

Greening Transport: Latest research on external costs

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Outline

- External costs in brief
- Background to new study
- Objective and scope of new study
- Methodology
- Results
- Conclusions
- Policy implications

External costs of transport

- Negative effects of transport not affecting or taken into account by current users
- Typical external effects are accidents, pollution, noise, climate change, and congestion
- Expressed as costs in monetary terms
- Paid for by society rather than by individual users, causing distortions and a need for “internalisation” measures
- Have been the subject of much research and political debate for decades

Background

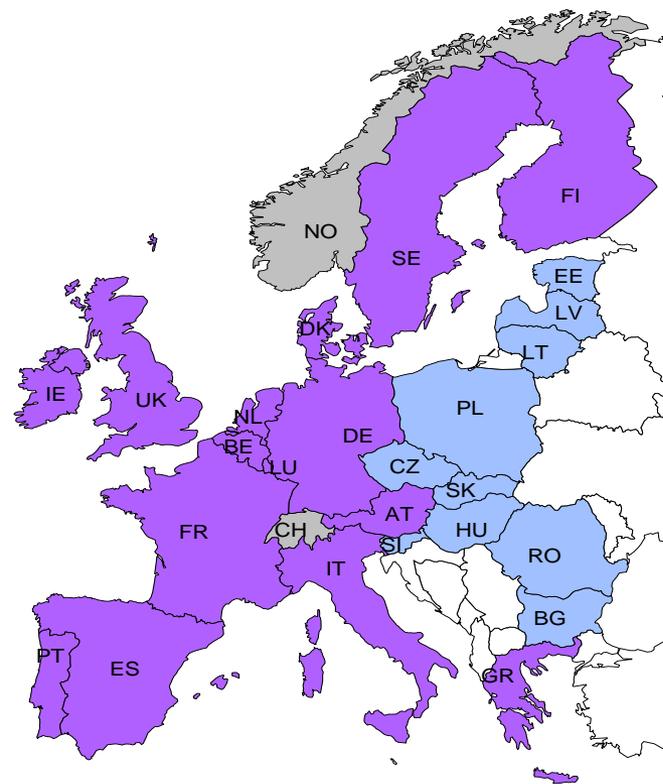
- Three previous UIC studies on external costs of transport, covering the years 1995, 2000, 2004 (made by INFRAS/IWW).
- Since then many relevant developments:
 - Several new Member States
 - Other studies on the external costs of transport: HEATCO, GRACE, ASSET, IMPACT, NEEDS etc
 - EC Greening Transport Package (2008)
 - Revision of the Eurovignette Directive
 - 2011 White Paper on transport



Need for an updated study, this time commissioned to CE Delft, INFRAS and ISI

Objective and scope (1)

- Provide a complete and up-to-date overview of the external cost estimates
- For the main transport modes: road, rail, aviation, inland waterways (maritime shipping excluded)
- For EU-27 plus Norway and Switzerland



Objective and scope (2)

- Based on the most recent scientific knowledge, research results and data
- Base year 2008
- Total, average and marginal costs
- Goal: a new “state- of the art” study that can be used as a reference in EU and national transport policy development

In addition, a parallel project was undertaken:

- A new web-based external cost calculator

Methodology (1)

Core cost categories:

- Accidents
- Air pollution
- Climate change
- Noise
- Road congestion

Other cost categories:

- Up- and downstream processes (fuel/electricity production)
- Costs for nature and landscape
- Additional costs in urban areas
- Biodiversity losses
- Soil and water pollution

Methodology (2)

