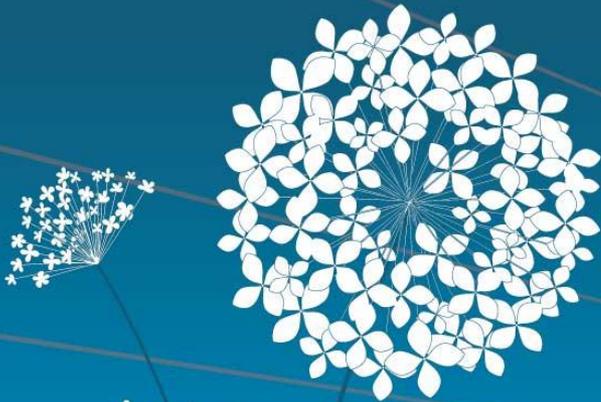


ANTWERPEN, 16 - 19 JUNE



*Energy Consumption and CO₂ emissions:
a green growth opportunity for railways in the
world*

Veronica Aneris,
Senior Advisor Energy and Environment, UIC

Energy Efficiency, the best fuel to move our trains!

BORN AT THE RIGHT TIME?

Colonel Albert Pope & the Pope Manufacturing Company of Hartford



**In 1901:
500 electric
cars !**

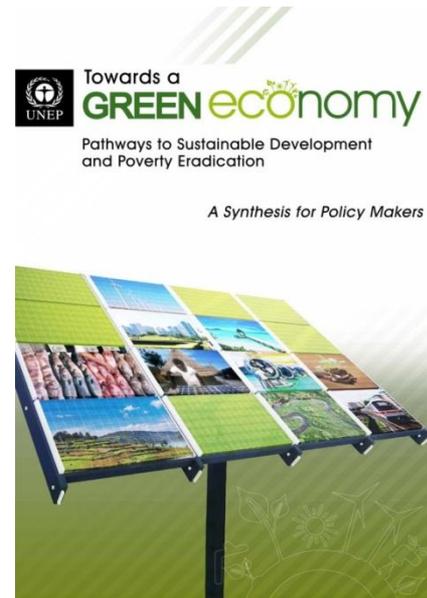


*“.....It’s cleaner and less noisy.
Furthermore nobody will willingly sit atop
an explosion”*

OPPORTUNITY:

A time or favourable set of circumstances that make possible to do something (oxforddictionaries .com)

