

INTERNATIONAL UNION
OF RAILWAYS

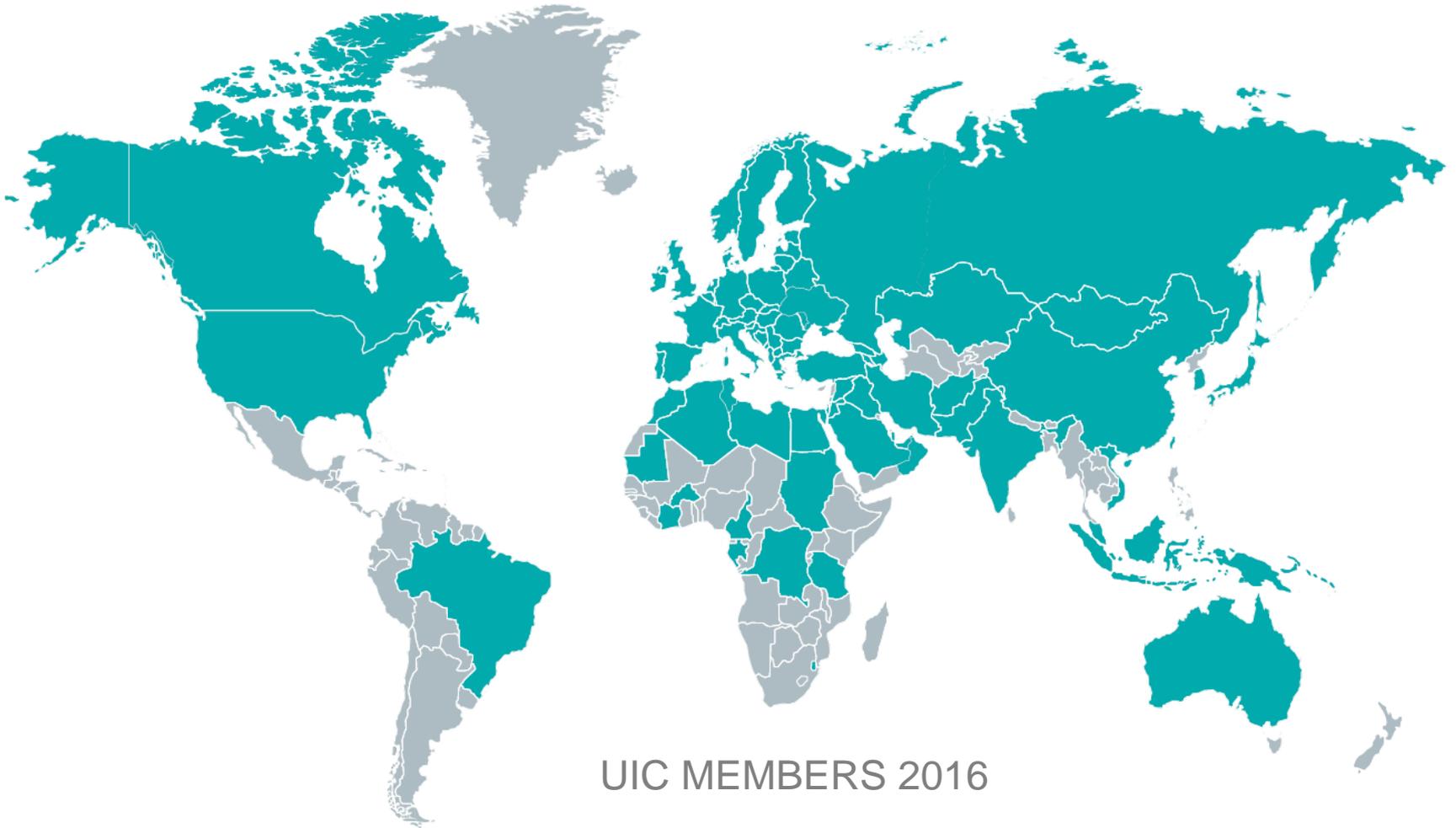
unity, solidarity, universality

Railways as the Backbone of Environmentally Sustainable Transport and their Contribution to the Sustainable Development Goals (SDGs)