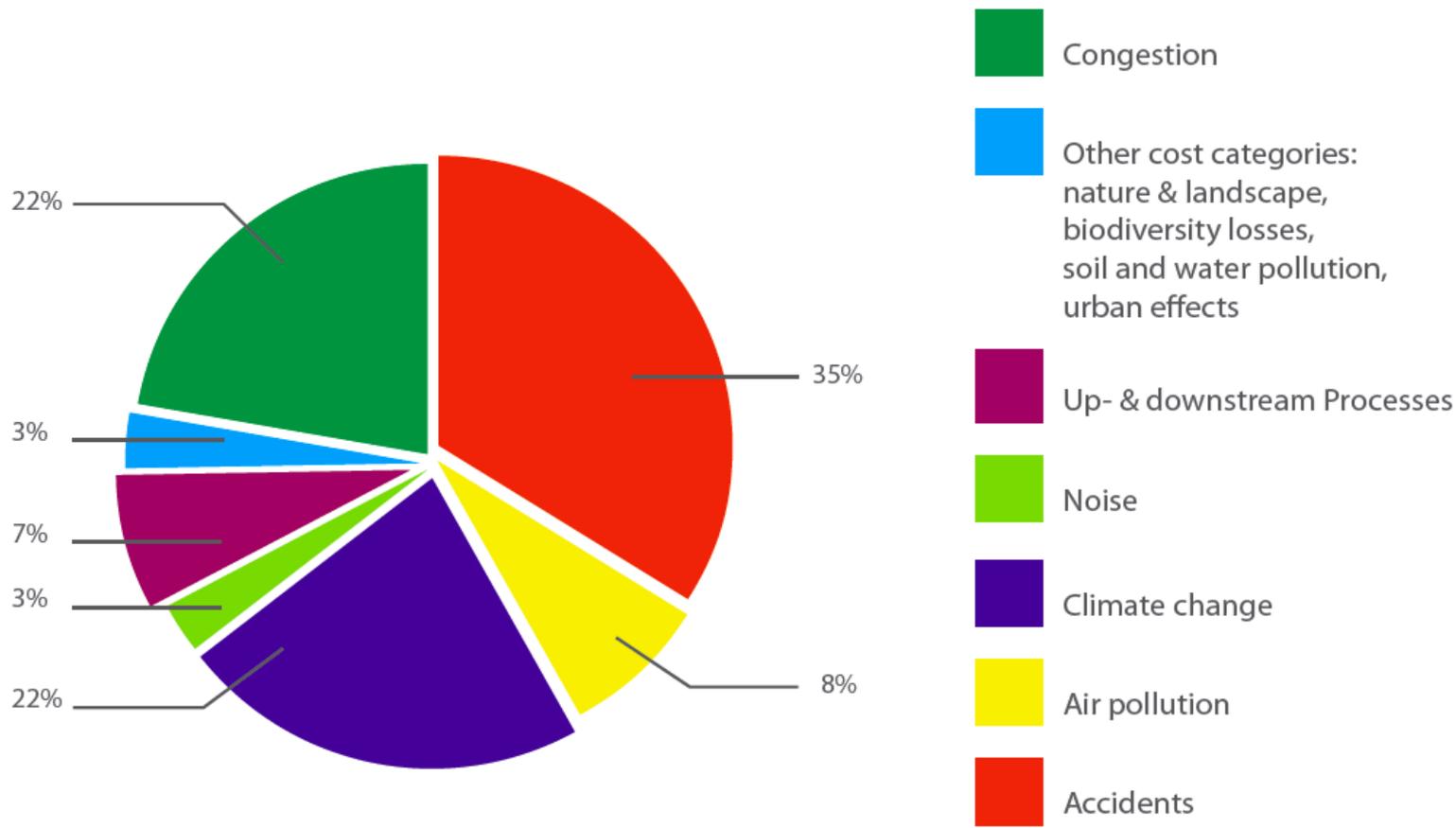
- Building on previous IMPACT study
- Allocation of accidents costs: damage potential approach (intrinsic risk)
- Updated valuation of air pollution costs now including costs of biodiversity losses
- Updated valuation of climate change costs (2020/2050 targets): using a high (€146) and low (€25) estimate
- Latest literature on climate impacts of non-CO2 emissions from aircraft
- Updated maps on number of people exposed to noise

Results – total external costs (1)

- The total external costs of transport in EU (plus Norway and Switzerland) 2008:
€ 510 billion (4% of total GDP)
- On top of these, the annual congestion cost of road transport delays:
€ 146-243 billion (1-2% of total GDP)

