

## **2. What are the key determinants of future mobility and transport systems?**

**Based on current trends and policies, what will global mobility look like in 2050?**

**Introduction on general economic, geographic and demographic factors**

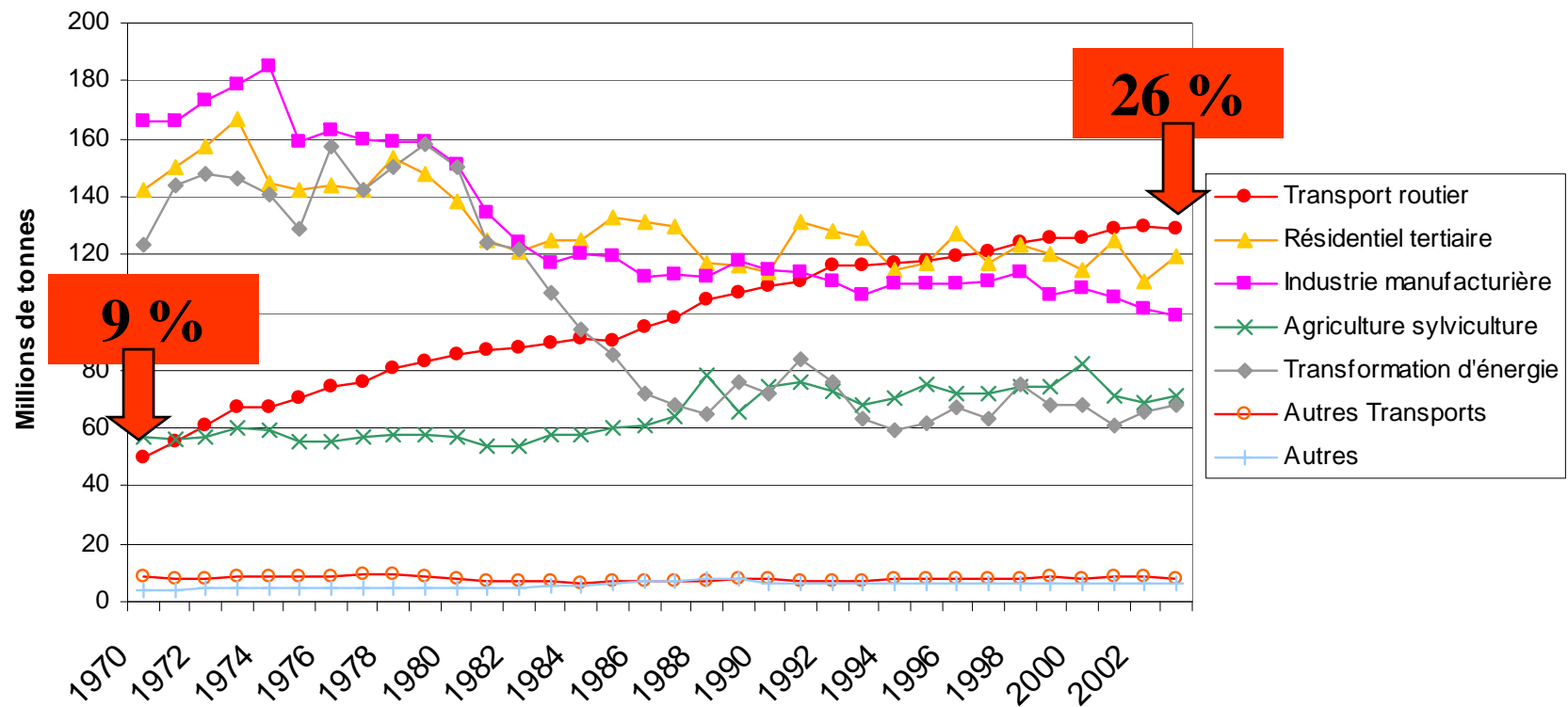
**Alain Bonnafous**

**Laboratoire d'Economie des Transports**



# The main issue: the greenhouse effect gas

(French case, 25 last years before the crisis)



