



INTERNATIONAL UNION
OF RAILWAYS

unity, solidarity, universality

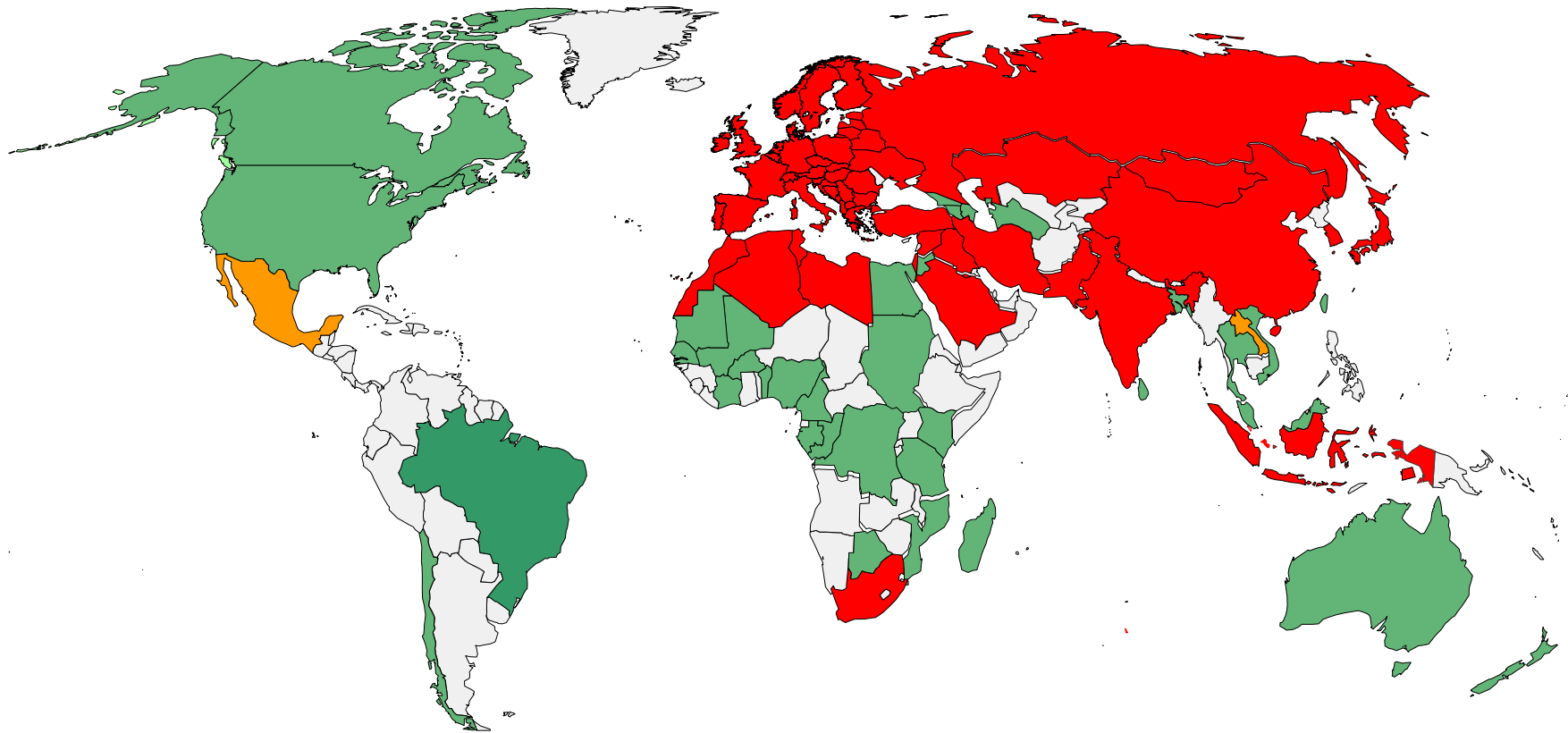
Railways in EST towards post-Rio+20

Background paper on railways and sustainable development

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Sustainable Development
Bali, 23rd April 2013

UIC: The International Union of Railways

200 members worldwide



Members ■ Active ■ Associate ■ Affiliate

Created in 1922 – HQ in Paris, France

UIC in numbers - 2010

200

Members on 5 continents

2,5

billion passenger-kilometres

9,5

billion tonne-kilometres

1 000 000

kilometres of lines

6

regional assemblies

7

forums and platforms

50

international expert working groups

180

cooperation projects

670

"UIC Leaflets"

200

reference documents

85

training sessions, conferences, seminars

UIC Chief's Task : to promote railway transport around the World and help its members to meet all the current and future challenges of mobility and sustainable development

UIC Mission

**Promoting the development of rail transport
at World level,
in order to meet challenges
of mobility and sustainable development**

Promoting interoperability, creating new World standards for railways

Developing and facilitating all forms of international cooperation among members, facilitating the sharing of best practices (benchmarking)

Supporting members in their efforts to develop new business and new areas of activity

Proposing new ways to improve technical and environmental performance of rail transport, boosting competitiveness and reducing costs

UIC and the United Nations



UNFCCC Train to Copenhagen – 2009

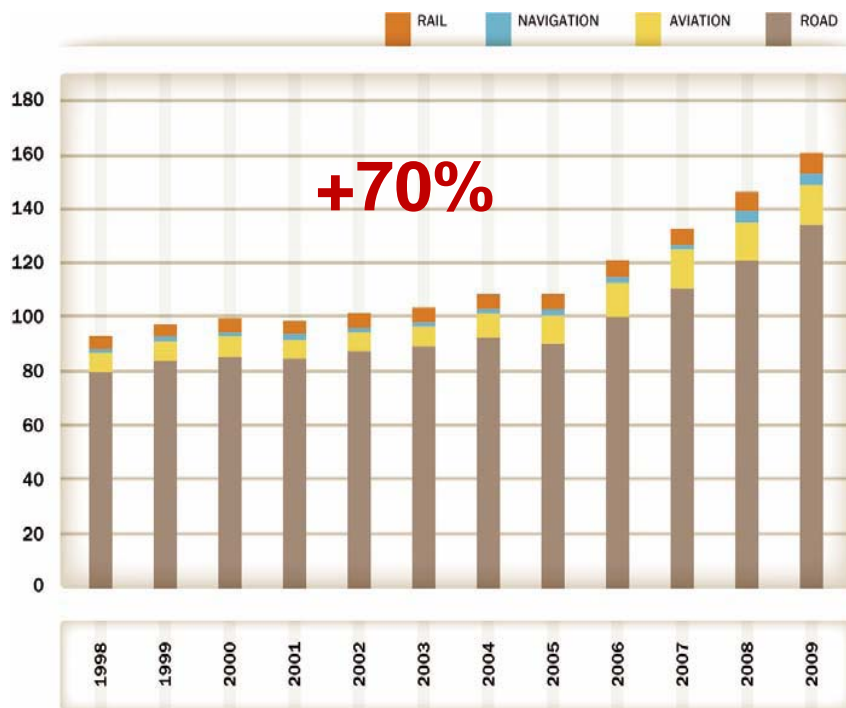
The transport challenge....