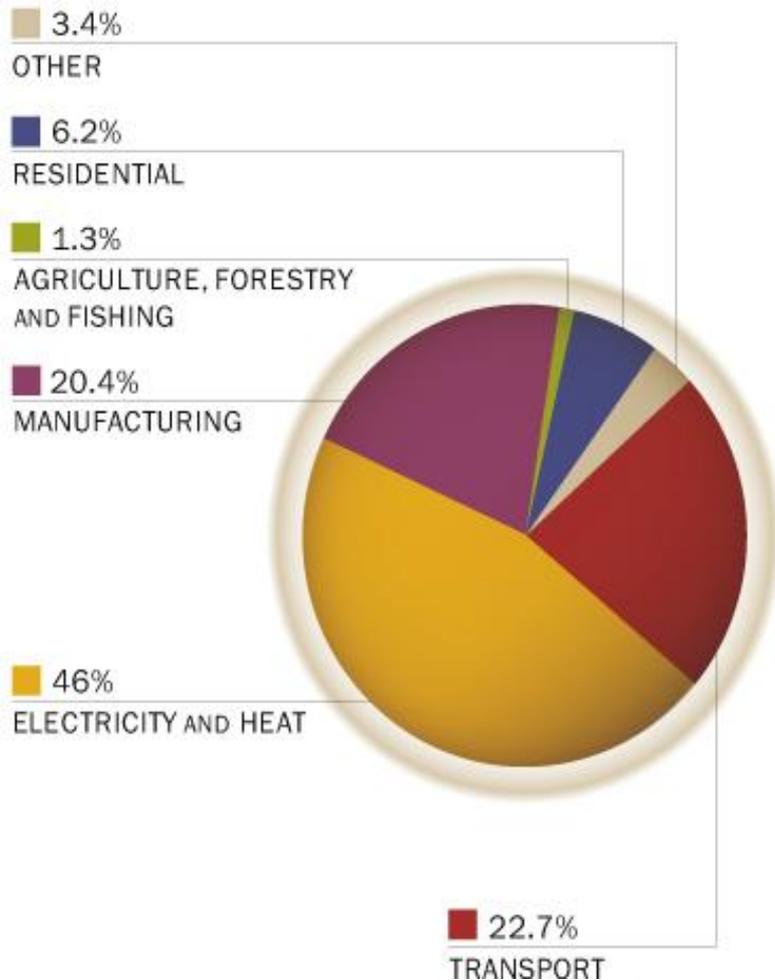
**THE
TIME IS
NOW!**



At global level the demand for transport is growing incredibly fast



CO2 Emissions from fuel combustion by sector, 2010

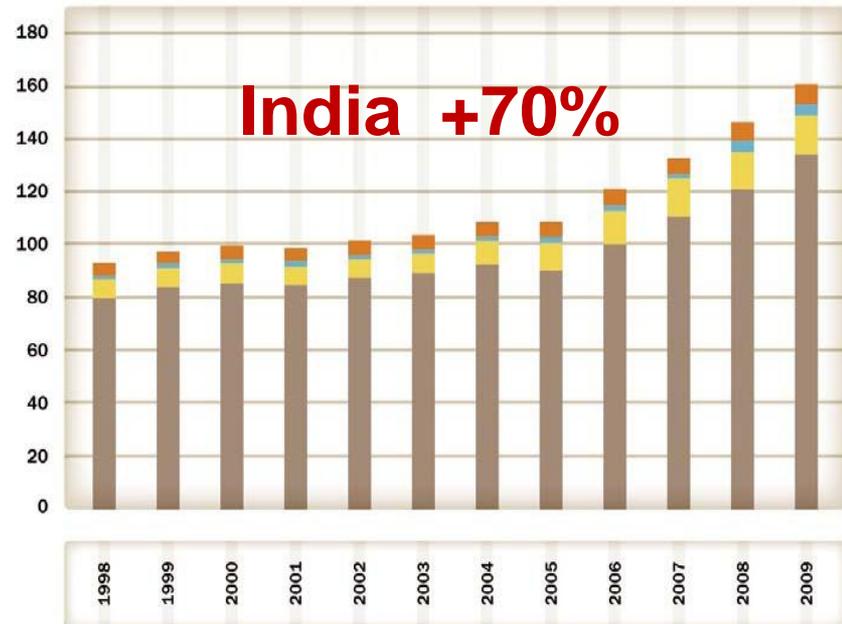
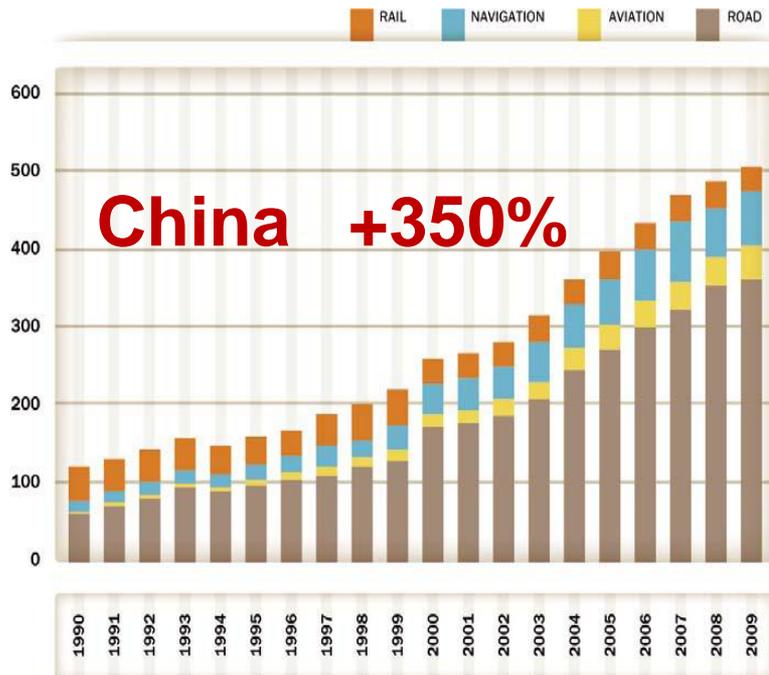


The transport sector is responsible for 23% of the total energy - related CO₂ emissions



Source: IEA-UIC Handbook 2013, Elaboration based on IEA and IPCC data

Transport is the fastest growing sector in terms of emissions and depends mostly on oil



Transport CO2 emissions by mode, (million tonnes)

