

## Further development and application of the TREMOVE transport model

### *Minutes of the Kick-Off Meeting*

Recorded & edited : Bart Van Herbruggen, Griet De Ceuster

**Date:**

5 November, 2002

**Location:**

DG ENV, Beaulieu 5, Brussels

**Attendance :**

|                     |                                |  |
|---------------------|--------------------------------|--|
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| Michel Sponar       | DG ENV                         | <a href="mailto:michel.sponar@cec.eu.int">michel.sponar@cec.eu.int</a>               |
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| Christine Sauer     | DG TAXUD C.4.                  | <a href="mailto:christine.sauer@cec.eu.int">christine.sauer@cec.eu.int</a>           |
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| Graham Lock         | EUROSTAT                       | <a href="mailto:graham.lock@cec.eu.int">graham.lock@cec.eu.int</a>                   |
| Wouter de Ridder    | EEA                            | <a href="mailto:wouter.de.ridder@eea.eu.int">wouter.de.ridder@eea.eu.int</a>         |
| Markus Ammann       | IIASA                          | <a href="mailto:amann@iiasa.ac.at">amann@iiasa.ac.at</a>                             |
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**Agenda :**

1. Welcome and the purpose of the kick off meeting
2. Opening: Contribution of TREMOVE development to different policy work in the Commission
  - CAFE
  - ECCP
  - others
3. Presentation of the TREMOVE development project
  - Scope and specifications of the new TREMOVE model and baseline
  - Work plan, deliverables and timing
  - Discussion
4. How to cooperate to get TREMOVE developed to serve the Commission?
  - links with projects collecting data, parameters etc.
    - ETIS
    - TRENDS
    - ARTEMIS/PARTICULATES
    - TERM
    - etc.
  - links with projects developing modelling tools
    - DG TREN
    - DG RTD
    - others?
5. Establishment of the ad hoc Steering Group
  - see Section 6 of the t.o.r.
6. Follow up

## 1. Welcome and purpose of the kick-off meeting

## 2. Contribution of TREMOVE development to different policy work in the Commission

*Matti Vainio* expounded the importance of the TREMOVE transport and emissions baseline and the TREMOVE policy simulations in the CAFE<sup>1</sup> and ECCP<sup>2</sup> programmes and other transport/environment programmes.

## 3. Presentation of the TREMOVE development project

### **Presentation**

*Bart Van Herbruggen* briefly presented the objectives and scope of the project, as well as the work plan. (slides used will be distributed). *Stef Proost* and *Bart Van Herbruggen* responded to questions on model specification and coverage.

### **Discussion (minutes restricted to issues on which decisions were made)**

1.

Consistency of the TREMOVE **baseline** with the Energy Outlook 2030 baseline (which is based primarily on outputs of the PRIMES energy model) is needed.

*Matti Vainio* shortly summarised the outcomes of a meeting between Marcus Amann (RAINS<sup>3</sup> model in CAFE), Stef Proost (TREMOVE), Ian Williams (SCENES, by phone) and Matti Vainio himself (the meeting took place on nov 4.). The TREMOVE baseline will be based on transport forecasts of the SCENES<sup>4</sup> model. It was agreed that the developers of SCENES (i.e. ME&P) will recalculate their transport forecasts by the end of this year, taking into account the assumptions used in Primes/Energy Outlook 2030. I.e. SCENES will be ran with the GNP-levels, energy price-levels, ... equal to those in Primes/Energy Outlook 2030. Thereafter, discussions on inconsistencies between PRIMES and the new SCENES transport quantity forecasts will take place, if necessary. These baseline forecasts will also be discussed with stakeholders on the first TREMOVE contact group meeting (i.e. January 17, 2003).

2.

It was agreed that the TREMOVE model will not be linked to a **macro-economic model**, as such effort was not included in the terms of reference.

3.

As proposed by *Markus Ammann* the TREMOVE developers will take into account **non-exhaust emissions** of the modes for which such data is available.

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<sup>1</sup> Clean Air for Europe :

<http://europa.eu.int/comm/environment/air/caf.htm>

<sup>2</sup> European Climate Change Programme :

<http://europa.eu.int/comm/environment/climat/eccp.htm>

<sup>3</sup> RAINS – IIASA :

<http://iiasa.ac.at/~rains/home.html>

<sup>4</sup> SCENES

<http://www.iww.uni-karlsruhe.de/scenes/#deliverables>

4.