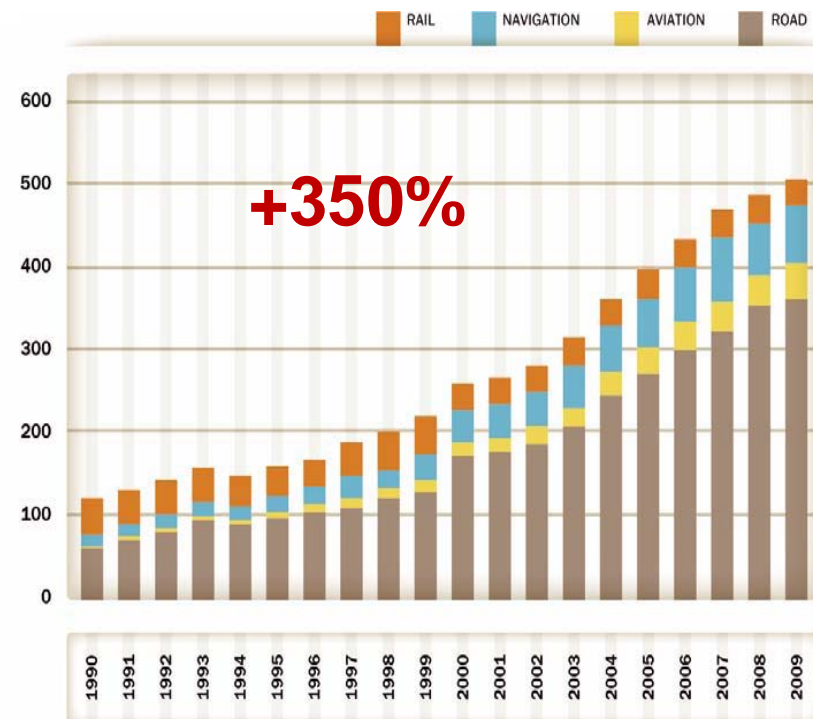
Transport is the fastest growing sector in terms of emissions

Transport CO₂ emissions in emerging economies

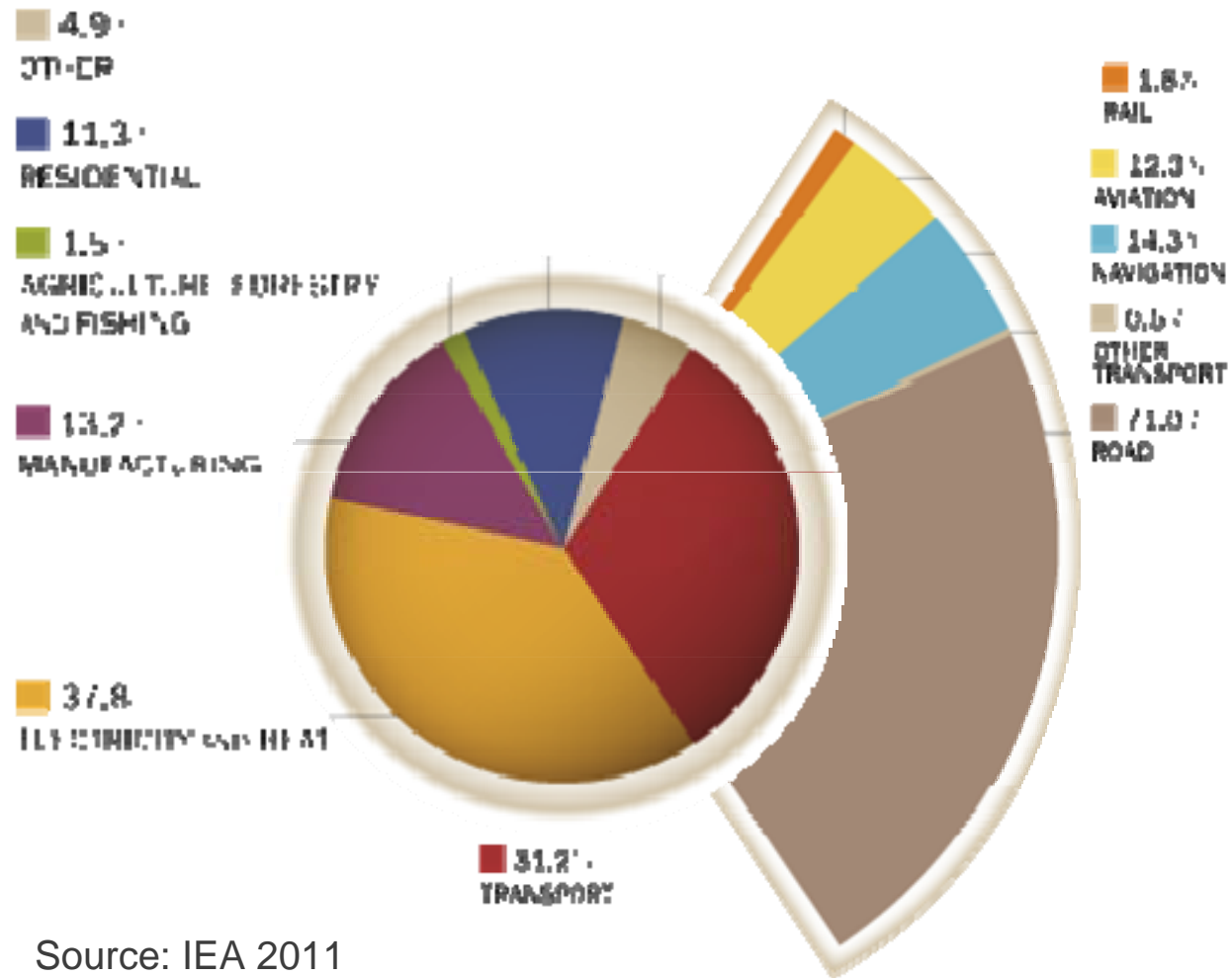
India



China



Road transport is the dominant source of transport CO2



Source: IEA 2011

Rail transport is more resource-efficient than other modes



- Rail : lower land-take requirement than roads

Highway / 4 lanes = 9 to 10 hectares / Km

Highway / 6 lanes = 10 to 11 hectares / Km

High Speed Rail double track = 5 to 7 hectares / Km

- Providing lower-carbon, less-polluting, accessible passenger and freight transport

