Challenges in Addressing Climate Change in IA of Modal Shift Projects – A Case Study or…
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How to not ruin the party

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Background

The transport sector represents 30% of the total energy consumption in Europe.

The CO₂ emissions are estimated to increase with 4.7% from the year 2000 to the year 2030.

Suggested goal by the EU: 20% reduction of greenhouse gases until the year 2020 compared with the 1990 levels.
Climate and energy

Expected evolution of CO2 emissions from transport by mode (1990=100)

Climate and energy – comparison road and railway

Energy consumption
Road traffic accounts for 25.2% of the total energy consumption of the transport sector.
Railway traffic accounts for 0.8% of the total energy consumption of the transport sector.

Energy efficiency
Trucks: 72.4 toe/Mtkm
Freight train: 5.5 toe/Mtkm
The FERRMED project

Overall Objective of the Project:

- To match Freight Supply and Demand during the period 2007 - 2025 in the FERRMED Great Axis area of influence and
- to optimise traffic between the different modes of transportation with a view to taking up 30-35% of the land traffic onto rail by
- implementing FERRMED Standards and improving capacity, intermodality and interoperability of rail in the Great Axis Network.
Impacts discussed in the SEA

Positive impacts from modal shift
- Reduction of GHG emissions from freight traffic
- Release of road space that can be used for person traffic => less need for new roads

Negative impacts from modal shift
- Increase of GHG emissions from personal traffic as a result of the release of road space (large parts of the European transportation system are suffering from congestion)
- Increased noise (in built up areas)
- Emissions to air (mainly particles from breaks)
- Barrier effects and fragmentation
- Hazardous materials
- Secondary impacts

⇒ A conflict between the positive and negative impacts
Noise – Comparison of road and railway

Limiting values $L_{pAeq, Tp}$ for the pass-by noise of freight wagons

Sources: Sandberg & Ejsmont, 2002 and Directive 2006/66/EG
Emissions to air

Particles (PM10, metals)
- Mainly a problem in tunnels and at stations under ground
- Not a problem at open air stations

Main impact
Human health

Sources
Wear particles from brake systems, wheels, rails, overhead wires and pantographs
Lessons learned

- Climate Change is a difficult issue to deal with in IA
- Scale – how
  \( CC = \text{global} \leftrightarrow \text{fragmentation} = \text{regional} \)
- How to relate emission data to for example fragmentation or loss of biodiversity
- Need to develop transportation models that generates future scenarios in the same manner (currently different (incompatible) models for personal traffic and freight traffic as well as for rail and road traffic)
- Need for pedagogic explanations on potential conflicts
- We need to learn ways how to not ruin the party