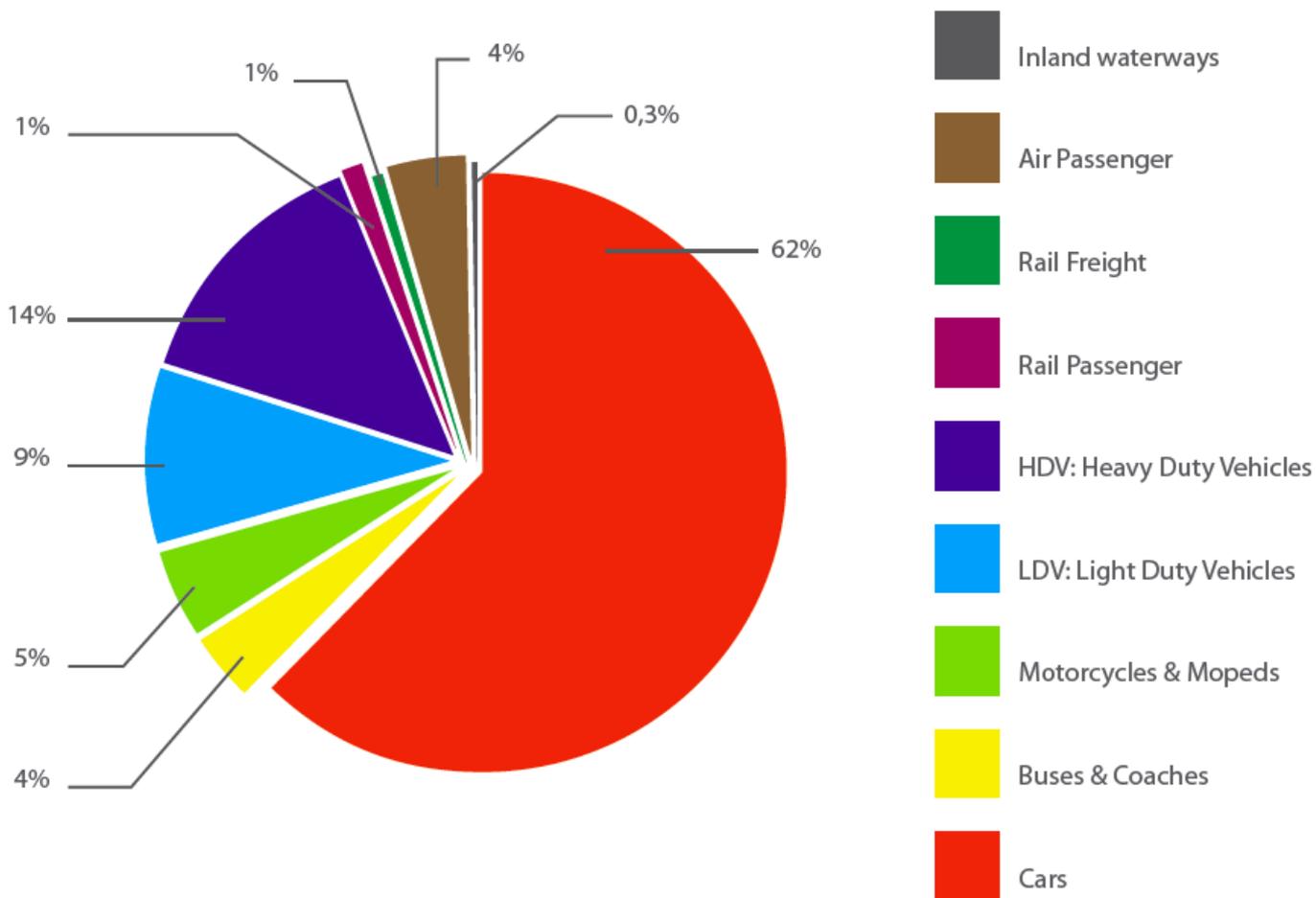
Results – total external costs (2)