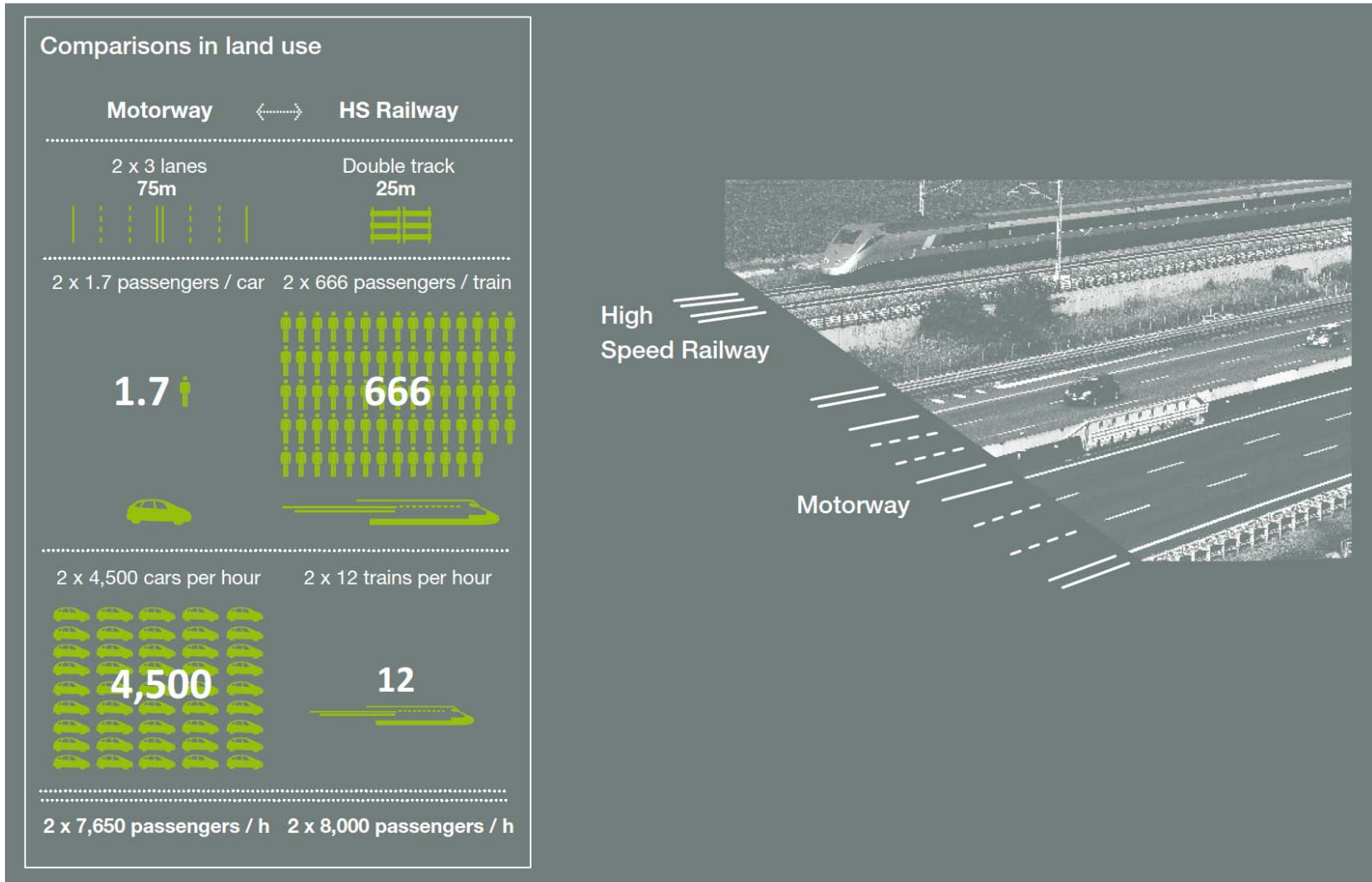
- Simultaneously alleviating traffic congestion

- Providing access to employment, goods and services

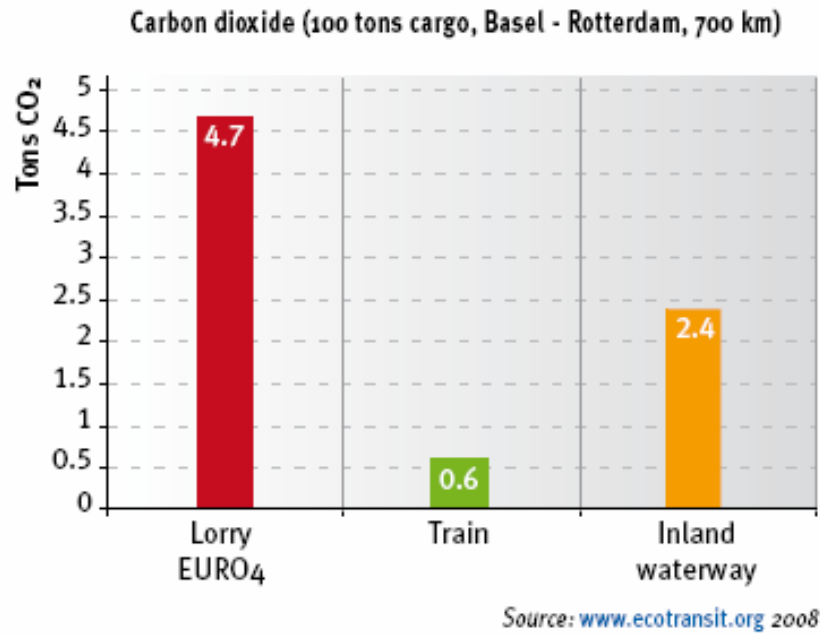
Linked to integrated public transport and sustainable freight delivery systems, rail can be the backbone of a truly integrated sustainable transport network.