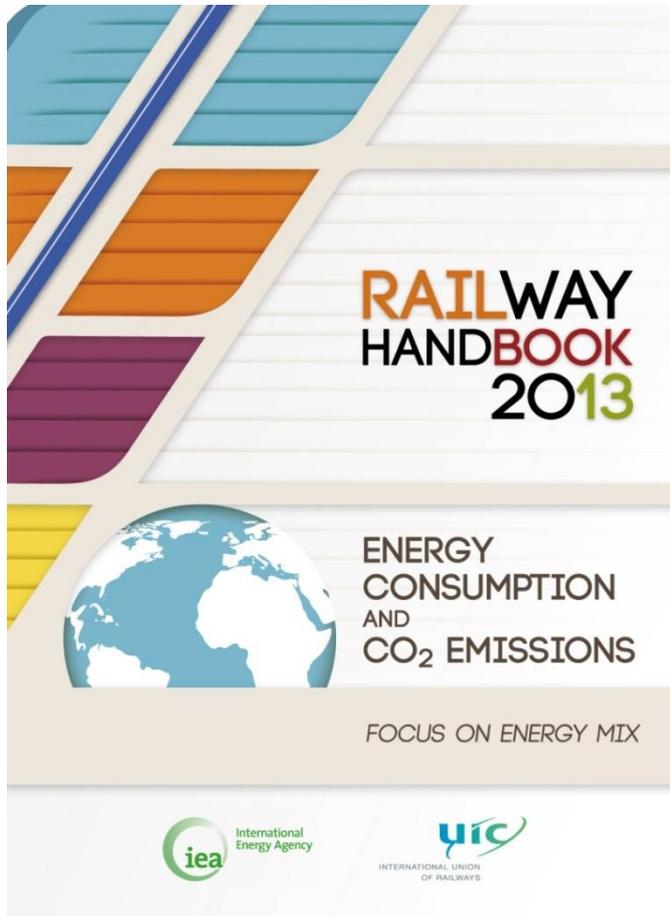
Source: IEA-UIC Handbook 2012



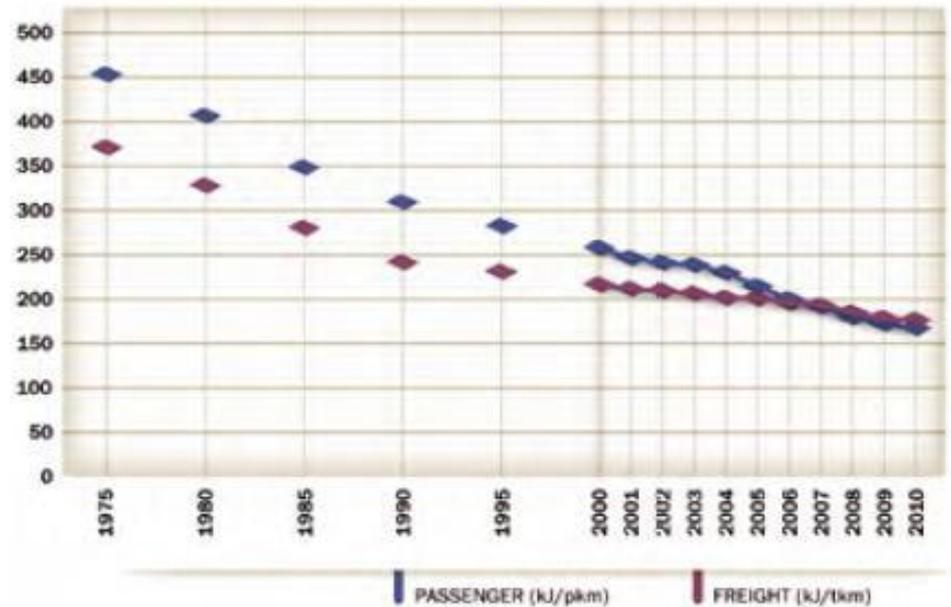
There is an urgent need to answer to this increasing demand in transport with a: *low carbon, resource efficient and low oil dependent solution*



FROM DIDIER'S PRESENTATION.....