Karl-Heinz Zierock raised a point on **model definition**. In the technical annex there is a requirement to define what parts of the model need to be developed. There is a danger that what will be modelled is what can be modelled (rather than needs to be modelled). Ship emissions could serve as an example of this. This may be difficult to model (as you are starting from TREMOVE 1 which is a road transport model) but this needs to be modeled. This is part of the proposal, but is not properly discussed in detail in the meeting. The participants will come back to this in the next meeting.

#### **4. How to cooperate to get TREMOVE developed to serve the Commission (Links with other projects / data collection)**

(minutes restricted to issues on which decisions were made)

1.

The TREMOVE project outputs will be useful in **EEA's** TERM<sup>5</sup> indicators project. On the other hand, it was determined that EEA could contribute to the TREMOVE development project by providing data on the Accession Countries. *Wouter de Ridder* (EEA) will prepare and send a CD-ROM with CEEC data to *Transport and Mobility Leuven*.

2.

A similar agreement was reached with *Graham Lock* (**EUROSTAT**) on the TRENDS database<sup>6</sup> (transport, vehicle stock, emissions data). The consultants will provide TREMOVE baseline data to EUROSTAT, whereas Graham Lock will send the TRENDS database to *Transport and Mobility Leuven* and help the consultants to make optimal use of the data available in TRENDS.

3.

It was agreed that for **sea shipping**, the TREMOVE baseline should be based on activity data in the **Lloyds database** (which was also used in the ENTEC study on ship emissions<sup>7</sup>). It will be studied whether the approach taken by ENTEC is suitable. In any case a more elaborate activity growth rate<sup>8</sup> will be used (this might be taken from SCENES). *Matti Vainio* proposed that EUROSTAT would try to obtain and manage the Lloyds database.

4.

A project on rail vehicle stocks and emissions will be performed during 2003 (no consultants selected yet). *Matti Vainio* will make sure that collaboration with the TREMOVE developers will be included in the technical annex.

<sup>5</sup> TERM <http://reports.eea.int/term2001/en>

<sup>6</sup> TRENDS [http://forum.europa.eu.int/Public/irc/dsis/pip/library?1=/environment\\_trends](http://forum.europa.eu.int/Public/irc/dsis/pip/library?1=/environment_trends)

<sup>7</sup> Quantification of emissions from ships associated with ship movements between ports in the European Community. <http://europa.eu.int/comm/environment/air/background.htm#transport>

<sup>8</sup> ENTEC uses a rough estimate equal to 1.5%

## 5. Establishment of the ad hoc steering group (see tech. Annex p. 10)

### **Steering group** (see tech. Annex p. 10)

It was agreed that this steering group will meet twice a year in Brussels. The group will be managed by DG Environment. DG TAXUD, DG TREN, DG ECFIN, EEA and EUROSTAT confirmed that representatives will be present on these meetings (no representatives of DG RTD, DG Enterprise were present at the kick-off).

The steering group will discuss the TREMOVE baseline and TREMOVE model, not the policies to be simulated. (As decisions on the policy packages should be taken in consultation with representatives of at least CAFÉ and ECCP.)

### **Contact group** (see tech. Annex p. 10)

All steering group members and EC representatives are invited to attend the contact group meetings.

*The first TREMOVE contact group meeting will be held on*

*January 17, 2003 at Faculty Club in Leuven*

*Draft agenda for this meeting (as agreed on the informal meeting after the kick-off)*

- *Morning : Presentation of the project : objectives, scope, data, modeling, work plan*
- *Afternoon : Discussion on the SCENES transport forecasts (transport baseline) with state representatives*

## 6. Follow-up

The first steering group meeting will be held on:

10h00, January 8, 2003 at DG Environment

Draft agenda for this meeting:

- Discussion of baseline
- Discussion of data collection plan
- Discussion of modelling

The draft inception report, which deals with the listed issues, should be finalised and sent to the Commission on December 6, 2002. Comments should be submitted to the consultants before December 14. The final inception report will be communicated soon thereafter to all contact group members.