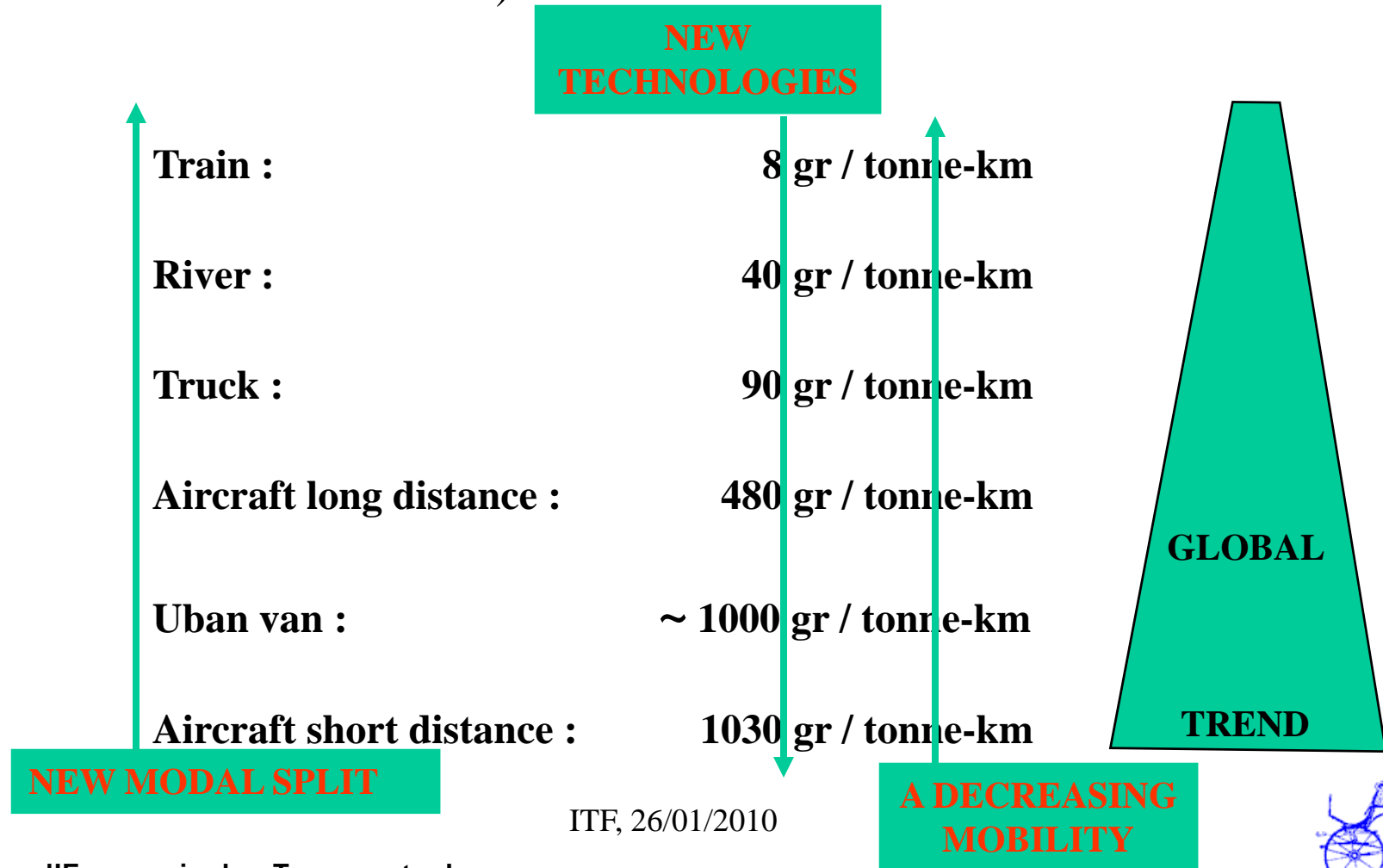
source CITEPA

ITF, 26/01/2010

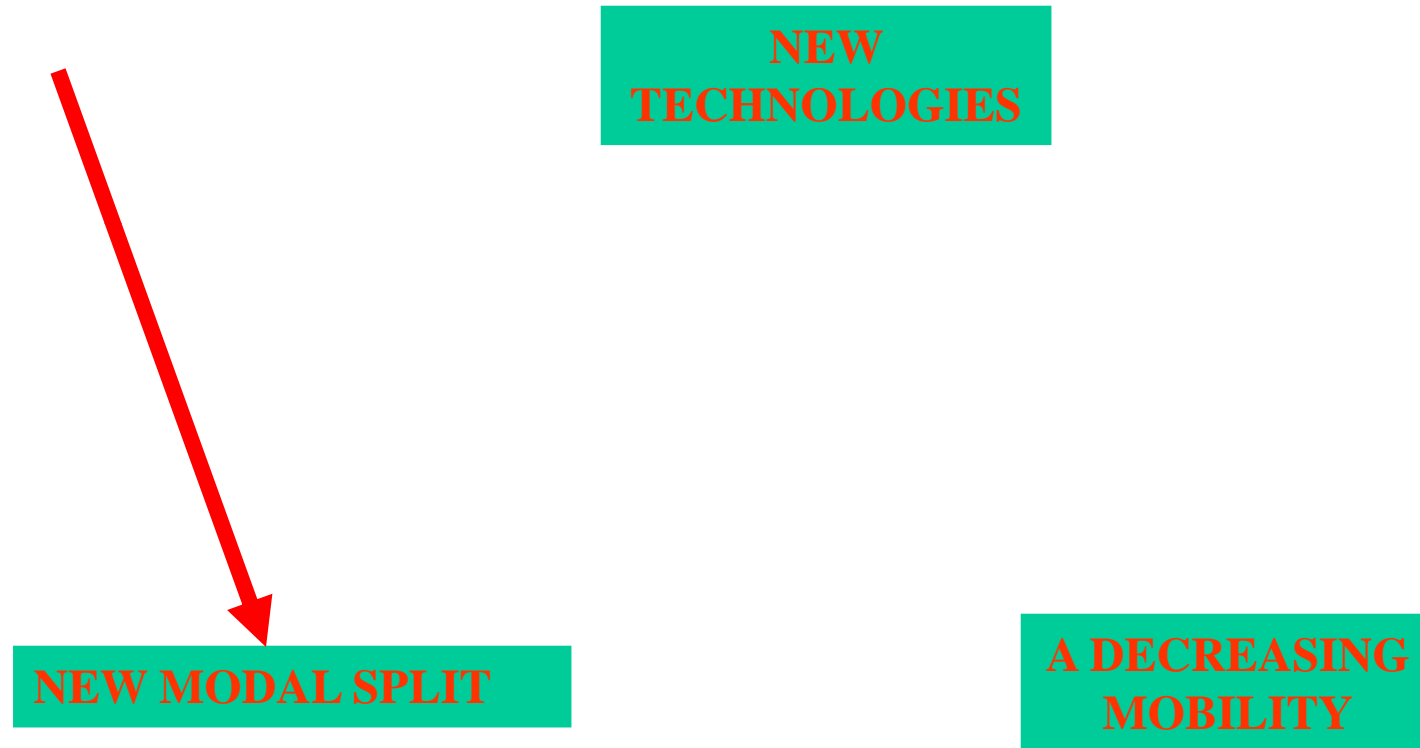


# CO2 EMISSIONS CAUSED BY FREIGHT TRANSPORT

(source ADEME - French case)