Milko Papazoff, UIC, ASEAN Representative
Sustainable Development
Vientiane, 16th March 2017



UIC in 2016



UIC MEMBERS 2016



UIC today



- **240** Members in 95 countries
- **3,000** billion passenger-kilometres
- **10,000** billion tonne-kilometres
- **1** million kilometres of lines
- **7** million rail personnel
- Cooperation with over **100** institutions
- **700** UIC Leaflets (international railway standards)
- **85** congresses, conferences, workshops



Sustainable transport is an enabler for all of the sustainable development goals.

Railways are the backbone of sustainable transport.



Sustainable transport is an enabler for all 17 of the sustainable development goals



CLIMATE SUMMIT 2014

CATALYZING ACTION

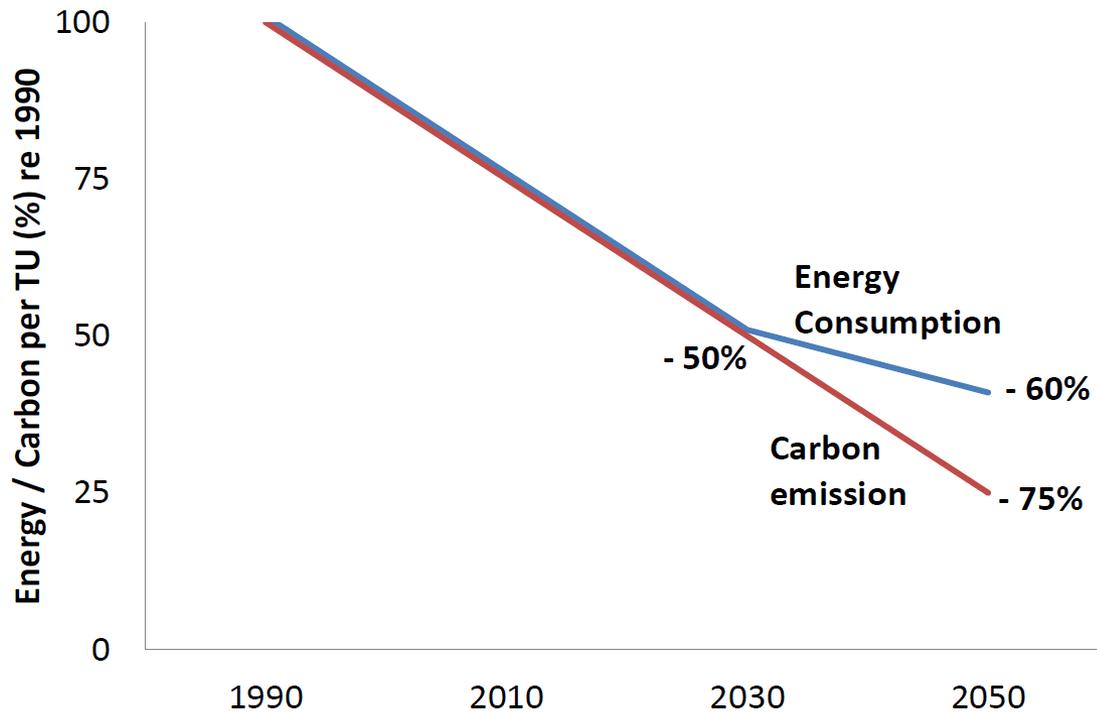
UN HEADQUARTERS · NEW YORK
23 SEPTEMBER 2014



“I call on the International Union of Railways and their members to set ambitious goals for reducing carbon emissions supported by robust monitoring, verification and reporting.” *Ban Ki-moon, eighth Secretary-General of the United Nations*



UIC Low Carbon Rail Transport Challenge





UIC Low Carbon Rail Transport Challenge

Modal shift targets

- Passenger land transport modal share (passenger-km) :
 - + 50% by 2030 (relative to a 2010 baseline)
 - + 100% by 2050 (relative to a 2010 baseline)
- Freight land transport modal share (tonne-km) :
 - equal modal share with road by 2030
 - +50% greater than the road modal share by 2050