www.uic.org/environment

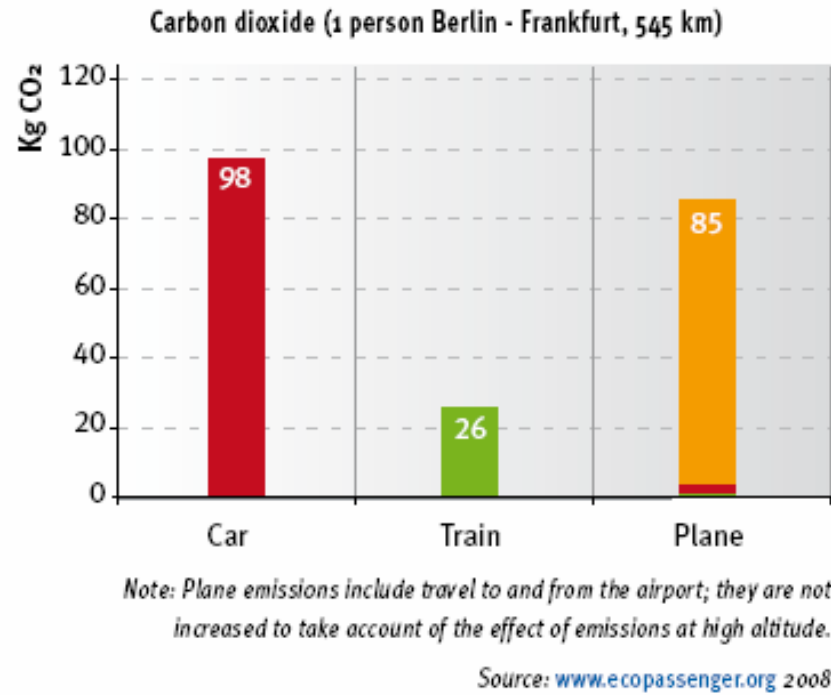
Rail is resource efficient



Rail is a low carbon transport mode



www.ecotransit.org
(global carbon footprinting freight)



www.ecopassenger.org
(carbon footprinting passenger Europe)

28 European members of UIC have collectively committed to reduce CO2 emissions per passenger kilometer and ton / km by 50% by 2030

Rail is a low carbon transport mode

Rail transport is environmentally friendly

Road transport = 111 g CO² per passenger/km

Air transport = 180 g CO² per passenger/km

Rail transport = 2.7g CO² per passenger/km



Rail transport has a high energy profile

Air transport (domestic) = 7.14 litres of diesel fuel per 100 km per passenger on average

Road transport (private) = 3.3 litres of diesel fuel per 100 km per passenger on average

Rail transport = 0.7 litres of diesel fuel per 100 km per passenger on average



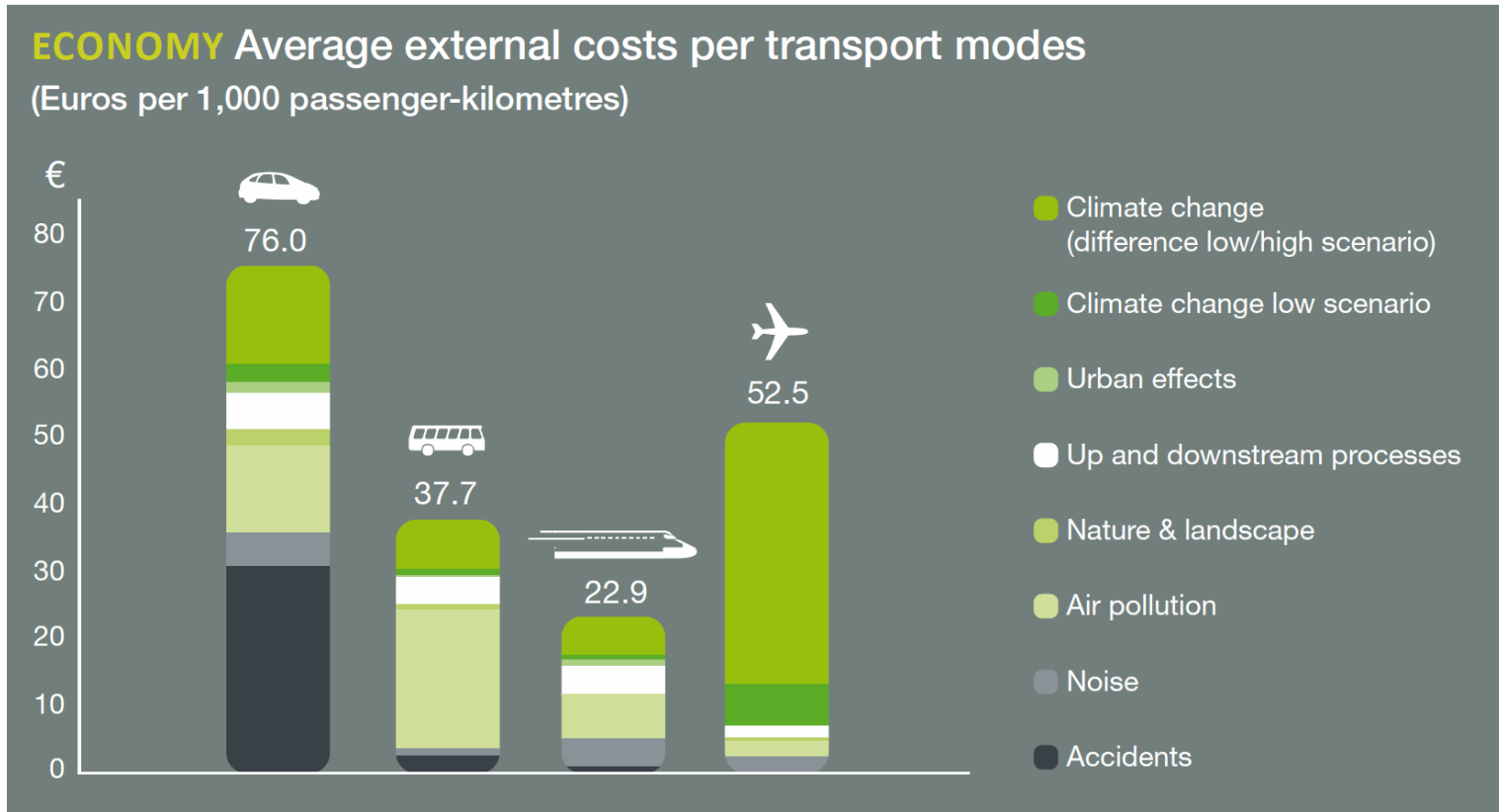
Rail companies - employment and staff

Railways: Top 10 countries by number of direct railway staff ('000)