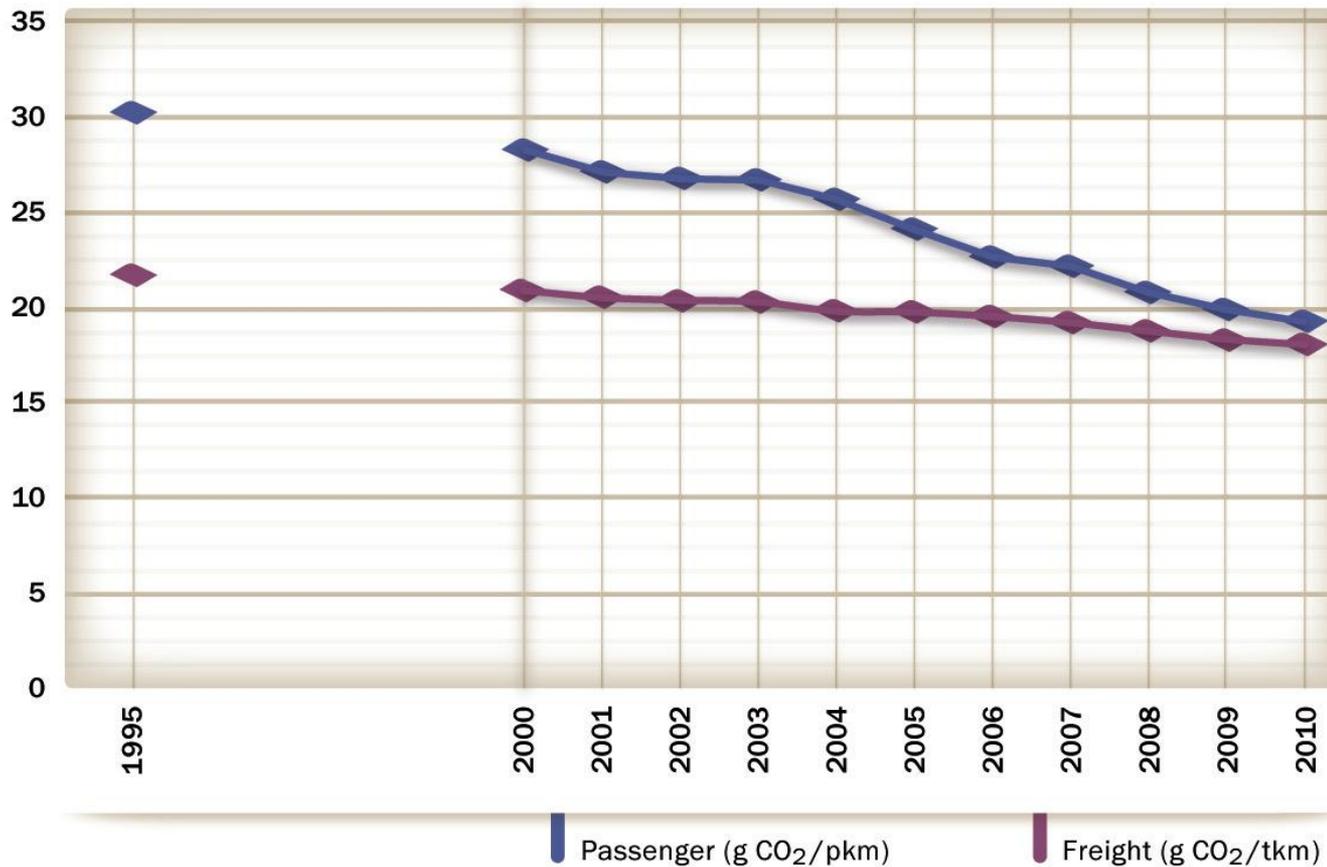


RAILWAY ENERGY USE IN THE WORLD

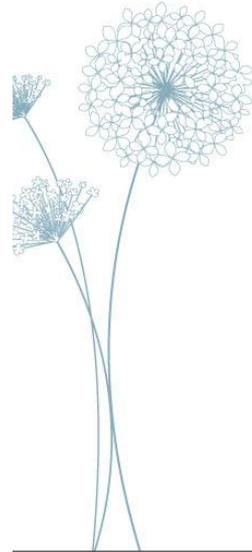


CO₂ emissions per passenger-km went down by 32% in the period 2000-2010; CO₂ emissions per freight tonne-km shrunk by 18% in the same period.

RAILWAY SPECIFIC CO₂ EMISSIONS, 1995-2010



Source: Elaboration by IEA and Susdef based on IEA Mobility Model and UIC Statistics





**RAILWAYS ARE NOT AFRAID OF IMPROVING.
WHICH ARE THE NEXT CHALLENGES?**

World Railways: the UIC new energy efficiency target

Energy Consumption per pkm + tkm

1990

-50%

2030

By 2030 the world railway sector will reduce its specific final energy consumption from train operation by 50% compared to the 1990 base year, measured per transport unit (passenger*km + ton*km)

1990

-60%

2050

By 2050 the world railway sector will reduce its specific final energy consumption from train operation by 60% compared to the 1990 base year, measured per transport unit (passenger*km + ton*km)

World Railways: The UIC new CO₂ emissions target

CO₂ emissions per pkm + tkm

1990

-50%

2030

By 2030 the world railways will reduce their specific average CO₂ emissions from train operation by 50%, compared to baseline year 1990.