Figure 2: Total external costs of transport 2008 by externality



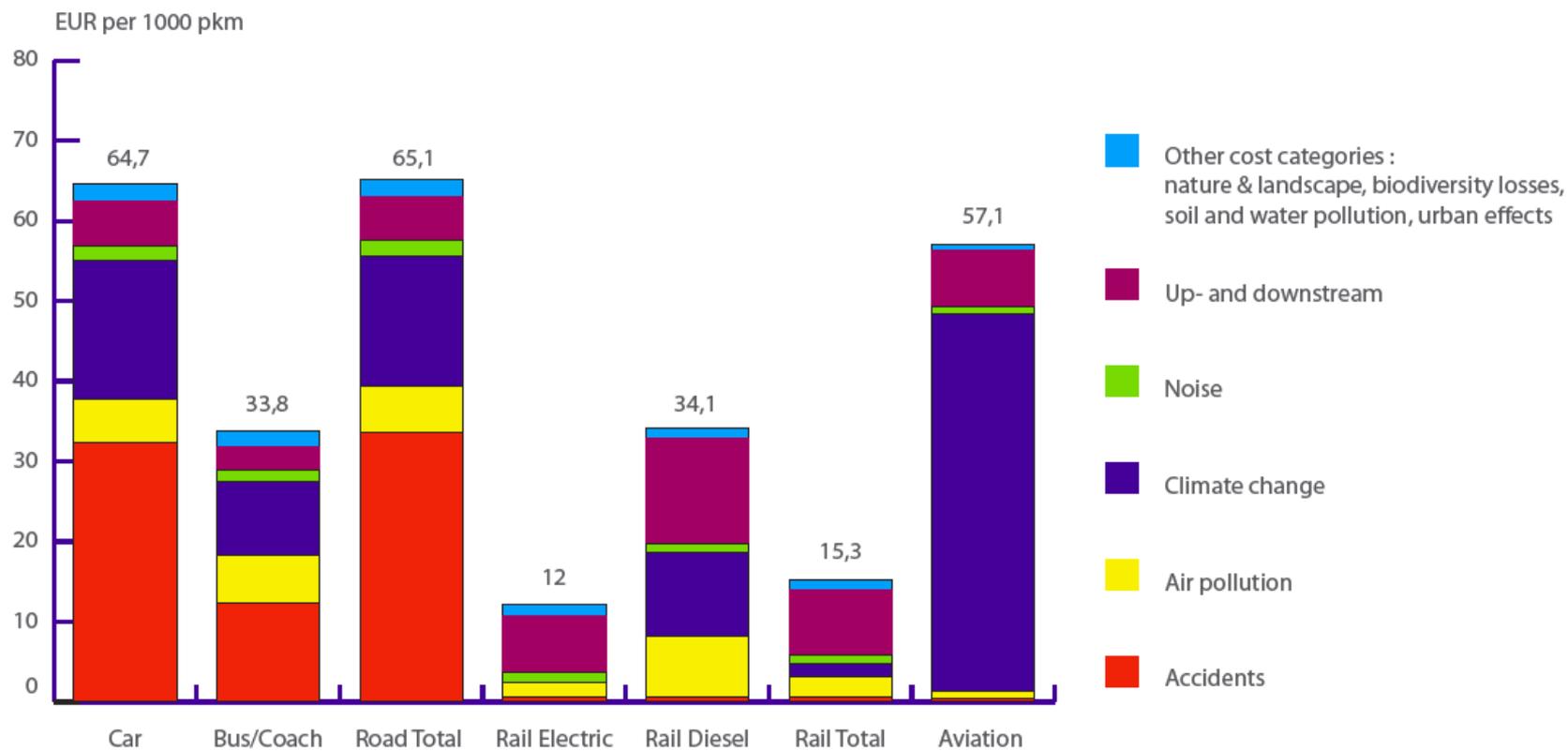
Results – total external costs (3)

Figure 3: Total external costs of transport 2008 by transport mode



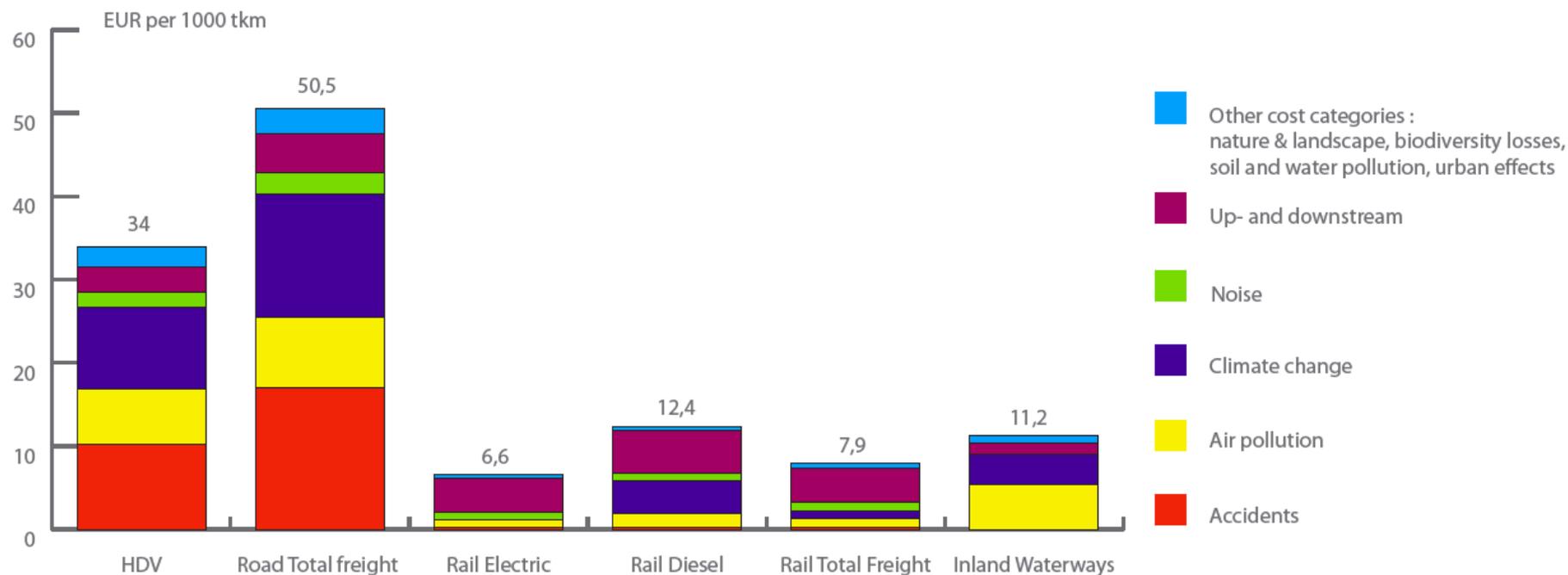
Results – average external costs (1)