Supporting actions: Railway Climate Responsibility Pledge

1. Reduce carbon intensity
2. Stimulate modal shift
3. Actively communicate
4. Report performance

Signed by 78 CEOs representing the majority of worldwide rail activity



Energy & Climate



SDG 7 Clean energy

- ☑ 7.1 access to affordable, reliable and modern energy
- ☑ 7.2 increase the share of renewable energy in the global energy mix
- ☑ 7.3 double the global rate of improvement in energy efficiency
- ☑ 7.a access to clean energy, R&D, renewables, efficiency, cleaner fossil-fuel
- ☑ 7.b expand / upgrade sustainable energy services for developing countries

SDG 8 Sustainable economic growth

- ☑ 8.4 Improve resource efficiency, decouple growth & environmental degradation

SDG 11 Inclusive, safe, resilient and sustainable cities

- ☑ 11.b increase city policies for resource efficiency & climate change mitigation

SDG 12 Sustainable consumption and production

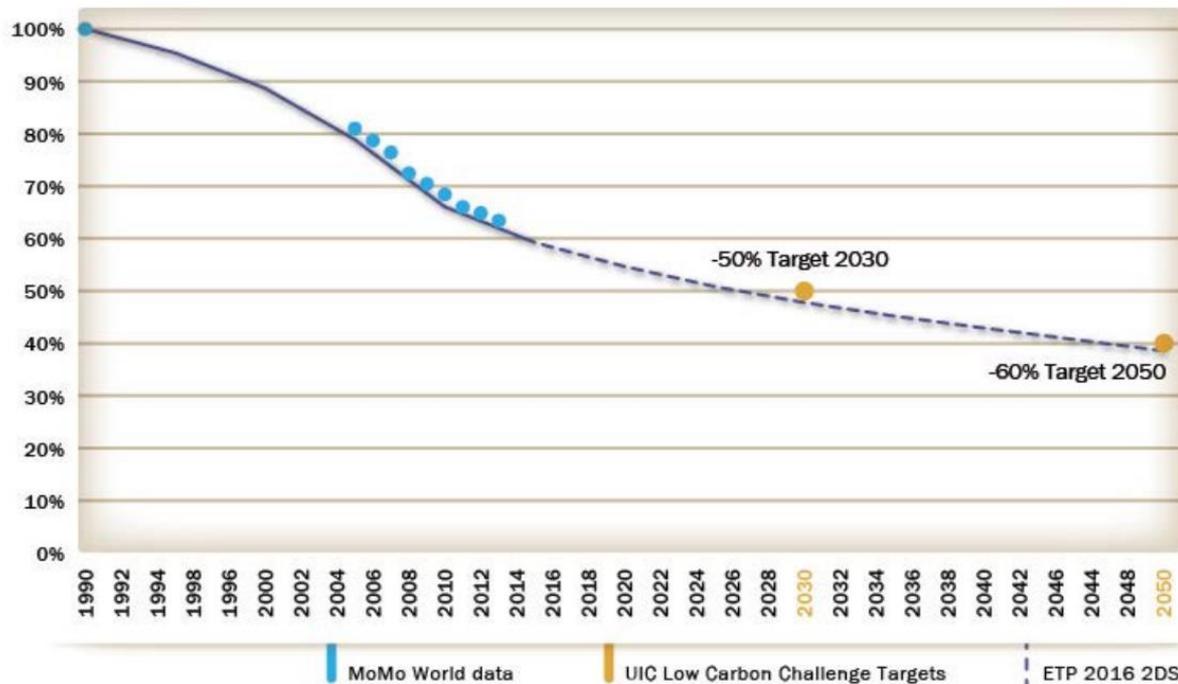
- ☑ 12.2 sustainable management and efficient use of natural resources

SDG 13 Climate change

- ☑ 13.2 Integrate climate change into national policy, strategy & planning
- ☑ 13.3 Improve awareness-raising and capacity on mitigation, adaptation

