interesting information.

3. A further six countries (Austria, Belarus, Canada, Georgia, Portugal and Sweden) were given additional time to reply due to problems in reception of the questionnaire and diskette (Austria, Canada and Georgia), the need to carry out research (Belarus, Portugal) and a heavy workload (Sweden). Albania had problems in e-mailing their results, and has been asked to send them by post. Countries which have not responded have been left out of the sample.

III. SUMMARY OF RESULTS

4. It is useful to compare the response rates to items already included on the Common Questionnaire with the new items. For sections already present, a response rate of at least 35% was obtained, although this was rather higher for most items.

5. The responses to the questions on sources, methods and definitions are given in the annex. Although most countries appear to have some form of vehicle register, these registers vary considerably in terms of the authority responsible, their structure and format, and the ease with which they can be consulted by national statistical institutes. Two aspects should be mentioned:

- Several countries state that some items could be provided in future, when new fields are integrated into the register, when arrangements have been made with the responsible authorities, or when an extraction procedure has been written.
- Some countries have suggested changes to the proposed definitions.

IV. CONCLUSIONS

6. If the lower limit of 35% response for the current sections on the Common Questionnaire is taken as acceptable, then this limit should also be acceptable for the new items to be introduced. However, it should be borne in mind that some countries cannot respond as quickly to new information requests due to other priorities and the need to make the administrative arrangements. The lower limit should therefore be somewhat lower, say 20-25%, or at least six countries. In time, some of the non-responding countries should be able to provide the data, as has been made clear in some cases. Some special cases, where the response

rate to the Pilot Survey has been low but where there are grounds for inclusion, are discussed below.

A. Vehicle stock

7. The following items should be included:

- Catalytic converters (15%),
- New fuels (62%),
- Cylinder capacity (35%),
- Cylinder capacity by fuel type (23%).

8. Passenger cars fitted with catalytic converters are a special case. Only four countries provided data (although several others say they may be able to in future). Despite the low response rate, there are many countries which do not yet have legislation requiring new vehicles to be fitted with catalytic converters, and the numbers of such vehicles in these countries would be currently very small. In view of the probable introduction of legislation in the coming years, and for the purpose of following these developments, it is nevertheless recommended that this item be retained. Ideally data would be broken down by specific emission standards, but this would perhaps be too demanding at present.

9. The items on cylinder capacity by fuel type are a borderline case, but are particularly needed. The information on new fuels by load capacity is another special case, in that in many countries the numbers of goods vehicles running on electricity or LPG are very low. It is proposed that this section not be included until it becomes clear that significant numbers of goods vehicles run on alternative fuels.

B. New registrations

10. The following items should be included:

- Split into new vehicles and imported second-hand vehicles (35-72%; some countries can only provide part of the split),
- Cylinder capacity (35%)
- Unladen weight (8%).

11. Previous versions of the Common Questionnaire have only collected information on the numbers of new vehicles registered during the year. It is therefore interesting to find that more countries are able to provide total new registrations (sum of imported second-hand vehicles and new vehicles) than are able to provide just the new vehicles registered as previously collected.

12. However, only 9 countries were able to provide new registrations of second-hand vehicles. In effect, the problem largely reflects a difference in concerns between the older market economies of western Europe and North America on the one hand, and the transitional economies of central and eastern European countries on the other. Data on first registrations are chiefly of interest in following the market for new cars, whereas

data on new registrations, which include imported second-hand vehicles, are of interest in following the imports of used vehicles, as well as being of use in estimating end-of-life vehicles for all countries. It is therefore proposed that this split be retained and that countries provide whichever data they can.

13. Unladen weight is a special case as a further five countries (Bulgaria, Croatia, Cyprus, Germany and Norway) specifically mention that they could obtain these data in future (which would bring the response rate to 27%).

C. Final deregistrations

14. The following items should be included:

- Total final deregistrations (31%),
- End-of-life vehicles (23%).

15. Since only one country was able to provide the weight of end-of-life vehicles, this table should not be further considered at this time.

V. DEFINITIONS

16. There were a number of comments on the proposed definitions, and these are provided in the annex. Some modifications to the proposed definitions or explanatory notes are provided below. Although no country considered that a definition of "Unladen vehicle weight" was necessary, it is a fundamental principle that terms used in the Common Questionnaire should be defined in the Glossary. For this reason definitions are also provided for "cylinder capacity" and "motor energy".

Cylinder capacity: The cylinder capacity of the engine as certified by the competent authority of the country of registration.