Figure 4: Average external costs 2008 for EU-27: passenger transport (excluding congestion)
without motorcycles and mopeds*



Results – average external costs (2)

Figure 5: Average external costs 2008 for EU-27: freight transport (excluding congestion) without LDV⁶



External cost calculator tool

- The new web-based External Cost Calculator tool provides the possibility of calculating the monetary value of climate change and accident costs on selected origin/destination routes for freight transport
- Climate change and accident costs chosen since they were not included in the 2011 revision of the 'Eurovignette Directive'
- Other external costs and passenger transport could be added later to the tool
- The tool is closely related to the EcoTransIT World tool, using the same routing mechanism, logistical parameters and emission factors

External cost calculator tool

Web address:

www.externalcost.eu

ExternalCost

[Home](#)[Calculate!](#)[About](#)

External Transport Cost - This tool calculates the external costs of transport in Europe due to climate change and accidents



Start your calculation....

To determine external cost just start the calculator at this page:

[Start the calculation here...](#)

Introduction

The existence of external costs in transport creates many distortions in the transport market. Transport users are not given the right incentives as a result of which they are not taken socially optimal decisions. As a consequence scarce resources like energy and infrastructure are not used in an economic efficient way. Moreover, the level playing field between transport modes is adversely affected. The competitiveness of modes that cause relatively few external costs, like railways and inland waterways, is harmed by the existence of external costs.

Short About

The External Cost calculator determines transport cost for external parties due climate change and accidents and that europewide.

Team

CE Delft, Netherlands

INFRAS, Switzerland

IVE mbH, Germany



External Transport Cost Calculator

Input mode:

Standard
Standard
Extended

Weight: ?

100

Tons

Type: ?

average goods

Origin

Location type

City district

Name

On-site rail track available ?

Choose transport mode:



Truck



Train



Sea ship



Barge

Destination

Location type

City district

Name

Please press ENTER to confirm.

On-site rail track available ?

reset

calculate

Conclusions

- Although some progress has been made since the previous UIC study, the external costs of transport still constitute a huge problem
- Accidents, congestion, climate change and air pollution represent 86% of total costs
- Road transport accounts for 93% of all external costs
- For rail and inland waterways, up- and downstream effects are major contributors
- The difference between electric trains and diesel-powered trains is once again highlighted

Policy implications (1)

- The results underline the importance of externalities and the need to internalise external costs
- There are most to be gained from tackling the external costs of road transport, for example by means of:
 - Technical development
 - Regulations
 - Market-based incentives (pricing)

Policy implications (2)

- Modal shift to rail (if the additional volumes can be handled) could lead to significant reductions in total external costs
- Rail measures should focus on continued electrification and the use of cleaner sources of energy production
- Impact on external costs should be used more often in cost benefit analyses (CBA) of transport infrastructure projects

Further reading

External Costs of Transport in Europe

Update Study



Report
Delft, November 2011

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Thank You!

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