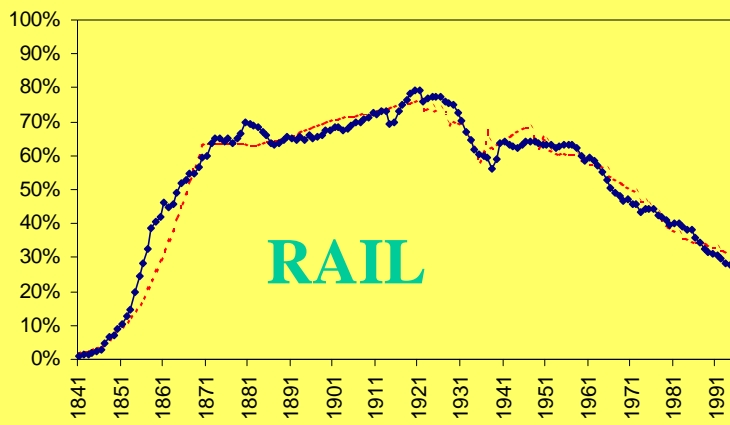


# CO2 EMISSIONS CAUSED BY FREIGHT TRANSPORT

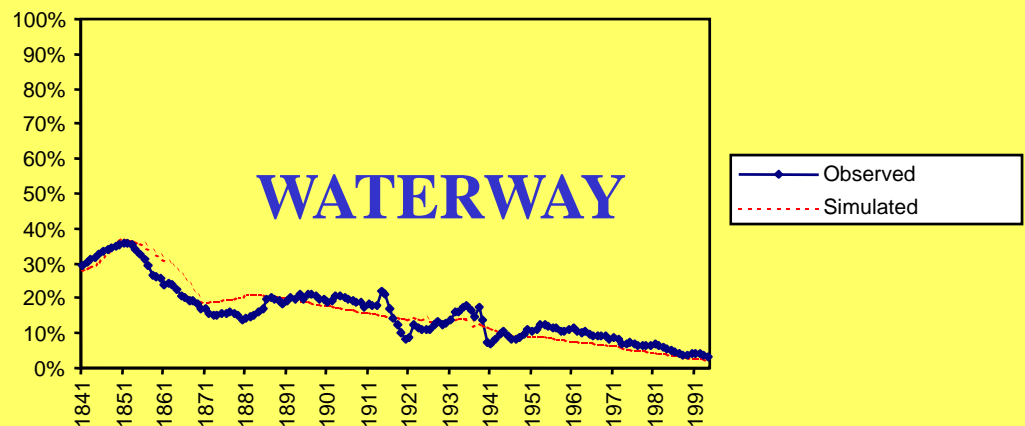
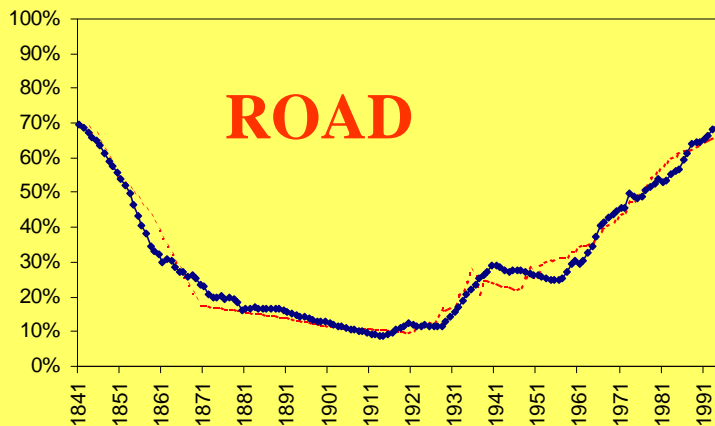