Improvements in energy efficiency are in line with IEA modeling of the 2 Degrees Scenario

World specific rail energy consumption evolution per traffic unit (TU) between 1990-2013 compared to 2030 and 2050 targets (1990=100)



Source: Elaboration by SUSDEF based on IEA (2016b), UIC (2015a) and UIC (2015d)

Since 1990, railway energy efficiency has improved by 37% and carbon emissions by 30% (per TU)

Modal shift (part 1)



SDG 3 Healthy lives

- ☑ 3.9 reduce deaths and illnesses from ... air pollution

SDG 8 Sustainable tourism

- ☑ 8.9 implement policies to promote sustainable tourism

SDG 9 Resilient infrastructure and sustainable industrialization

- ☑ 9.4 upgrade infrastructure, with increased efficiency and clean technologies
- ☑ 9.a Sustainable & resilient infrastructure development in developing countries

SDG 10 Reduce inequality within and among countries

- ☑ 10.7 Orderly, safe, regular and responsible migration and mobility of people

Modal shift (part 2)



SDG 11 Inclusive, safe, resilient and sustainable cities

- ☑ 11.2 access to safe, affordable, accessible and sustainable transport systems
- ☑ 11.3 inclusive and sustainable urbanization

SDG 12 Sustainable consumption and production

- ☑ 12.4 management of ... wastes to air... minimize impacts on health

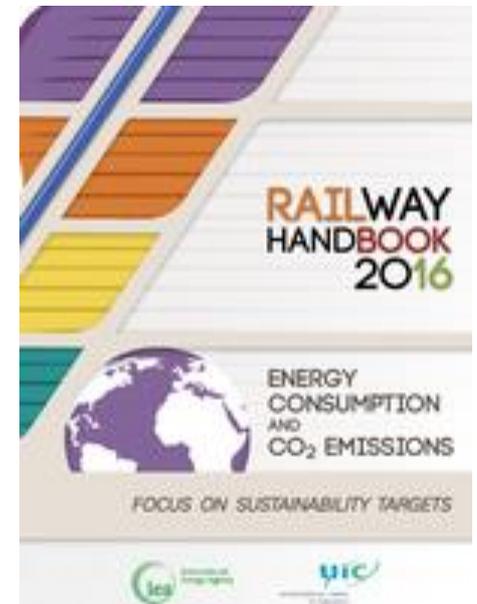
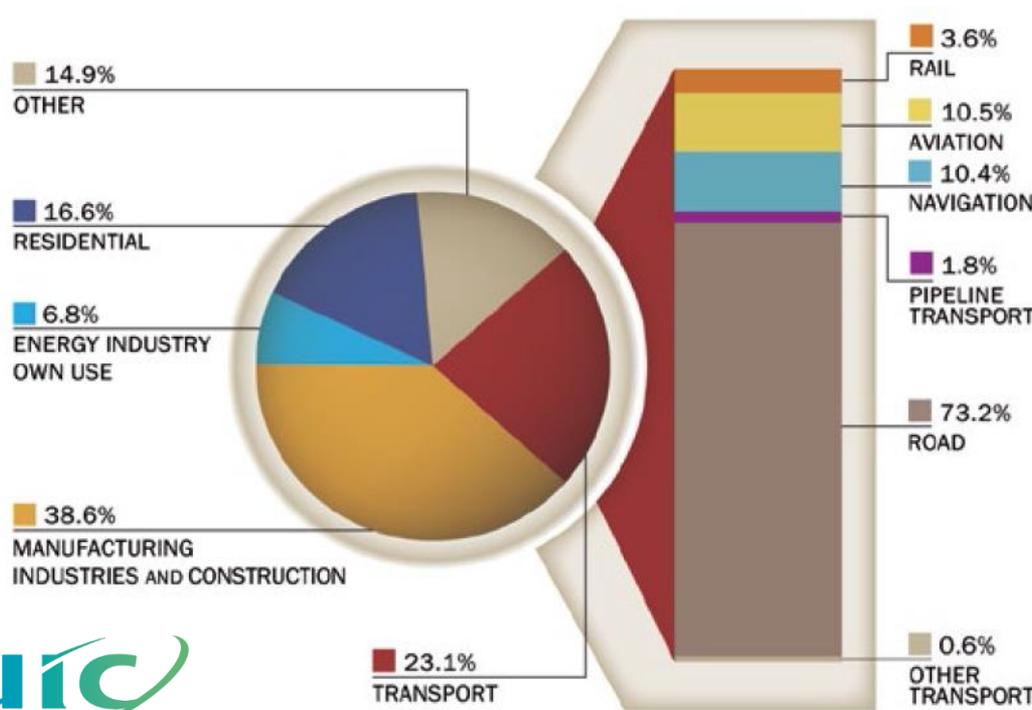
SDG 15 Sustainable use of ecosystems & halt biodiversity loss