Unladen vehicle weight: The unladen weight of the vehicle as certified by the competent authority of the country of registration.

Motor energy: The principal type of motor energy used by the vehicle as certified by the competent authority of the country of registration. For hybrid vehicles adapted for using more than one type of motor energy (e.g. LPG and petrol, or electricity and diesel, etc.), the principal type of motor energy should be, where possible, an alternative fuel. In some countries at least, vehicles adapted for running on LPG normally also run on petrol. Some trolleybuses also have an auxiliary motor so that they can run independently of their electricity supply. Passenger cars using electric motors and another energy type are already available although not yet widely used. This raises the question of how to deal with such hybrid vehicles (which can switch between types of motor energy) and dual-fuelled vehicles (which can simultaneously use two types of motor energy). Since countries do not yet seem to have adapted their vehicle registration to deal with these vehicles, a

provisional definition is provided below, but will need to be reviewed at a later date. A definition of "alternative fuel" is also provided.

New registration of road vehicles: Finland and Germany suggested that "New registration of road vehicles" should include only new road vehicles registered for the first time. However, as pointed out above, there are more countries able to provide data on the total vehicles registered for the first time than on the first registration of new vehicles. The Intersecretariat Working Group proposed that the term "New registration of road vehicles" be replaced by "First registration of road vehicles." The amended definition is as follows:

First registration of road vehicles: The registration of a road vehicle for the first time in the reporting country. This includes factory-new road vehicles, road vehicles that have been in use previously in the reporting country but unregistered, and imported second-hand road vehicles registered in the reporting country for the first time.

Alternative fuel: A type of motor energy which provides substantial environmental benefits over conventional fuels (petrol or diesel). Alternative fuels may include, but are not limited to: electricity, LPG, natural gas (NGL or CNG), alcohols, mixtures of 85% by volume or more of alcohols with other fuels, hydrogen, biofuels (such as biodiesel), etc. Alternative fuels do not include unleaded petrol, reformulated petrol, or city (low-sulfur) diesel.

New road vehicle: A road vehicle which has not previously been registered in any country. This includes both factory-new road vehicles and road vehicles that have been in use previously but unregistered. A further category "Other" needs to be added to the categories of final deregistrations. Also, in order to take account of the additional information provided by Germany, the explanatory notes to the definition have been modified as follows:

Final deregistration of road vehicles: The final removal of a road vehicle from the vehicle register of the reporting country. This includes end-of-life road vehicles, road vehicles exported to foreign countries for resale, and road vehicles removed from the register for other reasons, such as theft.

End-of-life vehicle: A road vehicle which is finally and permanently removed from the vehicle fleet and is destined for scrapping. This includes road vehicles which are dismantled for their parts and materials to be reused, recycled, shredded, land-filled, incinerated or otherwise disposed of.

VI. FURTHER DEVELOPMENT OF STATISTICS ON THE ENVIRONMENTAL IMPACT OF TRANSPORT

17. This Pilot Survey should be considered as a first step towards obtaining improved statistics on the environmental impact of transport. It has attempted to obtain transport data on road vehicle fleets which have an environmental relevance, and which fit easily into the existing structure of the Common Questionnaire for Transport Statistics. It is likely that further information on road vehicle fleets will be needed in the coming

years. Examples are numbers of vehicles running on natural gas, numbers of hybrid vehicles, number of vehicles split by engine power.

18. However, other areas also need to be covered and should be the subject of future pilot surveys, including fleet data for other modes, as well as infrastructure data. Some other possibilities are high-speed trains, materials used in road and railway construction and maintenance, dredging and straightening of inland waterways, use of pesticides and herbicides alongside road and rail infrastructure, electricity generation by railway operators, cycle paths, noise, waste, etc. Where possible, these future surveys should also fit into the current structure of the Common Questionnaire, but at some point it may be necessary to consider adding a section on "Environment" alongside the existing sections (e.g. Infrastructure, Transport equipment, etc.) for each mode.

Annex

Country responses to the questions on sources, methods and definitions

BULGARIA

Data on the Questionnaire were completed by the National Statistical Institute but their owner is the Traffic Police Office which is the institution responsible for the registration and monitoring of vehicle changes. Data have been obtained from Traffic Police Office since 1989. At present more detailed data on catalytic converters, motor energy, cylinder capacity, imported second-hand vehicles etc. are not available and the tables concerning these statistics are thus not complete. We will investigate the possibility of obtaining the required data from the Register of Motor Vehicles.