ITF, 26/01/2010





# Empirical and theoretical evolution of the market share for each mode (1840-1994)

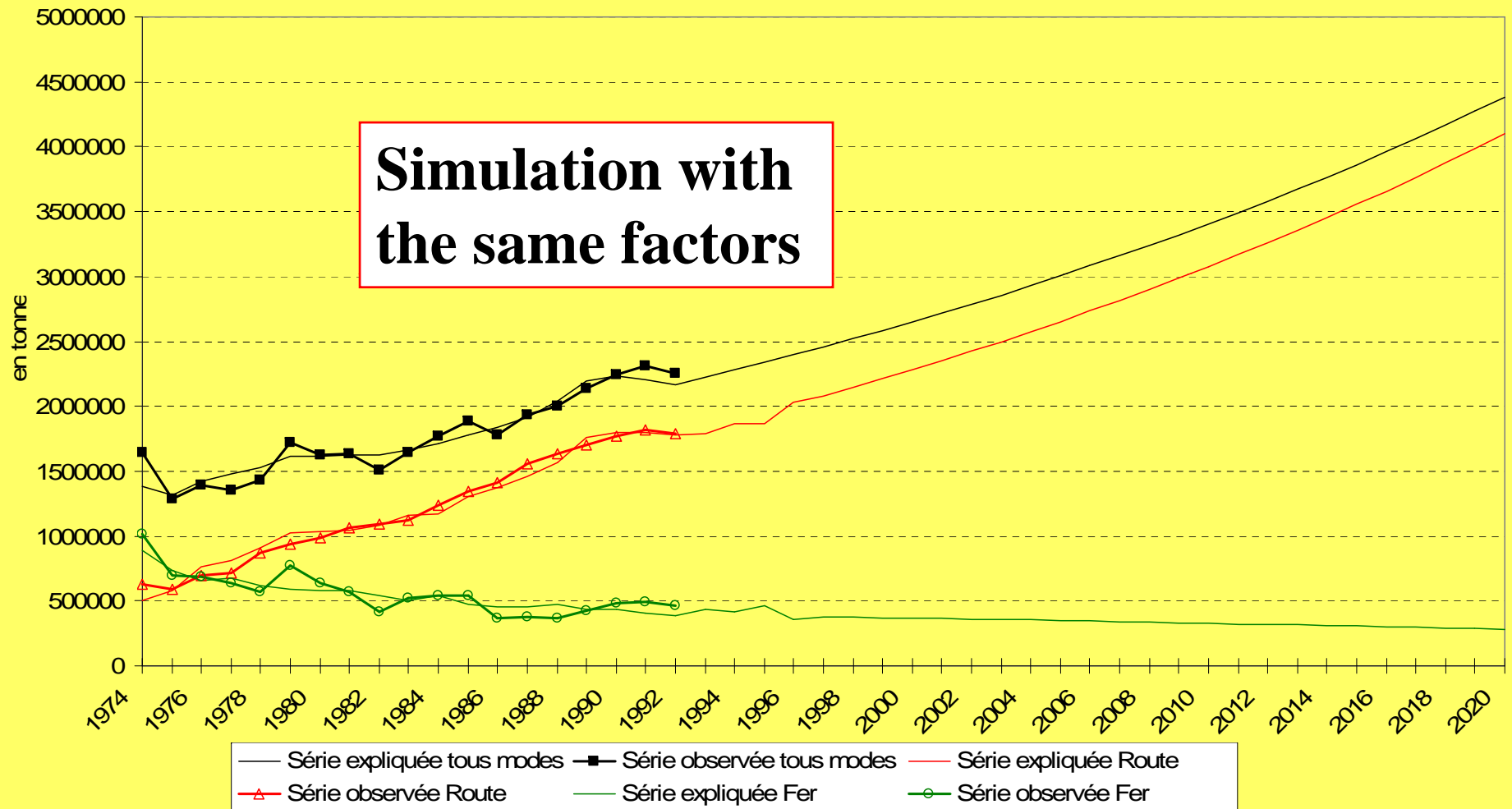