## Further development and application of the TREMOVE transport model

*Annex to minutes of the Kick-Off Meeting*

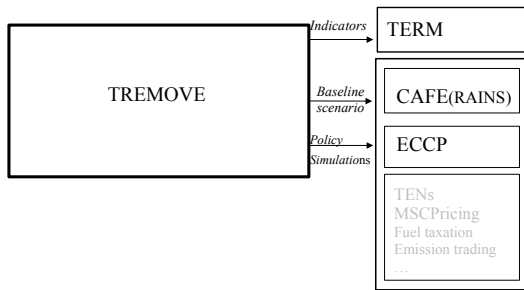
*Brussels, 05.11.2002*

### Glossary of linked project / model acronyms

|                       | PROJECT ACRONYM   | WEBSITE  |
|-----------------------|---|--|
| ACE                   | Accession Countries Energy Model  |  |
| Auto-Oil Programme II |   | <a href="http://europa.eu.int/comm/environment/enveco/auto-oil/index.htm">http://europa.eu.int/comm/environment/enveco/auto-oil/index.htm</a>  |
| ARTEMIS               | Assessment and Reliability of Transport Emission Models and Inventory Systems                       | <a href="http://www.trl.co.uk/artemis/introduction.htm">http://www.trl.co.uk/artemis/introduction.htm</a>  |
| CAFÉ                  | Clean Air for Europe  | <a href="http://europa.eu.int/comm/environment/air/cafe.htm">http://europa.eu.int/comm/environment/air/cafe.htm</a>  |
| COST action 350       |   | <a href="http://cost.cordis.lu/src/pdf/350-e.pdf">http://cost.cordis.lu/src/pdf/350-e.pdf</a>  |
| ECCP                  | European Climate Change Programme   | <a href="http://europa.eu.int/comm/environment/climat/eccp.htm">http://europa.eu.int/comm/environment/climat/eccp.htm</a>  |
| EXPEDITE              | Expert System base predictions of demand for internal transport in Europe                           | <a href="http://www.hcg.nl/projects/expedite/expedite.htm">http://www.hcg.nl/projects/expedite/expedite.htm</a>  |
| IASON                 | Integrated Assessment of Spatial Economic and Network Effects of Transport Investments and Policies |  |
| PARTICULATES          | Characterisation of Exhaust Particulate Emissions from Road Vehicles                                | <a href="http://vergina.eng.auth.gr/mech/lat/particulates/">http://vergina.eng.auth.gr/mech/lat/particulates/</a>  |
| PREMTECH II           |   | <a href="http://www.networkpremttech.org">http://www.networkpremttech.org</a>  |
| PRIMES                | EU 15 Energy Model  | <a href="http://www.e3mlab.ntua.gr/manuals/PRIMs.pdf">http://www.e3mlab.ntua.gr/manuals/PRIMs.pdf</a>  |
| RAINS – IIASA         | Air Quality Model   | <a href="http://iiasa.ac.at/~rains/home.htm">http://iiasa.ac.at/~rains/home.htm</a>  |
| SCENES                | European Transport Forecasting model  | <a href="http://www.iww.uni-karlsruhe.de/scenes/#deliverables">http://www.iww.uni-karlsruhe.de/scenes/#deliverables</a>  |
| TENs                  | Trans-European Networks   | <a href="http://europa.eu.int/comm/energy_transport/en/tn_en.html">http://europa.eu.int/comm/energy_transport/en/tn_en.html</a>  |
| TIPMAC                | Transport Infrastructure and Policy : a macro-economic analysis for the EU                          |  |
| TERM                  | Transport and Environment Reporting Mechanism   | <a href="http://reports.eea.int/term2001/en">http://reports.eea.int/term2001/en</a>  |
| TRENDS                | Transport and Environment Database System<br>TREMOVE assessment Study                               | <a href="http://forum.europa.eu.int/Public/irc/dsis/pip/library?1=/environment_trends">http://forum.europa.eu.int/Public/irc/dsis/pip/library?1=/environment_trends</a><br><a href="http://europa.eu.int/comm/environment/air/tremoveassessment.htm">http://europa.eu.int/comm/environment/air/tremoveassessment.htm</a> |

*(This list will be updated and published on the forthcoming TREMOVE website regularly)*

## Contribution of TREMOVE development to different policy work in the European Commission



## Major project outputs

1. Transport and emissions Baseline (2020)
  - Transport Activity
  - Vehicle stock turnover
  - Emissions & Energy consumption

*Consistency with SCENES , PRIMES & ACE, TRENDS  
Stakeholder consultation and agreement*

## Major project outputs

2. Simulation tool for policy evaluation

- Fiscal policies
- Vehicle technology policies
- Alternative fuels policies
- Fuel quality policies
- Traffic management policies

*Effects of policies on transport activity, vehicle stock, emissions, energy consumption and welfare*

## Scope of the project

1. Time horizon
  - Projections until 2020
  - Yearly intervals
  - Baseyear : as SCENES (1995 or probably 2000)

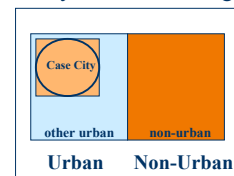
## Scope of the project

2. Geographical coverage (countries)
  - EU 15
  - Switzerland
  - Norway
  - (4) selected Accession Countries
  - North Sea, English Channel, Irish Sea, Baltic Sea, Black Sea, Mediterranean