1990

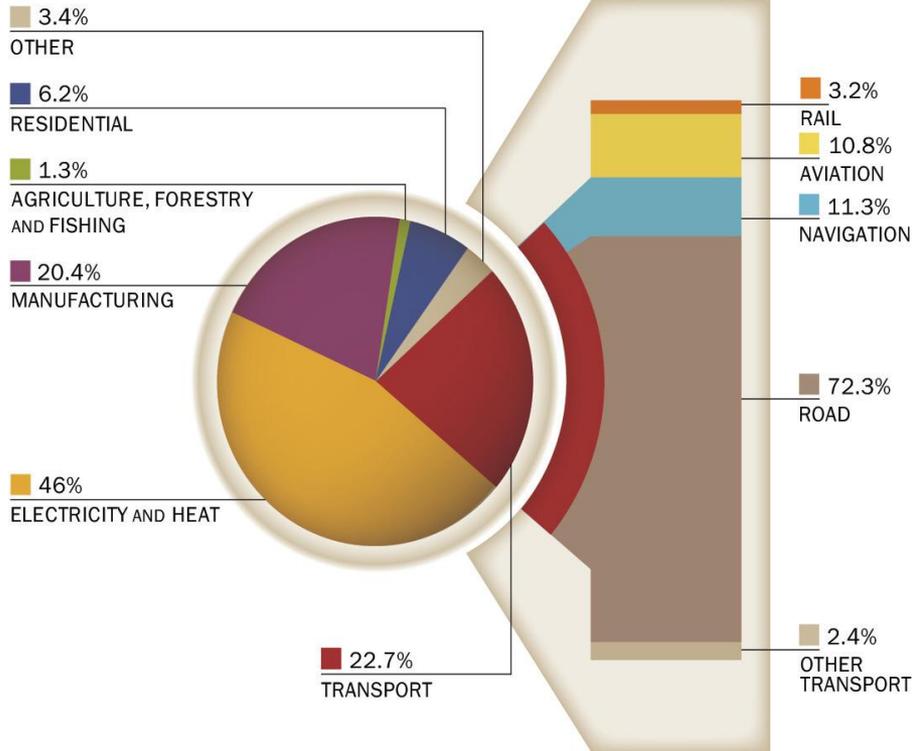
-75%

2050

By 2050 the world railways will reduce their specific average CO₂ emissions from train operation by 75%, compared to baseline year 1990%.

But we believe this is still not enough....





RAIL ACTIVITY IS RESPONSIBLE FOR JUST THE 3% OF TOTAL TRANSPORT CO₂ EMISSIONS, SO LESS THAN 1% OF TOTAL EMISSION AT WORLD LEVEL

Mode	Share (%)
Road	72.3%
Navigation	11.3%
Aviation	10.8%
Rail	3.2%
Other Transport	2.4%

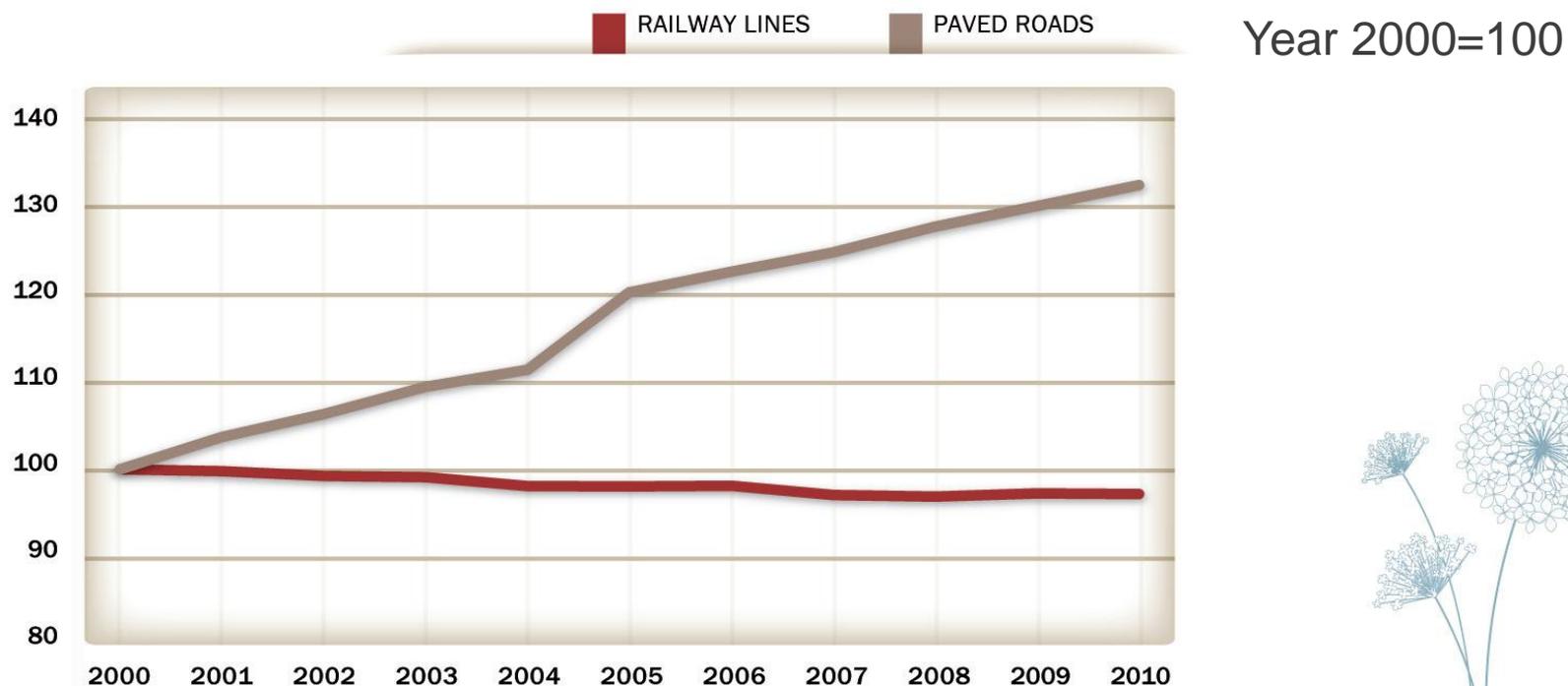
Mode	Passenger PKM	Freight TKM	Total transport units
Road	83.1%	10.0%	33.7%
Navigation	0.3%	79.3%	53.8%
Rail	6.4%	10.4%	9.2%
Aviation	10.1%	0.3%	3.3%