—●— Observed  
- - - - - Simulated

ITF, 26/01/2010



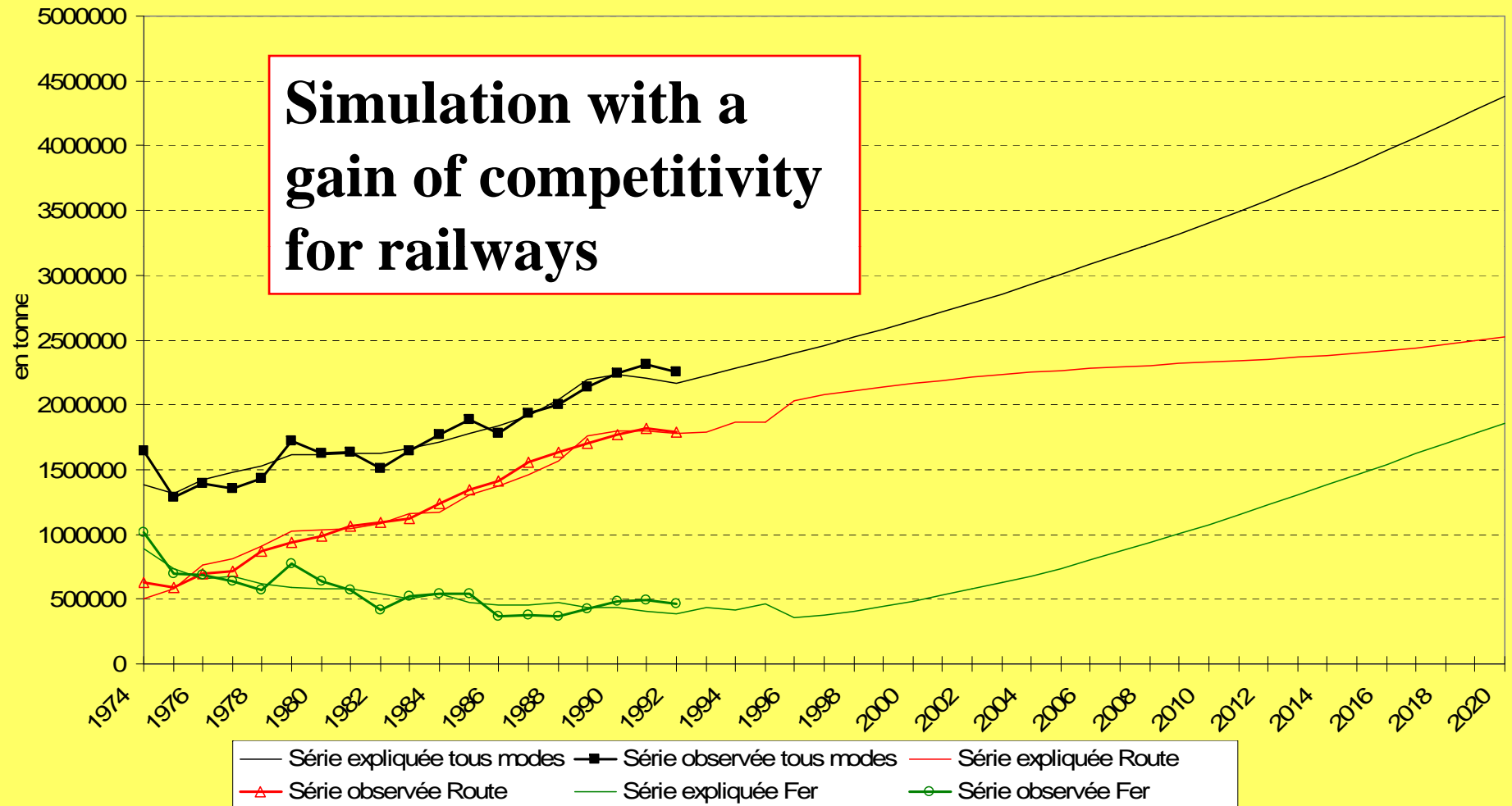
# Road and rail in the Rhône Valley corridor