## Scope of the project

2. Geographical coverage (regions)
 

Each country consists of 3 regions



## Scope of the project

### 3. Modal coverage (passenger transport)

- Car
- Motorcycle
- Bus
- Tram
- Coach
- Metro
- Train (inter-regional)
- Train (international)
- Air
- Non-motorised
- Ferries

## Scope of the project

### 3. Modal coverage (freight transport)

- Heavy duty truck
- Light duty truck
- Inland waterway
- Rail
- Truck - Rail
- Truck – Waterway
- Maritime

## Scope of the project

### 4. Trip purposes and freight categories

- |  |   |
|--|---|
| <p>Passenger trip purposes</p> <ul style="list-style-type: none"> <li>• Business</li> <li>• Commuting to work</li> <li>• Non-work</li> </ul> | <p>Freight categories</p> <ul style="list-style-type: none"> <li>• Bulk</li> <li>• Unitised</li> <li>• General Cargo</li> </ul> |
|--|---|

*Urban / Inter-regional / International      Urban / Inter-regional / International*

## Scope of the project

### 5. Pollutants (as available from ARTEMIS / PARTICULATES)

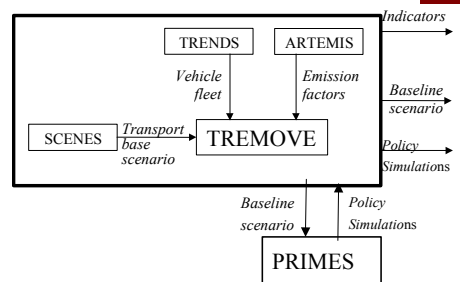
- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• CO</li> <li>• NO<sub>x</sub></li> <li>• VOC</li> <li>• C<sub>6</sub>H<sub>6</sub></li> <li>• CO<sub>2</sub></li> <li>• SO<sub>2</sub></li> <li>• N<sub>2</sub>O</li> </ul> | <ul style="list-style-type: none"> <li>• Particulate Matter :             <ul style="list-style-type: none"> <li>• PM<sub>10</sub></li> <li>• PM<sub>2.5</sub></li> <li>• PM<sub>0.1</sub></li> </ul> </li> <li>• NH<sub>3</sub></li> <li>• PAHs</li> <li>• NO<sub>2</sub></li> <li>• Additional GHG (HFC, SF<sub>6</sub>, PFC, HCFC)</li> </ul> |
|---|--|

## Scope of the project

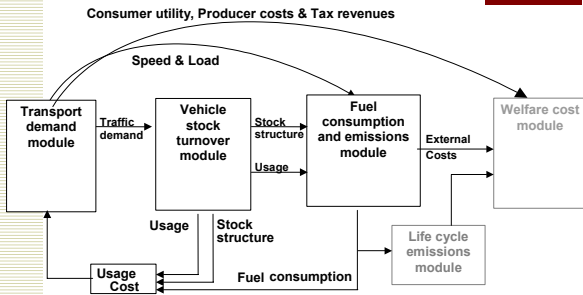
### 6. Welfare cost

- Consumer Utility
- Industry Transport Costs
- External Costs (congestion, pollution, accidents, noise)
- Marginal Cost of Public Funds

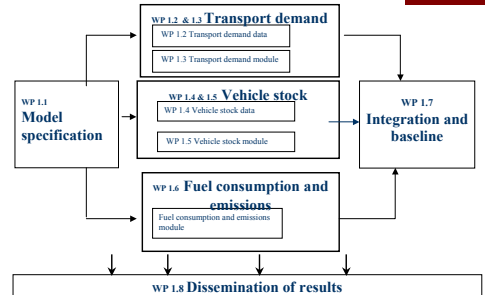
## Model specification



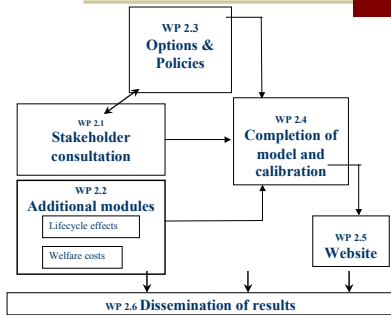
# Model specification



# Lot 1 : Month 1-16



# Lot 2 : Month 17-24



# Lot 3 : Month 25-48

