

Outline

1. Project Team
2. Major Project Outputs
3. Scope of the model and baseline
4. Modelling approach
5. Workplan

Project Team

- ◆ University of Leuven
- ◆ Transport and Mobility Leuven
- ◆ Marchial Echenique & Partners
- ◆ Trasporti e Territorio
- ◆ INFRAS
- ◆ Transport Research Laboratories
- ◆ COWI
- ◆ AdpC
- ◆ GAMS

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

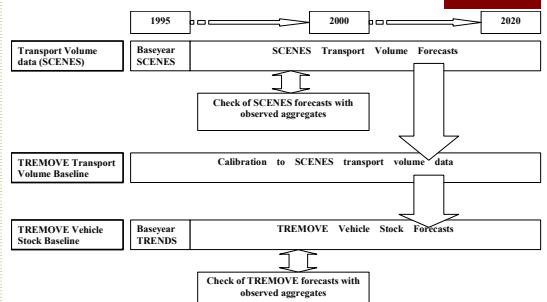
2. Simulation tool for policy evaluation
 - Fiscal policies
 - Vehicle technology policies
 - Alternative fuels policies
 - Fuel quality policies
 - Traffic management policies

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

Scope of the model and baseline

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

Scope of the model and baseline

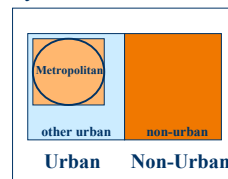


Scope of the model and baseline

2. Geographical coverage (countries)
 - EU 15 : complete rather than 'EU 9 extrapolated'
 - Switzerland
 - Norway
 - (4) Accession Countries : selected on the basis of data availability
 - North Sea, English Channel, Irish Sea, Baltic Sea, Black Sea, Mediterranean

Scope of the model and baseline

2. Geographical coverage (model regions)
 - Each country consists of 3 model regions



Scope of the model and baseline

3. Modal coverage (passenger transport)
 - Car
 - Motorcycle
 - Bus
 - Tram
 - Coach
 - Metro
 - Train (inter-regional)
 - Train (international)
 - Air
 - Non-motorised
 - Ferries

Scope of the model and baseline

3. Modal coverage (freight transport)
 - Heavy duty truck
 - Light duty truck
 - Inland waterway
 - Rail
 - Truck - Rail
 - Truck – Waterway
 - Maritime

Scope of the model and baseline

4. Trip purposes and freight categories

Passenger trip purposes <ul style="list-style-type: none"> • Business • Commuting to work • Non-work 	Freight categories <ul style="list-style-type: none"> • Bulk • Unitised • General Cargo
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Urban / Inter-regional / International Urban / Inter-regional / International

Scope of the model and baseline

5. Pollutants (as available from ARTEMIS / PARTICULATES)

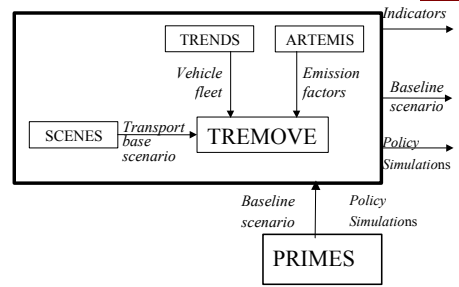
<ul style="list-style-type: none"> • CO • NO_x • SO₂ • VOC <ul style="list-style-type: none"> ➢ CH₄ ➢ C₆H₆ ➢ PAHs • H₂S 	<ul style="list-style-type: none"> • Particulate Matter (& size distribution) • NH₃ • Pb • Other heavy metals • CO₂ • N₂O • Additional GHG (HFC, SF₆, PFC, HCFC)
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Scope of the model and baseline

6. Welfare cost

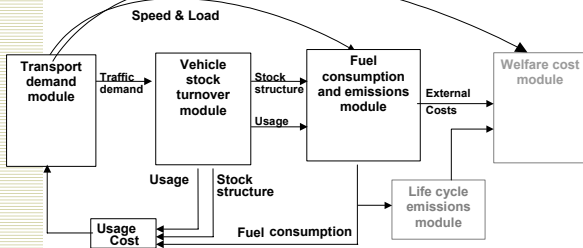
- Consumer Utility
- Industry Transport Costs
- External Costs (congestion, pollution, accidents, noise)
- Marginal Cost of Public Funds