CO2 Emissions from fuel combustion by sector, 2010

WORLD TRANSPORT MODAL SHARE, 2010

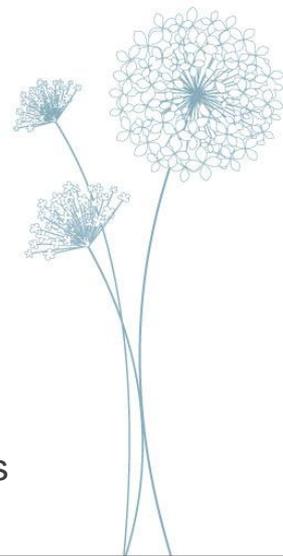
Source: IEA-UIC Handbook 2013, Elaboration based on IEA and IPCC data

FROM 2000 TO 2010, PAVED ROADS GREW IN LENGTH BY 32% WHILE RAILWAY LINES DECREASED BY 3% GLOBALLY



Evolution of paved roads and railway lines, 2000-2010 (km)

Source: Elaboration by Susdef from IEA Global Land Transport Infrastructure Requirements and UIC Statistics



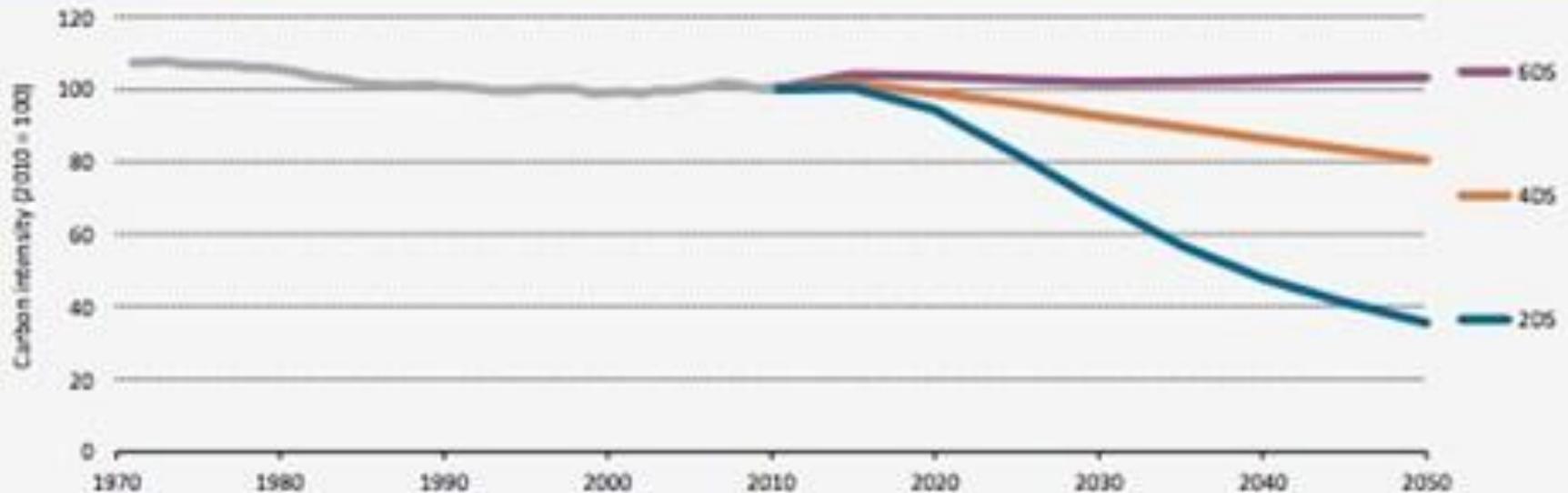
CO2 emissions from railways in the world are **less than 1% of total emissions.**

Railways will do their part to reduce them, but the real challenge to reduce GHG from transport is to realize a serious **modal shift from road to rail**, both in passenger and freight business!!!