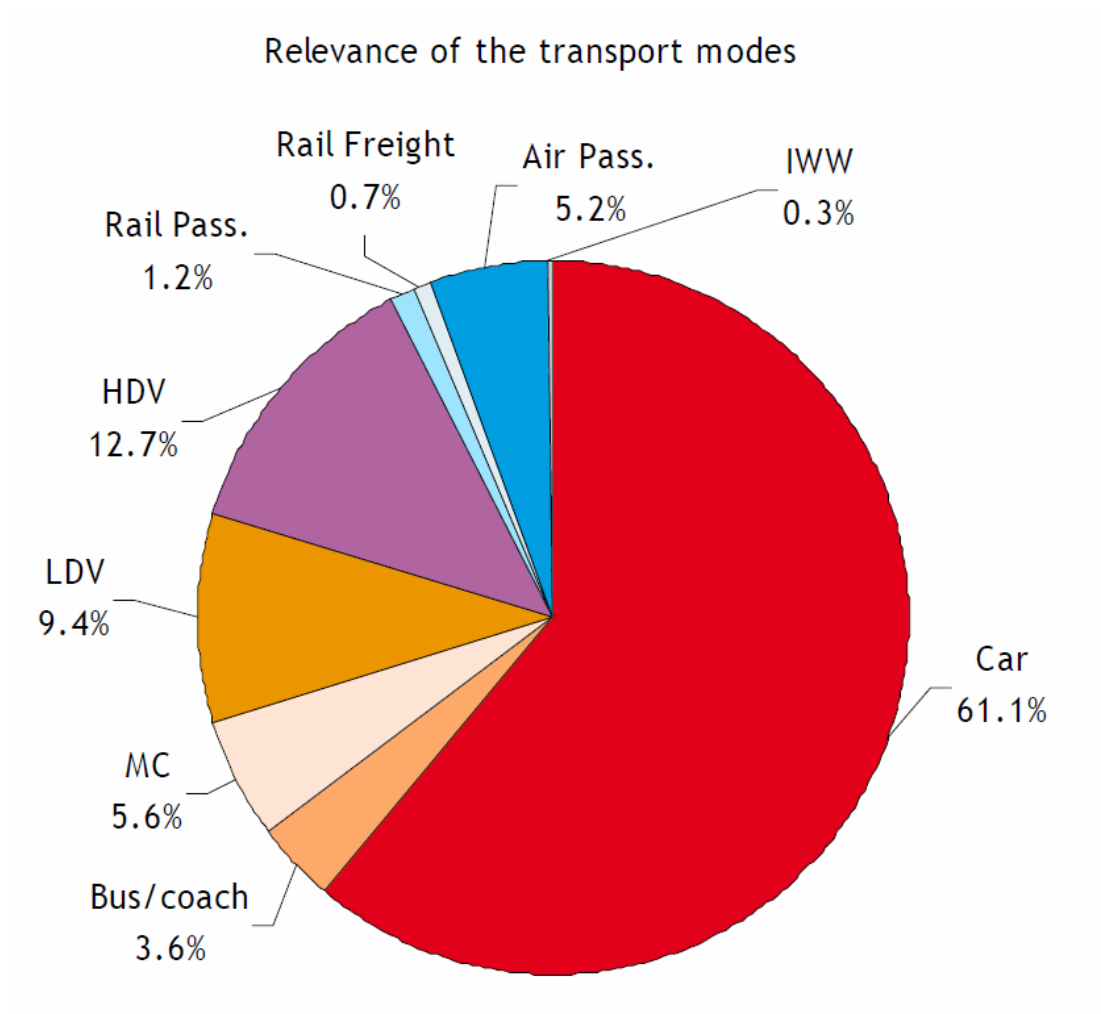
1	China	2 042
2	India	1 386
3	Russian Federation	1 031
4	Germany	240
5	France	156
6	Japan	129
7	Poland	113
8	Kazakhstan	93
9	Italy	87
10	Belarus	77

UIC estimates the railways employ up to 8 million people worldwide directly, and two to three times that number work in supply and associated industries.

External Costs – per 1,000 km



External Costs - total



Bringing it Together: UIC Sustainability Declaration

> UIC Declaration on Sustainable Mobility and Transport

> Objective

- Public commitment to Sustainable Development
- Show ongoing progress via regular reports

> 18 commitments on sustainable development

- Includes commitments to reduce environmental impact, and to better serve our customers and society.



Signed by 50 UIC members, including IR, RZD, JR-East and Chinese Ministry of Railways

Role of Railways in the context of Rio+20



UIC activities before Rio+20

UN meetings that UIC engaged with before and the Rio+20 summit.