Data on unladen vehicle weight are available in the Register of Motor Vehicles but to receive this information, changes in the automation system of the Traffic Police Office have to be carried out. There are possibilities to solve this problem but an additional agreement between NSI and the Ministry of Internal Affairs (the Traffic Police Office is a department in this Ministry) is required. The following definitions are acceptable to us: new registration of road vehicles; final deregistration of road vehicles; "end-of-life" road vehicle. We found the specific notes added to some of the tables useful because they clarify the scope and contents of the data.

CROATIA

Section 1: Emission-control technology, we do not have statistics about catalysts, as it is not included on the "Register sheet". Type of motor energy: statistics on type of fuel (LPG and electric energy) are not available, because vehicles in our country use either gas or petrol, and such statistics are not registered at present.

Section 2: New registrations: regarding the breakdown of new registrations and new road vehicles, is the year of production considered to be the current year? The "Register sheet" does not include these characteristics. Unladen vehicle weight of passenger cars: at present we do not have statistics about the weight of passenger cars. It would be possible to get that data in future.

Section 3: Final deregistrations: statistics referring to decommissioned vehicles are not reliable. A category exists for "written off", but these statistics too are unreliable. The deregistration of a vehicle due to exportation does not exist. End-of-life vehicles: statistics on written-off vehicles could be completed in the future.

CYPRUS

The pilot questionnaire was completed according to information that is presently available in our department. As far as the non-available information is concerned, specific measures are already being taken in order to

allow the inclusion of additional data in our information systems. This will enable us in the future to provide you with data according to the detailed breakdowns you requested.

Concerning the comments and definitions presented in the pilot questionnaire, I would like to inform you that not only do we agree in most of cases but we are currently following the same practices. In the cases where information is not available for the more detailed breakdowns an effort will be made to adopt your comments and definitions so that we will be able at some future time to meet your requirements. Regarding the questions about the sources of energy it must be clarified that in Cyprus the only sources used for motor vehicles are petrol and diesel fuels.

CZECH REPUBLIC

In the last year the Ministry started up a central vehicle registration database from which the data was extracted for the Common Questionnaire.

Section 2: Breakdown of new registrations: We would need to develop a new methodology for monitoring new registration of road vehicles, imported second-hand vehicles and final deregistration of road vehicles for liquidation or export to foreign countries for resale. On the basis of this methodology we would need to develop a new program to extract this data from the central vehicle registration database. This could possibly be done by end-1998.

FINLAND

Data for 1990 and earlier years have already been archived. To provide information on the vehicle stock for 1980-1990 would require a lot of work. To provide detailed data on the vehicle stock on Åland is not possible for Statistics Finland as vehicles on Åland are not included in the vehicle register. Statistics Finland receives aggregated data on the vehicle stock on Åland from Motorfordonsbyrå of Åland.

Emissions-control technology: the low-emission code (catalytic converter) is only defined for gasoline and diesel powered cars. Cylinder capacities of passenger cars: included in the vehicle register are some old vehicles without data on cylinder capacity. For those vehicles the category 'unknown' would be suitable.

Section 2: Breakdown of new registrations. Statistics Finland proposes that "new registration of road vehicles" includes only new road vehicles registered. The share of imported second-hand vehicles is low compared to new road vehicles registered. It is possible to provide data on imported second-hand vehicles by using foreign trade statistics (Source: National Board of Customs) and vehicle registers. By using vehicle registers it might be possible to get more detailed information on imported second-hand vehicles. We have not yet compared figures produced from these two sources.

Section 3: Final deregistrations. It is not possible to know if the vehicle is exported to a foreign country for resale or for other use. Statistics Finland proposes that "final deregistrations of road vehicles" include only vehicles removed from the vehicle register. Statistics Finland conducts a vehicle register once a year. The

register contains data on vehicles registered as of the 31st of December but does not contain data on vehicles removed from the register during the year. Statistics Finland would have to request information on road vehicles removed from vehicle registers from the Vehicle Administration Centre. Exported second-hand vehicles. In principle the number of exported second-hand vehicle can be provided by using foreign trade statistics (National Board of Customs) and vehicle registers (Vehicle Administration Centre). We have not yet compared the figures produced from these two sources.

FRANCE

Section 2: New registrations. Breakdown of new registrations: Imported second-hand vehicles: We do not have data on imported second-hand vehicles. Unladen vehicle weight of passenger cars: we do not have these data. We have data on the legally permissible load capacity of vehicles. A definition of unladen vehicle weight is not required.