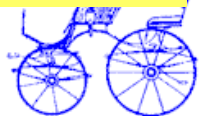
ITF, 26/01/2010



# Road and rail in the Rhône Valley corridor



ITF, 26/01/2010



# MARKET SHARE IN EUROPE

**In EU (15 members)**

**Waterways: from 8,3 % (1993) to 6,6 % (2007)**

**Railways: from 16,1 % (1993) to 14,1 % (2002)**

**But with various figures from 2002 to 2007  
for the rail**

## **Positive trend:**

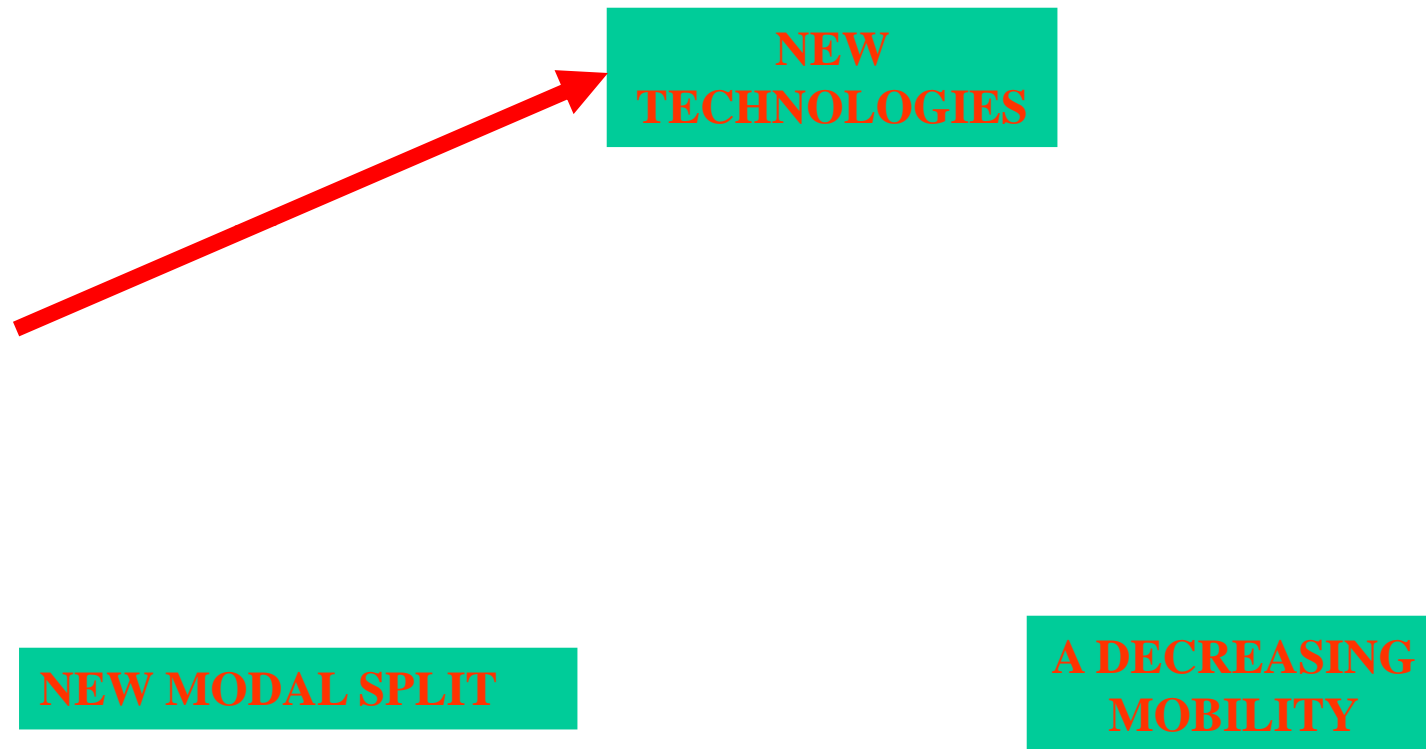
<b>Austria</b>	<b>+5,5 %</b>
<b>UK</b>	<b>+3,1 %</b>
<b>Germany</b>	<b>+3,1 %</b>
<b>Finland</b>	<b>+2,7 %</b>
<b>Belgium</b>	<b>+2,5 %</b>
<b>Netherlands</b>	<b>+2,2 %</b>
<b>Suède</b>	<b>+2,0 %</b>
<b>Italy</b>	<b>+2,0 %</b>

## **Negative trend:**

<b>Luxembourg</b>	<b>- 1,5 %</b>
<b>Denmark</b>	<b>- 0,1 %</b>
<b>Portugal</b>	<b>- 1,6 %</b>
<b>Spain</b>	<b>- 2,0 %</b>
<b>Ireland</b>	<b>- 2,2 %</b>
<b>France</b>	<b>- 3,8 %</b>