- 1. Input to “Compilation Document” (October 2011)**
The UN ran a consultation process inviting stakeholders to provide their input to Rio+20. The UIC response can be viewed online here :
<http://www.uncsd2012.org/index.php?page=view&type=510&nr=45&menu=20>
- 2. Communication to Members (Autumn 2011)**
UIC wrote to all members actively involved in the EES Platform to ask for their support to promote Rio+20 with their national governments.
- 3. 2 UIC Side Events (December 2011) :**
at Regional Prep Meeting Europe / Transport in a Green Economy - Why Rio should tackle the transport sector and

at 2nd Preparatory Conference for Rio+20: Why transport is fundamental to sustainable development - A Rio+20 Action Agenda.
- 4. UIC Sustainability Brochure 2012 (Published on 5 June 2012 – World Environment Day)**
http://www.uic.org/IMG/pdf/brochure_env2012_web.pdf

Key Outcomes of Rio+20 and how Railways can help deliver them

UIC engagement at Rio+20 (event participation and workshop)

1. Financing sustainable transport to support sustainable development
2. Sustainable transport in the Cities of the Future
3. Implementing Voluntary Commitments on Sustainable Transport
4. Global Forum on Human Settlements and Electric Mobility
5. Workshop on Sustainable transport in the Cities of the Future with UITP and UNIFE (including a Joint Statement by UIC, UITP and UNIFE)



How Railways can deliver the key objectives from Rio+20

Improved accessibility

All Passenger Railways in the European Union offer assistance to people with reduced mobility. This assistance includes telephone numbers to book assistance at stations, and information on how to plan a rail journey using stations with step free access. Many railways provide additional services.

East Japan Railways, in accordance with the Japanese Barrier-Free law, JR East has been installing elevators at stations serving more than 3,000 passengers a day, and has installed additional escalators at stations without a legal requirement.

Indian Railways is implementing an ambitious program to improve accessibility for disabled passengers at over 1,500 strategically chosen stations.



How Railways can deliver the key objectives from Rio+20

Improving city economies

Congestion worldwide costs economies an estimated 1 to 3% of GDP – the cost of moving to a green economy. **Singapore**, **Hong Kong** and **Munich** spend about 6% of their GDP on mobility, whereas **Houston** spends 14%, and that includes both the cost for the society and individual.

Mitigating emissions, saving resources and keeping cities compact

If the share of urban trips made by sustainable mass transport doubled by 2025, urban transport emissions would be in line with the objectives of the international climate negotiations.

Reducing traffic injuries and fatalities

Public and urban rail transport improves the health of the city by ensuring better safety for all and by promoting healthier life styles.

Greening the Freight sector

Between 1988 and 2008, international combined transport increased by 215% worldwide.

Way forward - Recommendations

UIC policy recommendations for Rio+20

(made together with UITP and UNIFE)

- Endorse modal shift towards the most sustainable transport modes.
- Strengthen institutional arrangements to advance sustainable transport involving UN development agencies and banks, carbon finance instruments and the private sector.
- Shift development finance towards creating more sustainable communities recognising the essential link between land use and infrastructure.
- Endorse and reward actions aiming to achieve the ambitious target of doubling the market share of urban sustainable transport by 2025.
- Adopt targets and indicators to better measure progress towards sustainable transport.

Sustainable Development - Case Studies

Russia

- Russian Railways (JSC RZD) is one of the most influential actors in sustainable development in Russia, and indeed in the Europe-Asian region.
- JSC RZD is one of the largest employers in the country (about 1 million people).
- Strong social policy supporting employees for professional development.
- Youth policy (enhancing personal and professional competence).
- Crucial trade link between Europe and Asia (plan for new multimodal terminals and logistics centres).
- Largest transport company in Russia servicing over 44% of goods turnover and 30% of passenger turnover.
- Improving its environmental performance (significant reduction of harmful effects on the environment: 35% by 2015 and 70% by 2030).



Sustainable Development - Case Studies

Japan

- Active measures taken by JR East Group after the Great East Japan Earthquake on March 11, 2011 (“Management Vision V - Ever Onward”).
- To adhere to customer demands for safe and high-quality services.
- Seismic reinforcement measures totaling 300 billion yen in preparation for future possible major earthquakes (becoming an increasingly disaster-resilient railway).
- JR East working to become No.1 in customer satisfaction in the railway industry.
- Promotion of local areas, for example tourism campaigns in coalition with local communities.
- Commercialization of a storage battery-driven electric railcar system and introduction of smart grid technologies, expanded introduction of renewable energies and introducing various environmental preservation technologies to stations.



Sustainable Development - Case Studies

India

- The Indian Railways Vision 2020 sets out a firm commitment sustainable development (with 25,000 km of new lines to be constructed by 2020).
- Electrification : addition of 14,000 km of track, allowing a reduction in harmful emissions and a shift to low carbon energy sources.
- Target to a 15% improvement in energy efficiency and also taking 10% of energy from new and renewable sources.
- Reducing energy usage and green house gas emissions by replacing high energy 60W and 100W incandescent lamps with more efficient 14W and 20W Compact Fluorescent Lamps (CFL).
- Development of an environmentally friendly Bio-toilet system.
- Improving accessibility for disabled passengers by implementing an ambitious program to at over 1,500 strategically chosen stations.



Sustainable Development - Case Studies

China

- China has committed to a plan of massive investment in rail.
- 2003-2020 : to construct 27,000 km of new lines, to bring rail connections to most cities with populations over 200,000 and to increase the electrified lines by 50%.
- Reducing the energy consumption per unit transport workload since 2003, on an average base of around 5% improvement per year.
- Reduction of land use, allowing easy under bridge crossing and minimizing the impact on farming activities.
- Better protection of environmental sensitive sites (natural reserves and forest parks, scenic areas, water resources protection areas and historical sites).