The 6DS, 4DS and 2DS scenarios of the ETP 2014...

Figure L1 The Energy Sector Carbon Intensity Index (ESCI)



Sources: IEA 2012a, IEA 2012b. Note: the ETP scenarios (2DS, 4DS and 6DS) are defined in Box 1.2. Figures and data that appear in this report can be downloaded from www.iea.org/etp/tracking.

+6DS

If we want to limit to «**2 degrees**» global warming, prevent the environmental, social and economical damages from climate changes, and re-orient the world growth with «green transport» policies



**THE CHALLENGE IS TO
REALISE/ENABLE A MODAL SHIFT
FROM ROAD TO RAIL!!**



THE MODAL SHIFT CHALLENGE «CAMPAIGN»

UIC is working with IEA and NGOs to deliver the a technical/political campaign based on International Energy Agency data, International Panel on Climate change findings and «Green growth forecasts» for transport investments for promoting a Modal shift from road to rail among Decision Makers, Institutions, Governments, civil society

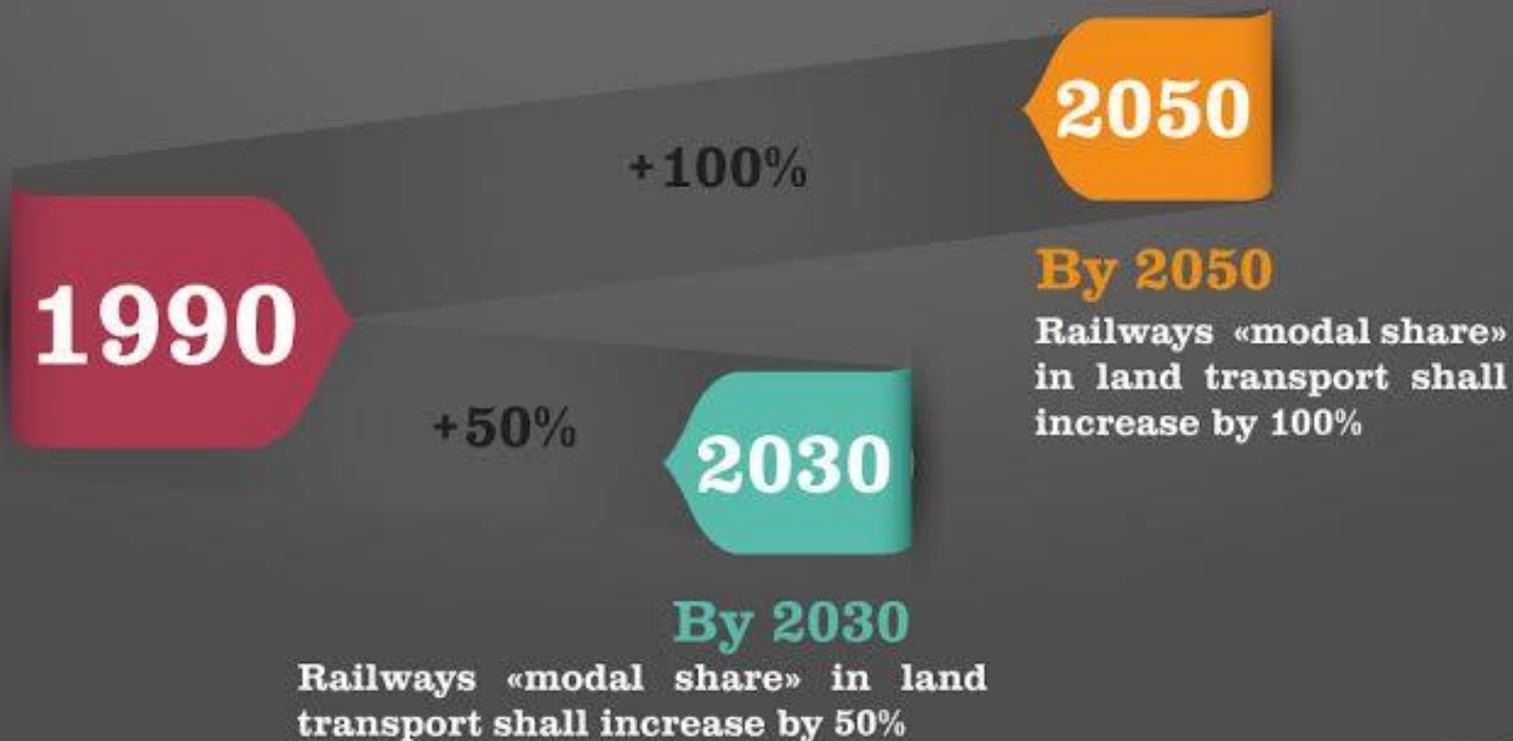


**THE MODAL SHIFT CHALLENGE «CAMPAIGN»
WILL BE OFFICIALLY LAUNCHED IN NEW YORK,
AT THE CLIMATE SUMMIT IN SEPTEMBER 2014**