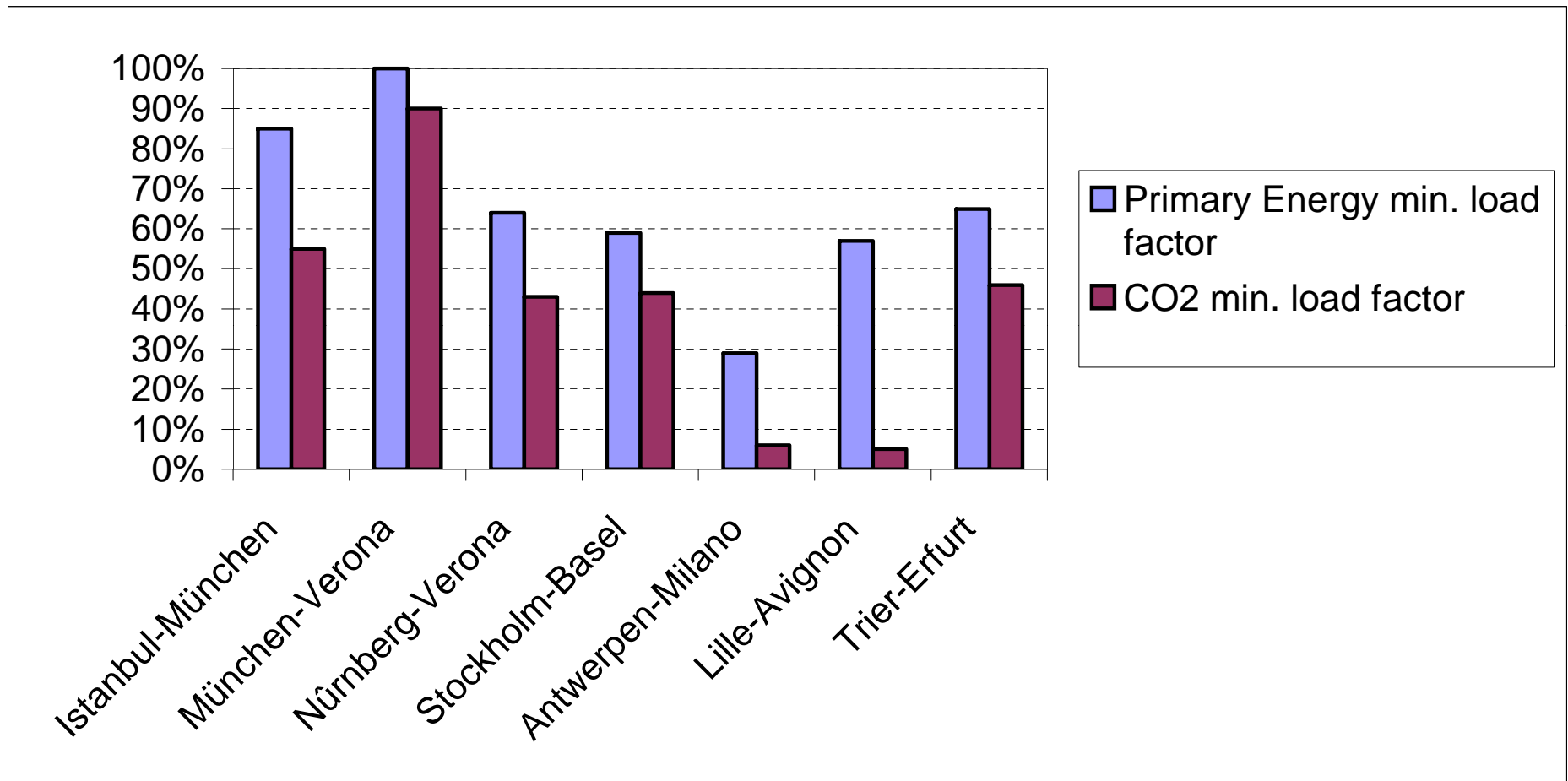
# CO2 EMISSIONS CAUSED BY FREIGHT TRANSPORT



ITF, 26/01/2010



# Required train loading rates for combined transport's primary energy consumption and CO2 emissions to be lower than road transport's



Source: IFEU and SGKV (2002)