Section 3: Final deregistrations: the definition is acceptable. We can provide data on scrapped passenger cars as well as the total number of commercial vehicles. In the future we could provide a breakdown of scrapped commercial vehicles by type. Source/methods: extraction from the vehicle registration database. Exported second-hand vehicles: this is not recorded.

GERMANY

Section 2: New registrations. Breakdown of new registrations: imported used cars cannot be reported, since no data are available for this in the KBA. We do not agree with the suggested definition regarding "new registration of road vehicles" and propose the following alternative: "New registration of road vehicles" is understood to mean the registration of a factory-new vehicle in the reporting country for the first time (the data provided for this table correspond to this definition). An old registration (Altzulassung) is the registration of a road vehicle in the reporting country for the first time, that has been in use already but not previously registered in the reporting country, e.g. for personal reasons, or has previously been registered outside the reporting country. Unladen vehicle weight of passenger cars: at present no statistics for unladen weight can be provided for passenger cars. It is expected that this will be possible starting from the year 2000. In the current statistics of the KBA, the new registration and the stock of road vehicles provide only gross vehicle weight.

Section 3: Final deregistrations. In the case of deregistration, the reasons (scrapping, withdrawal longer than one year, and export abroad) are not provided by the German certification authorities due to data protection laws. The definition "final deregistration" is integrated in the KBA through the term "cancellation (Löschung) of a road vehicle". Therefore the following supplement is suggested: deregistration refers to removals from the vehicle register for more than one year. A further definition should be introduced: "reregistration". A reregistration is the renewed registration after a road vehicle has been deregistered in the reporting country for more than one year. Reasons for deregistration include: theft, export abroad, private storage, e.g. as with collector models, sale to a vehicle dealer or third party, use of individual vehicle parts for other vehicles, conversion and registration as "self-built". The term "old vehicles" does not correspond to the

definition of the KBA, since old vehicles can be reregistered at a later date. The term "scrap vehicle" or "waste vehicle" is suggested as an alternative, since it can usually be assumed that approximately 80% of the finally deregistered cars (approximately 2.5 million in 1997 in Germany) are further exploited (scrapping and/or recycling).

LITHUANIA

Data on the road vehicle fleet is registered at the Traffic Police Office of the Police Department at the Ministry of Internal Affairs. The Ministry of Internal Affairs possesses a database of all registered road vehicles. Once a year the Ministry of Internal Affairs presents data on the registered road vehicles in the Republic to the Department of Statistics at the Government of the Republic of Lithuania. Only those data can be presented which are recorded in the database of registered road vehicles. No other descriptive information is available in the database.

MALTA

Manually kept records up to 1995: computerised system started in 1996. All manual records, except where quoted, are unreliable. Statistical reports are being standardized.

Section 1: Emission-control technology: not yet possible on the current system in use. Type of motor energy: current breakdown available, but numbers of vehicles using LPG and electricity is negligible, and compilation of these data is not foreseen. Cylinder capacities of passenger cars: not applicable for the time being. Vehicle roadworthiness testing to be introduced mid-1998 and will provide for emission limit variables.

Section 2: New registrations. Breakdown of new registrations: the definition is acceptable.

Section 3: Final deregistrations. Final deregistration: the definition is acceptable.

NETHERLANDS

Section 3: Final deregistrations. Final deregistration: the definition is acceptable. The following data on final deregistrations are unavailable for the following reasons: Trams: no registration in vehicle database; Mopeds: no registration in vehicle database; Motorcycles: not currently extracted from registration database, possible in future if desired. Sources/methods: extract from vehicle registration database. Exported second-hand vehicles. Sources/methods: Exports: extract from vehicle registration database; Imports: (rough) estimation of the import of car wrecks destined for (direct) dismantling and scrapping end-of-life vehicles. Information on weights is possible. The definition is acceptable. Sources/methods: extract from vehicle registration database.

NORWAY

Data by load capacity (lorries) and by unladen vehicle weight (private cars) can be obtained, using the Register of vehicles from the Directorate of Public Roads. This, however, necessitates special data programming and this data is thus omitted.

POLAND

More specific information will be available once the Central Road Vehicle Register is created by the Polish Government after 2000.

ROMANIA

Since 1992, the Romanian Road Vehicle Register has issued a Road Vehicle Identity Card, a paper necessary for road vehicle registration. Because road vehicle registration is done by the Road Police, RRVR does not possess data for the years 1980, 1985 and 1990. For the years 1995 and 1996, the transmitted data are estimated on the basis of a sample representing: 58% of total registered passenger cars; 36% of total registered motor coaches and buses; 49% of total registered lorries; 37% of total registered road tractors.