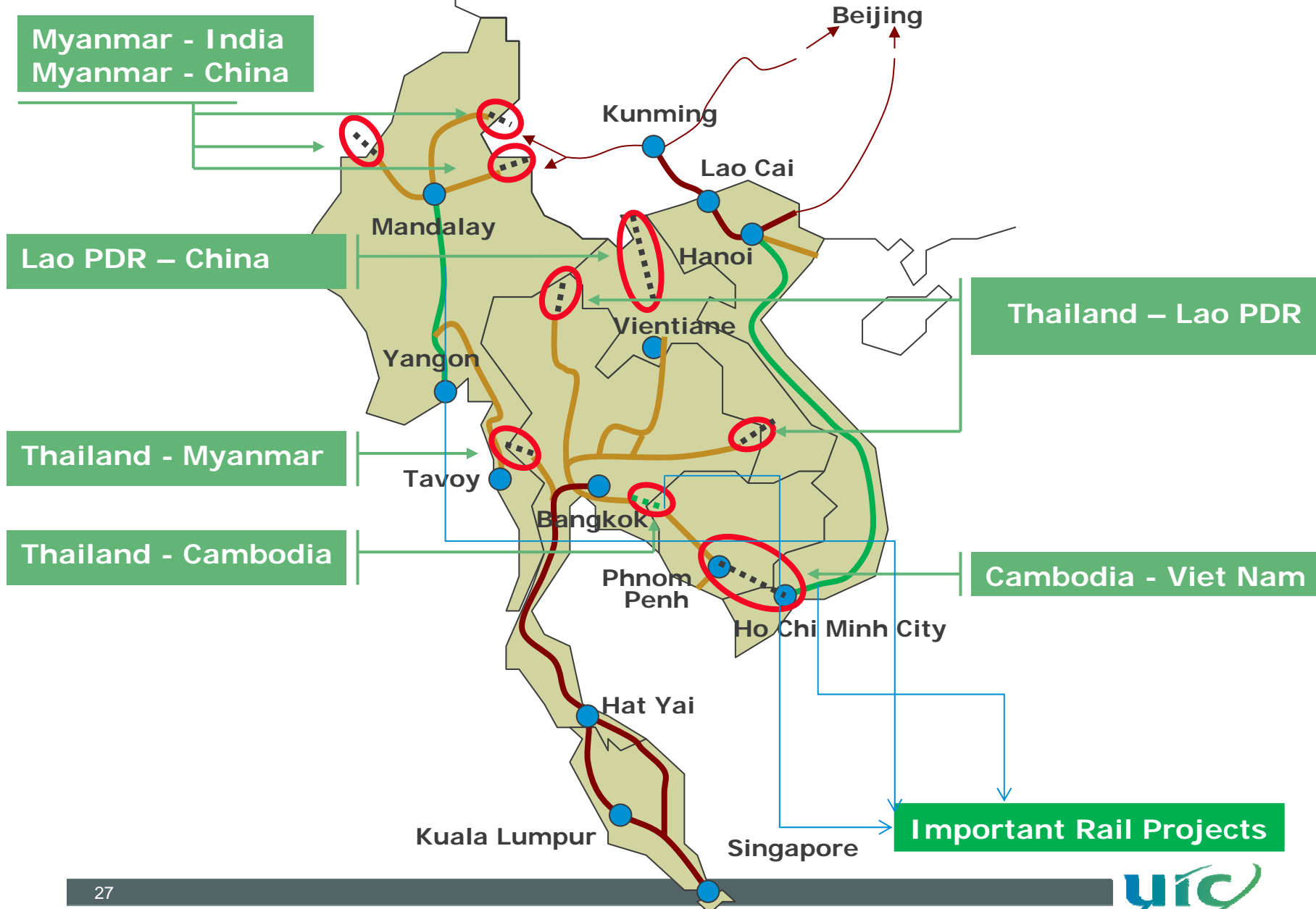
Sustainable Development - Case Studies

ASEAN

- **Malaysia** has committed with important public transport projects within its ETP (Economic Transformation Programme).
 - Building an Integrated Urban Mass Rapid Transit System in Kuala Lumpur which will account for at least half of all trips commuting to and from, and within Kuala Lumpur.
 - Aiming to reduce congestion in the Kuala Lumpur city centre by providing an efficient and environmentally sustainable mode of public transport.
- **Singapore** is actively promoting sustainable transport for more than two decades, and meeting two important objectives in the future - lower environmental footprint and more convenient travel.
 - Achieving a modal share of 70% of journeys made during morning peak hours via public transport by 2020, through doubling our rail network and developing a more integrated and seamless connection between our bus and rail services.



Missing links between GMS countries



Conclusion

Intermodal transportation is becoming more and more attractive as its possibilities for better mobility and sustainability become evident. It is :

Better from the environmental point of view

Better from the economic point of view

Better from the passenger point of view

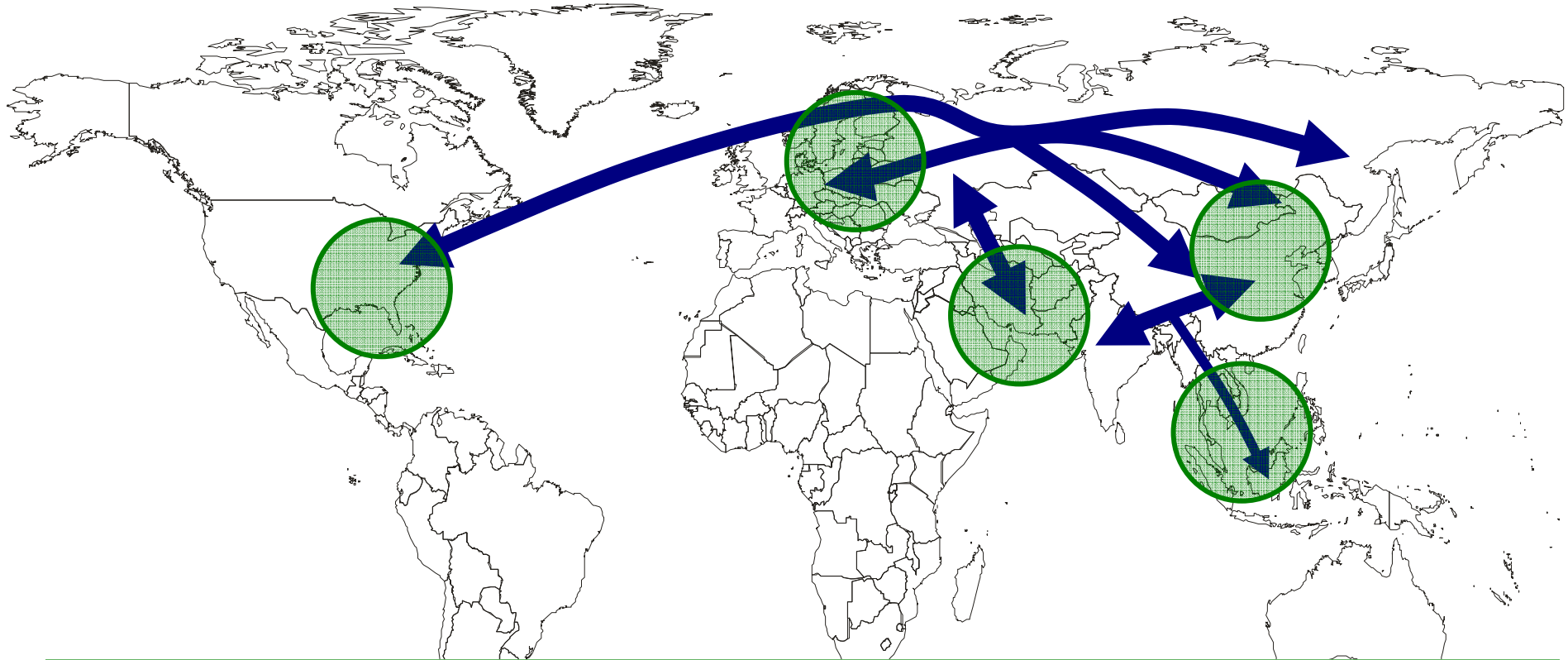
Better from the transport operator point of view