- ☑ 15.9 Integrate ecosystem and biodiversity into planning & development

SDG 17 Partnerships

- ☑ 17.6 International cooperation on and access to technology and innovation
- ☑ 17.7 Transfer of environmentally sound technologies to developing countries
- ☑ 17.17 Effective public, public-private and civil society partnerships

Advocacy based on robust & credible data



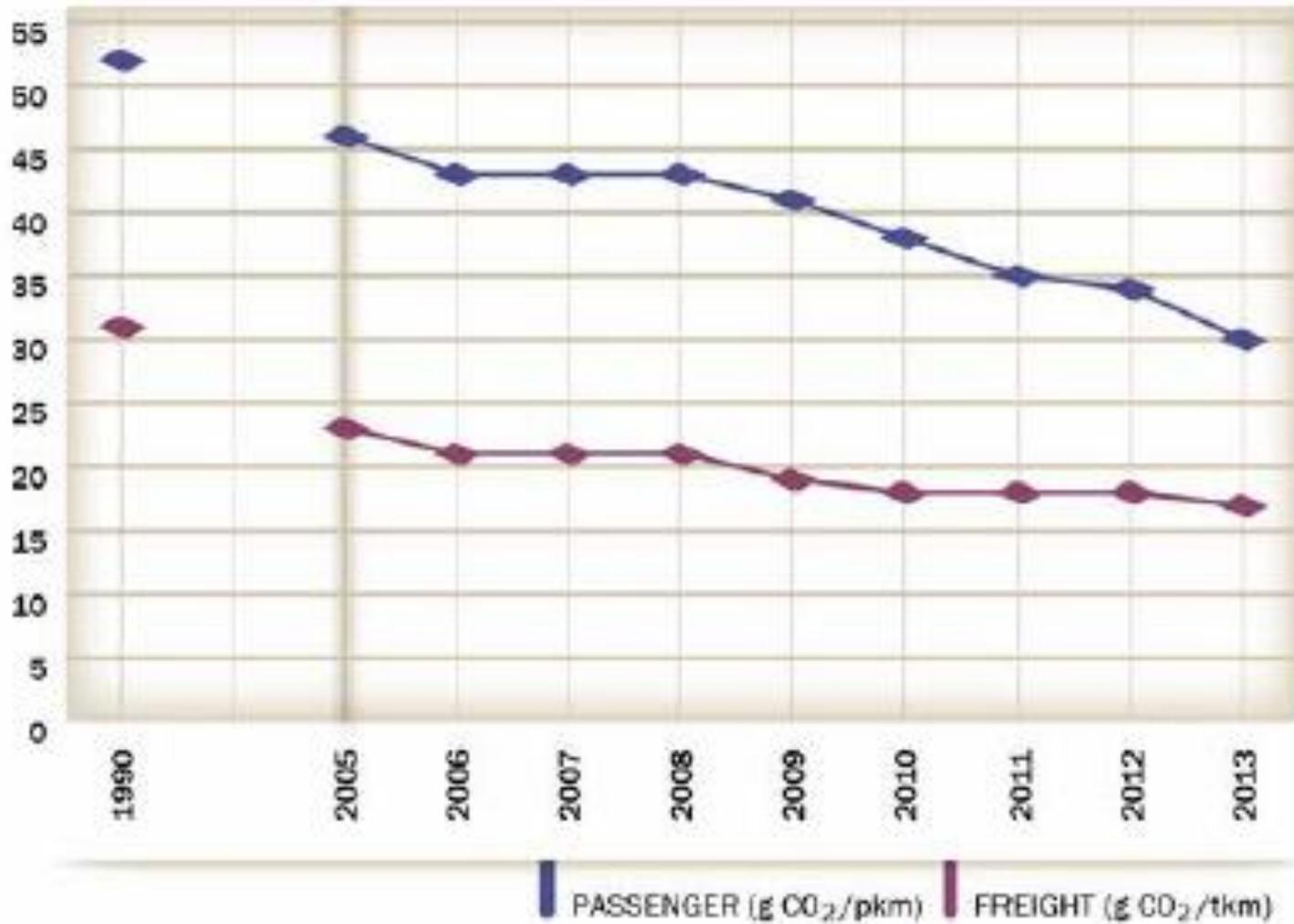
	Passenger PKM	Freight TKM	Total TU
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ROAD	82.7%	8.8%	31.3%
AVIATION	10.6%	0.7%	3.7%
NAVIGATION	0.3%	81.5%	56.8%
RAIL	6.3%	9%	8.2%