Model specification



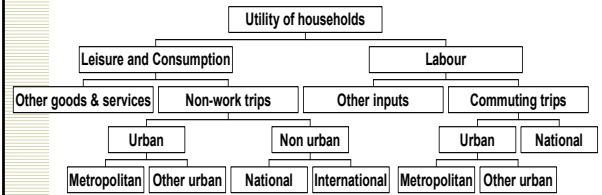
Model specification : Modules

Consumer utility, Producer costs & Tax revenues



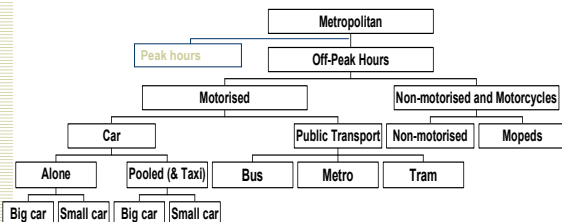
Model specification : Demand

Non-work and commuting-to-work trips: Nested utility function (CES)



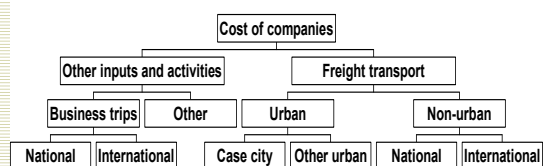
Model specification : Demand

Lower levels of utility function : choice of time of day and mode



Model specification : Demand

Freight and business trips : Nested cost function (CES)



Model specification : Demand

Lower levels of cost function :

- Freight categories : Bulk, General Cargo, Unitised
- Choice of time of day : peak hours / off-peak hours
- Choice of mode

Model specification : Fleet

$$\text{Stock}_i(t) = \text{Stock}_i(t-1) - \text{Scrap}_i(t) + \text{Sale}_i(t)$$

Scrapage : partly endogeneous, partly exogeneous

Sales : choice models using nested logit functions

Supply of vehicles

- ♦ *Exogeneous* technical options with constant marginal cost (link with technology projects of the PREMTECH thematic network)
- ♦ *Endogeneous* development (in later phases ?)

Public Transport

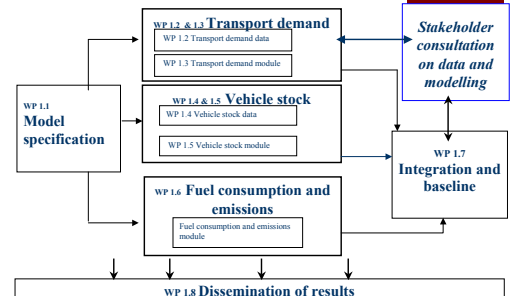
- ♦ Suppliers cost structure :
Linear demand function with fixed cost and variable peak and off-peak cost with constant occupancy rates
- ♦ Users waiting costs :
Economics of density

Model specification : Welfare

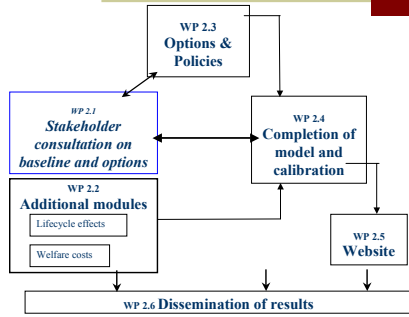
Welfare cost of a policy measure =

- + Fall in consumer surplus (households)
Decrease in utility (from top level of utility tree)
- + Rise in costs of production (companies)
Increase in costs (from top level of cost tree)
- MCPF * rise in tax revenues from transport
- + External Costs

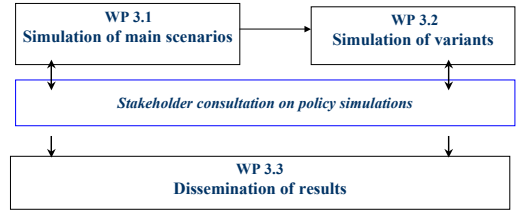
Lot 1 : Nov. 02 – Feb. 04



Lot 2 : Mar. 04 – Oct. 04



Lot 3 : Nov. 04 – Oct. 06



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