Strengthening Network

Encourage Interoperability by construction of missing links to have regional rail network in place

Existing and Potential Corridors



- Develop a few main corridors to capture growing international trade
- Stronger focus on intermodality and cooperation with shipping lines
- Use UIC as a platform for development

■ ■ ■ Thank you for your kind attention

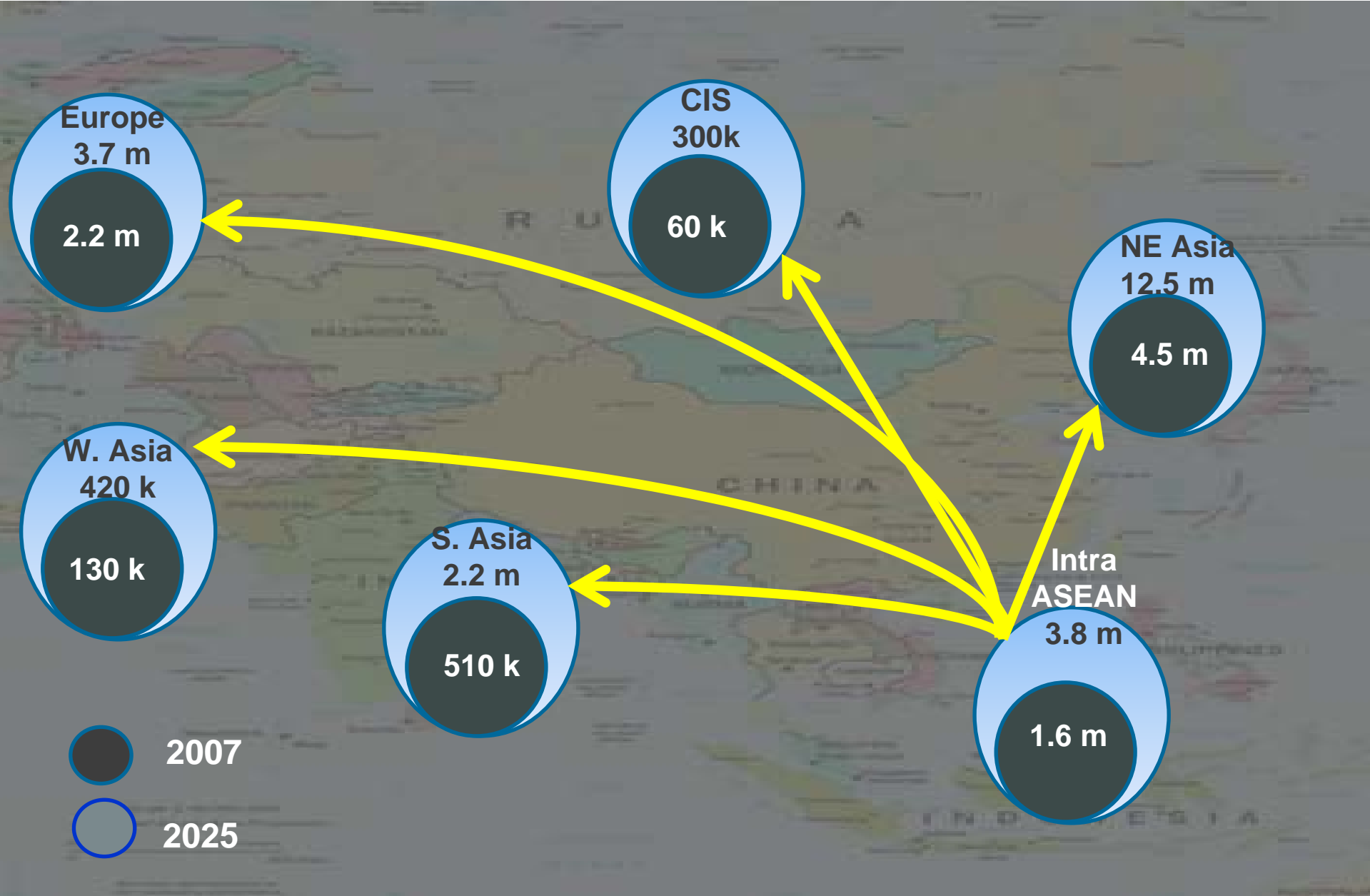
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Containers Projections for ASEAN: 2025



Forward Steps

Strengthening Network

- > Encourage Interoperability by construction of missing links to have regional rail network in place
- > Harmonise important technical standards like Axle loads which enable free movement of containers
- > Strengthen port to hinterland connectivity first
- > Develop Inland Container Depots or Dry Ports for capturing freight traffic

Asset Management

- > Have asset replacement strategy in place
- > Plan rolling stock procurements with network expansion as part of integrated planning process



Forward Steps

Enhance efficiency by technological up-gradation

- > Old signalling and communication systems needs to be replaced with efficient and safe systems
- > Adopt track structure which suits the requirement for next 50 years
- > Consider Life cycle costs while considering technological up-gradation

Restructure Organisation

- > Give Railways freedom to plan and execute (Corporatisation ?)
- > Focus on business lines rather than functional departments
- > Infrastructure and Operation segregation is a difficult exercise , it needs to be done when institutional mechanisms and access charges regime is in place

Forward Steps

Financing

- > Encourage PPP for generating finances for rail development
- > Involve ports , local industry , shipping lines in developing freight terminals and freight lines
- > Passenger tariff on commercial lines
- > Lobby with governments for social service obligations to be paid to the operator for subsidising transport
- > ADB/World Bank should also finance international rail corridor development and ICD development

Manpower Development

- > Set up joint training and research facilities at the regional level