Section 1: Vehicle stock. Emissions-control technology: At present, data on the number of passenger cars fitted with catalytic converters are not available. It is necessary to add to the questionnaire for road vehicle registration a cell permitting the collection of this kind of data. For the period 1994-1996, the average consumption of unleaded gasoline represented about 3% of total consumption.

Section 2: New registrations. Breakdown of new registrations: This includes also new road vehicles manufactured/assembled in the reporting country and manually assembled/remanufactured vehicles registered in the reporting country for the first time. This definition is acceptable. Unladen vehicle weight of passenger cars: This [the definition for unladen weight] is not necessary.

Section 3: Final deregistrations. Final deregistration: this includes also stolen vehicles that are not found after one year and registered road vehicles exported to foreign countries for resale. This definition is acceptable. Exported second-hand vehicles: Romania does not export second-hand vehicles. End-of-life vehicles: this notion is mixed up with the definition of final deregistration. Certain parts of the vehicles are reused after a reconditioning process.

RUSSIAN FEDERATION

Section 1. Vehicle stocks: data on lorries and buses in the Russian Federation through 1990 are presented only in total because data reported for this period were confidential. Monitoring of mopeds and motorcycles in the Russian Federation is not carried out. Data on lorries include tractors.

1.1 Emissions-control technology: in the Russian Federation fitting of passenger cars with catalytic converters was started recently. The current registration system for vehicles does not include data on catalytic converters.

1.2 Type of motor energy: for "LPG", data are presented on motor vehicles which have the equipment for the use of this type of motor energy. Such motor vehicles can be also operated with petrol. Diesel passenger cars are not used in the Russian Federation. The number of motor vehicles operated with electricity is not considerable, and currently no information on them is available. In the table on buses and trolley-buses for "electricity" only, the data on trolley-buses are presented because there are no buses which operate on electricity in the country.

1.3 It is not possible to provide a breakdown by motor capacity and by unladen vehicle weight on the basis of existing data.

Section 2. New registrations of road vehicles. New registrations of road vehicles in the Russian Federation are arranged only for buses of special public transport enterprises, in which 27% of all buses in the country and all trams are operated. Information on the increase in passenger cars during the year is presented, which is an estimation of new registrations of passenger cars.

Section 3. Final deregistrations. Data is available only on deregistration. It is not possible to obtain data on deregistration due to export because the number of road vehicles exported includes not only vehicles deregistered, but chiefly new vehicles which have not been registered. There is information on end-of-life road vehicles in the monitoring forms for the activity of special public transport enterprises. Such information is presented for trams and buses. Special enterprises account for 27% of the bus stock of the country and all trams.

SLOVAKIA

The registration of the road vehicle fleet is done by the Police headquarters of the Ministry of Interior of the Slovak Republic. This register was conducted manually until 1993. By 1995 the register was gradually converted to PC. While converting from a manual register to PC not all of the data on all road vehicles was known, and they were therefore not included in the register. Since 1995 the register of the road vehicle fleet has been conducted centrally at police headquarters.

SLOVENIA

Processing is performed on data for registered motor vehicles and trailers (hereinafter "vehicles"), which the Ministry of the Interior prepares every year as of 31 December. Only data from 1995 on are available. Data before 1992 are not comparable (in 1992 a partial reorganization of vehicle use was performed). Data on mopeds and motorcycles under 50 cubic centimetres are not recorded in the vehicle record because they do not need to be registered.

Section 1: Vehicle stocks. Emissions-control technology: There are no data on emission control in the vehicle record.

Section 2: New registrations. Breakdown of new registrations: "New vehicles" are vehicles registered for the first time in the year of processing and manufactured in the year of processing or one year before. The column "Imported second-hand vehicles" contains data on vehicles registered for the first time in the year of processing and manufactured more than two years before. There are no data on whether the vehicle was imported or exported in the vehicle record.

Section 3: Final deregistrations. Final deregistration: Data on vehicles withdrawn from traffic are calculated, since we do not keep them in the form required by the questionnaire. These vehicles have the status "O", i.e. withdrawn from traffic. The year of the last change in the database equals the year of processing. It is not necessary to enter the vehicle weight in the vehicle record, so we do not show it.

UNITED STATES OF AMERICA

Data for the year 1997 are not available. We expect them at the end of 1998.
