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The MuSTT project

- The MuSTT project (Multi-stakeholder European Targeted Action for Sustainable Tourism & Transport) has been initiated by DG Enterprise.
- Consortium: PriceWaterhouseCoopers, NEA, DTV Consultancy, IWW and NHTV/CSTT

Project objective:
- uncoupling growth of tourism and of transport
- encourage innovative practices to enhance sustainable development
Methods (1): definitions

- Tourism: all trips more than one night, but less than one year for leisure and holiday, business and visits to friends and relatives.
- EU25: EU15 plus EU10.
- EU-plus: EU25 plus Bulgaria, Romania, Norway, Switzerland.
- ICA: intercontinental tourism.
- Domestic tourism: tourists staying within their own country.
- OD-Transport: between normal residence and destination.
- Local transport: transport at destinations.
Methods (2): The MuSTT model

MuSTT model created from WTO data and TEN-STAC:

- Number of international tourists from WTO;
- Modakl split from TEN-STAC;
- Empty cells WTO data filled with TEN-STAC data;
- Canary Islands added from share given by TEN-STAC;
- Malta and Cyprus from WTO data assuming 100% air transport;
- Average OD-travel distances from TEN-STAC;
- Coach and ferries estimated from Eurostat data and taken from the ROAD transport mode of TEN-STAC.
EU Tourism (1): purpose of visit per destination

- East Mediterranean Europe
- Southern Europe
- Central/Eastern Europe
- Western Europe
- Northern Europe
- Europe

Source: WTO, 2003; figures for 2001
EU tourism (2): main flows

Source: WTO, 2003; figures for 2001
Tourism transport (1): modal split

Modal split (pkm) all intra-EU15 transport

- Car: 76%
- Coach: 7%
- Rail: 8%
- Air: 8%
- Ferry: 1%

Modal split (pkm) tourism intra-EU15 transport

- Car: 55%
- Coach: 7%
- Rail: 31%
- Air: 5%
- Ferry: 2%

Source: Eurostat (left) and MuSTT model (right); figures for 2001
Tourism Transport (2): tourism shares per mode

Tourism share per transport mode

Car
Coach/bus
Rail
Air
Ferries
Total

Source: WTO, 2003; figures for 2001
Environment (1): emissions factors

Source: MuSTT model; figures for 2001
Environment (2): external cost intra EU-plus tourism OD-transport

External costs (billion €)

- Car
- Coach
- Rail
- Air (CO2)
- Air (GHG)

Categories:
- Accidents
- Nature/landscape
- Climate change
- Air pollution
- Noise

Source: IWW/INFRAS plus MuSTT model; figures for 2001
However:

- Long distance tourism rail/road transport relatively more through countryside: less people → less nuisance.
- Rail/road noise dominated by other purposes and freight.
- Noise is logarithmic: halving volume is just perceptible.

Source: IWW/INFRAS plus MuSTT model; figures for 2001
From trips to impact: per market
EU Tourism trips

EU25 citizens departures (number of trips)

Total: 932 million

Source: MuSTT model; figures for 2001
EU Tourism transport

EU25 citizens departures (number of pkm)

29% Domestic
9% EU15
2% EU10
24% Other Europe
36% ICA

Total: 1739 billion pkm

Source: MuSTT model; figures for 2001
EU Tourism CO2-e emissions

EU25 citizens departures (CO2-e emissions)

Total: 398 million ton

Source: MuSTT model; figures for 2001
EU Tourism transport NOx emissions

EU25 citizens departures (NOx emissions)

- 29% Domestic
- 23% EU15
- 9% EU10
- 2% Other Europe
- 2% ICA

Total: 858 million kg

Source: MuSTT model; figures for 2001
EU Tourism transport PM emissions

EU25 citizens departures (PM emissions)

- Domestic: 57%
- EU15: 37%
- EU10: 2%
- Other Europe: 2%
- ICA: 1%

Total: 16.7 million kg

Source: MuSTT model; figures for 2001
From trips to impacts: per transport mode
EU Tourism trips

EU25 citizens departures (number of trips)

Total: 932 million

Source: MuSTT model; figures for 2001
EU Tourism transport

EU25 citizens departures (number of pkm)

Total: 1739 billion pkm

Source: MuSTT model; figures for 2001
EU Tourism CO2-e emissions

EU25 citizens departures (CO2-e emissions)

Total: 398 million ton

Source: MuSTT model; figures for 2001

NHTV CSTT
EU Tourism transport NOx emissions

EU25 citizens departures (NOx emissions)

Total: 858 million kg

Source: MuSTT model; figures for 2001
EU Tourism transport PM emissions

EU25 citizens departures (PM emissions)

- Car: 85%
- Coach: 4%
- Ferry: 6%
- Rail: 5%
- Air: 0%

Total: 16.7 million kg

Source: MuSTT model; figures for 2001
Growth of pkm Intra EU-plus tourism (2000=1.0)

Source: MuSTT model.
Growth of trips, pkm and CO2-e for Intra EU-plus tourism (2000=1.0)

Source: MuSTT model.
Some remarks on tourism trends and mechanisms

- Tourism sector world-wide depends economically on individual leisure time budget and spending per night; not on OD-transport distance.

- Impacts of war, terrorism and infectious diseases are generally temporary (Martin Mowford).

- Increased availability of cheap high speed (air) transport is main driver behind tourism transport growth.

- Current tourism trends - more frequent, more by air and further away - cause stronger growth of environmental impacts, even stronger than the economic growth of the sector.
Emerging trends due to development of low cost carriers

- >30% of all air European transport in 2010 by LCC’s
- LCC’s competing in two ways: directly taking away passengers from coach and (high speed) rail and taking passengers over much larger distances for shorter and more frequent breaks (even one-day returns). This means 10-20 times the environmental impact per trip day.
- Second homes are purchased at longer distances (‘low cost carrier homes’) near LCC destinations.
- Direct and indirect impacts on employment/economy both positive and negative.
Conclusions (1): tourism and transport

- Domestic tourism has largest share (59%) of in number of trips by EU-25 tourists; intercontinental only 6%.
- The main tourism flows are directed north-south within Europe, main destinations being France, Spain and Italy.
- Domestic tourism is car oriented, while international tourism is air oriented; rail, coach and ferry have small shares.
- Tourism share of all passenger transport is about 17% of total, except for air with >80% and ferry with 60%. 
Conclusions (2): environmental impacts

- Tourism noise nuisance is dominated by car and air transport.
- Tourism transport safety cost is dominated by car use.
- Air quality is dominated by (diesel!) car transport.
- Air transport.
- Tourism energy consumption and impact on climate change is dominated by air transport.
- Intra EU25 comes in between.
- Domestic tourism is relatively sustainable; ICA is unsustainable.