ITF, 26/01/2010



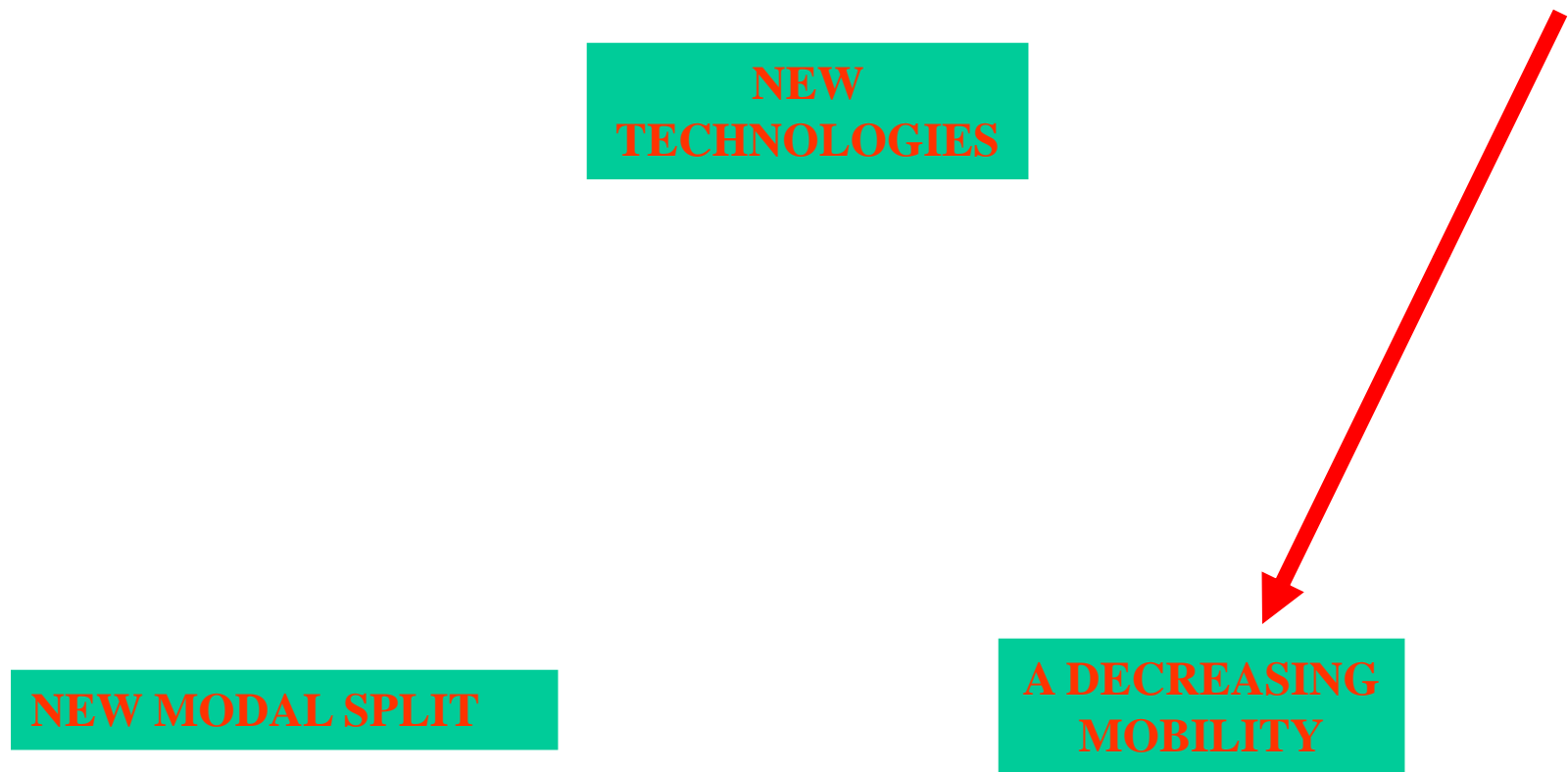
# Weight of freight transport in urban traffic (including purchasing trips)

- 9 to 15 % of vehicles trips
- 13 to 20 % of vehicles\*km
- 15 to 25 % of vehicles\*km as equivalent of individual car  
**but more than 50% in the city centre.**
- Pollution (based on the Marseille survey):
  - 25 % of greenhouse effect gas (CO<sub>2</sub>)
  - 1/3 of SO<sub>2</sub> and NO<sub>x</sub>
  - 44 % of particles
  - Noise : adds 4dB to the noise of individual cars

# A GLOBAL PROBLEM



# CO2 EMISSIONS CAUSED BY FREIGHT TRANSPORT



ITF, 26/01/2010



**A DECREASING MOBILITY COULD BE DESIRABLE BUT...  
...ARE NEEDS CORRECTLY SATISFIED ?**



**Don 't forget the difficulties  
in the developing world**

**Tout le monde veut sauver la planète,  
Mais personne ne veut descendre les poubelles.**

**Jean Yanne**

**MERCI**

ITF, 26/01/2010