Passenger transport (at global level)

Modal shift road/rail



Freight transport (at global level)

Modal shift road/rail

1990

2030

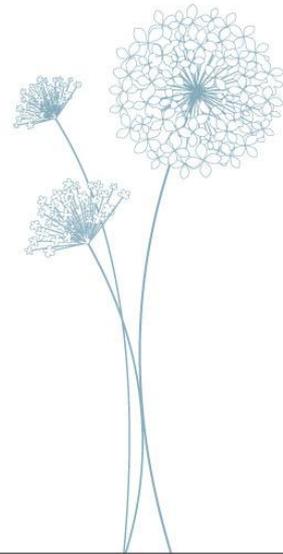
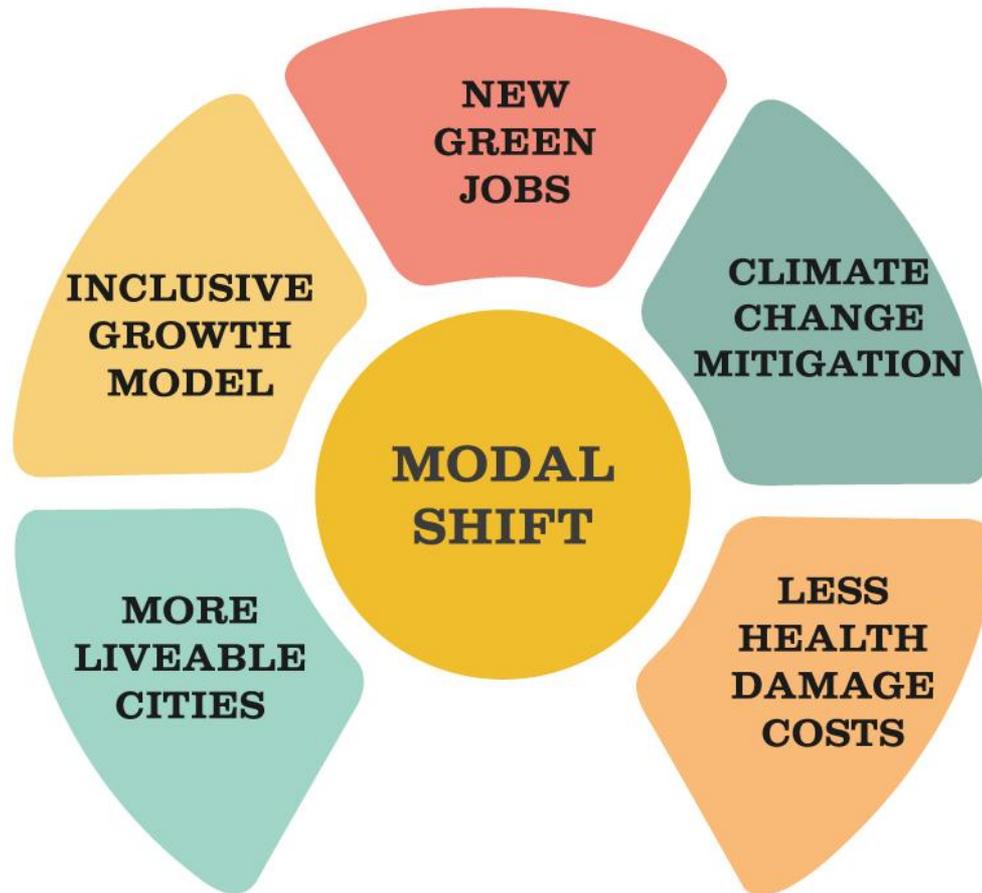
2030
Railways shall transport the same amount of goods transported globally on roads, (measured in t*km)

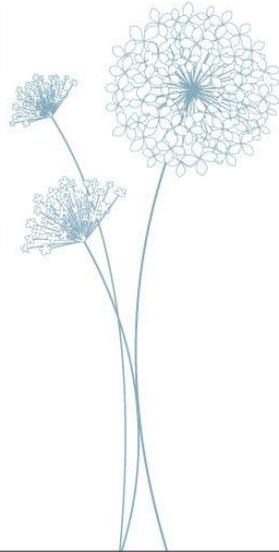
RAIL+50%

2050

2050
Railways shall transport 50% more goods than the amount transported globally on roads, (measured in t*km)

THE BENEFITS TO GREEN GROWTH OF INVESTING IN RAIL





WE WANT TO SIT AT THE FRONT OF THE TRAIN !



Thanks for your kind attention ! ☺

aneris@uic.org

