TRACCS

“Transport, environment, and climate change…”

Transport data collection supporting the quantitative analysis of measures relating to transport and climate change

A European Commission (DG Clima) project
Project overview

- **Impact assessment study** for the effect of transport sector on air pollution and climate change

- **General update** of the historical transport data for use in the various activity and emission modeling/projection tools and inventories for policy assessment purposes in Europe

- **Reflection** of the changes in European transport for the period 2005-2010
Consortium of the project

The consortium of the project consisted of:

- **EMISIA SA (GR)**
  - Co-ordination
  - Road (passenger/freight) and non-motorized transport

- **INFRAS (CH)**
  - Aviation and rail transport

- **IVL (SE)**
  - Waterborne transport
Main project achievements

**Collection** of country-specific data (stock, activity, economic) from various sources for all transport modes in each of the EU28 Member States (plus IS, NO, CH, FYROM, TR), 2005-2010
Main project achievements (cont’d)

- **Validation** and **interpretation** of the data

- Creation of a **final processed detailed dataset** that can be easily incorporated by other models

- **Documentation** of inconsistencies and adjustment of data to ensure the delivery of a **complete** and **consistent** dataset

- Development of **indicators** on the economic, environmental and usage aspects of transport
## Sources for road data collection

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<thead>
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<th>Source</th>
<th>Main data categories collected</th>
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<tr>
<td>Eurostat</td>
<td>Stock of vehicles, new registrations, vkm, pkm, tkm, other</td>
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<tr>
<td>EC Statistical Pocketbook 2012</td>
<td>Stock of vehicles, new registrations, activity/energy data, other</td>
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<td>ACEA</td>
<td>New registrations, PCs segments, economic data (Tax Guides)</td>
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<td>ACEM</td>
<td>Stock and new registrations of mopeds/motorcycles</td>
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<td>ANFAC European Motor Vehicle Parc</td>
<td>Vehicles in use, deregistrations, other</td>
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<td>National statistics web sites</td>
<td>Stock of vehicles, new registrations, activity data</td>
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<td>Countries’ experts</td>
<td>Stock of vehicles, new registrations, activity data</td>
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<td>(Mehlhart et al., 2011)</td>
<td>Second hand registrations of PCs and LCVs</td>
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<td>Car price reports by EC</td>
<td>Car prices per model in EU27 organized in segments A-G</td>
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<td>CESifo DICE database</td>
<td>Economic data gathered from various sources</td>
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<td>CO₂ monitoring database</td>
<td>New registrations of PCs, CO₂ emissions</td>
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<td>UNFCCC</td>
<td>Fuel consumption for road transportation reported by countries</td>
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<td>EC4MACS project</td>
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<td>Europe's Energy Portal</td>
<td>Fuel prices (unleaded-95, diesel)</td>
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<td>Other web sites, studies, and reports</td>
<td>Various data</td>
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The need to have TRACCS

- Available official statistical data are usually **aggregated** with gaps (countries or years missing)

- They do not satisfy the **requirements** of detailed modelling necessary

- Inconsistent definition and **classification** of vehicles

- No **single** source provides all data required

- Values from various sources **do not** always agree

- **No information** found at all for some data categories in several countries
What TRACCS developed (for road transport)

Detailed **data processing methodology** to produce final datasets (complete, consistent, with no gaps) for all road transport data categories (stock, activity, cost) combining collected statistical information from various sources.

Software **reconciliation** module ensures that stock data (population, new regs., second hand, deregs.) satisfy data processing rules and fleet balance equations.

Activity data (mileage/vkm) adjusted to match **energy** statistics (matching of calculated FC with statistical) and respecting **activity** statistics to the degree possible.
Delivered datasets

Road transport (passenger and freight)

- **Fuel consumption**, factors, CO$_2$ emissions
- **Stock data**: population, new regs., SHRs, deregs.
- **Activity data**: mileage, vkm, pkm, tkm (with share per trip class and cargo type), occupancy ratio, private/corporate/self-employed professional passenger cars, urban peak/urban non-peak/non-urban share
- **Economic data**: purchase price, VAT, registration tax, ownership tax, operation cost, maintenance cost, insurance cost, labour cost, and tolls
Delivered datasets (cont’d)

- **Airborne transport**
  - Activity data (flights, passengers, pkm, tonnes, tkm), occupancy, energy consumption, CO$_2$, prices

- **Rail transport**
  - Rolling stock, passenger/goods transport, energy and price data

- **Waterborne transport**
  - Short/Deep Sea Shipping (SSS/DSS), Inland Waterways (IWW)
  - Freight/passenger data, ship calls, fuel consumption, CO$_2$, price
  - Data divided into ship types, ship size classes, distance bands

- **Non-motorized transport**
  - Pkm, time spent, average speed, shares
Road transport dataset in numbers

- 33 countries
- 6 years (2005-2010)
- 30 vehicle age bins per year (1-30)
- 30 categories of data per country
- ~ 227,820 data cells per country

~ 7,518,060 individual values in total
Main concluding remarks (road transport)

- Comparing project’s output with official statistics (aggregated level) usually shows good (or even perfect) matching for most data categories.

- Necessity for harmonization – common vehicle classification and definitions to be used by transport statisticians and emission modelers.

- By utilizing the huge dataset delivered, various synthetic measures, tables, graphs, indicators, and time series can be derived (by bottom up calculations).
Indicative results (all transport modes)

**Total fuel consumption** from transport sector: share (%) per mode of transport (EU28, 2010)

- Road: 78%
- Airborne: 12%
- Waterborne: 9%
- Rail: 1%

**Diesel fuel consumption** from road transport: share (%) per vehicle category (EU28, 2010)

- PCs: 41%
- HDTs: 33%
- LCVs: 20%
- Buses: 6%
Total pkm from transport sector: share (%) per mode of transport (EU28, 2010)
- Road: 85%
- Airborne: 8%
- Rail: 6%
- Waterborne: 1%

Total tkm from transport sector: share (%) per mode of transport (EU28, 2010)
- Waterborne: 80%
- Road: 16%
- Rail: 4%
- Airborne: 0%
http://tracccs.emisia.com

More info on web site ...

Project Info
Partners
Contact

Download:
✓ Final report
✓ Final datasets
Extending work of TRACCS

- **COPERT** vehicle fleet and activity data have been updated using TRACCS road transport dataset.


- **Quality**, completeness, and consistency of these two projects’ datasets (extensively reviewed and cross-checked) ensure that the compiled COPERT countries’ data are also of good quality.
The **fuel consumption** produced by COPERT when using these data has been cross-checked in terms of consistency with national submissions in UNFCCC.

Available at [http://www.emisia.com/Purchase.html](http://www.emisia.com/Purchase.html)