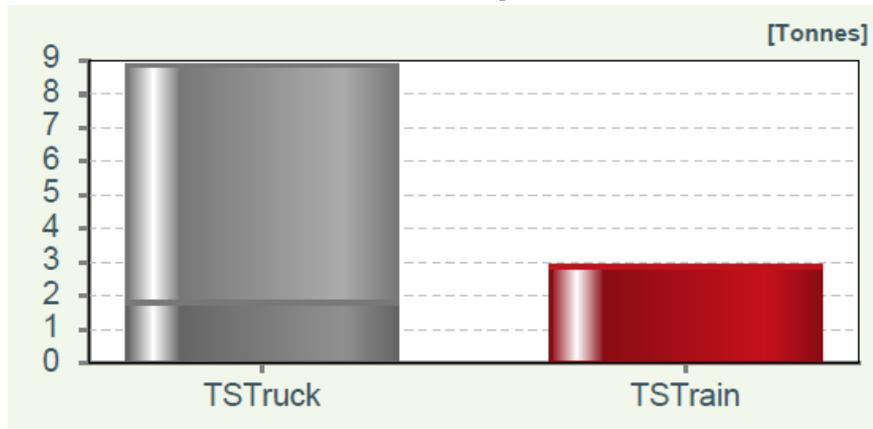
Reporting progress

Railway specific CO₂ emissions, 1990-2013

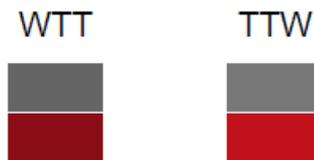




CO₂ (t) emission for 100t freight shipment from Astana to Almaty



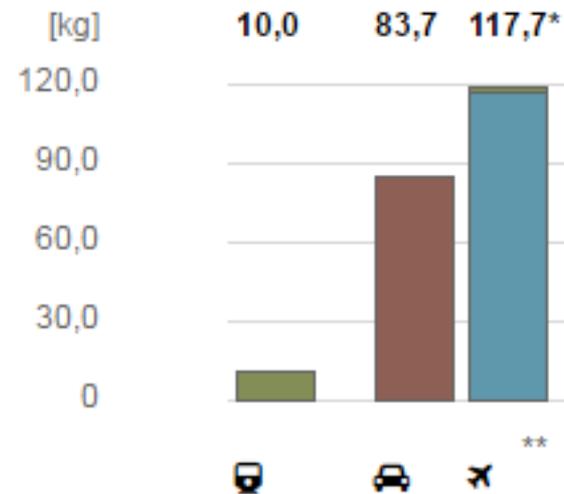
Truck:
Train:



www.ecotransit.org



CO₂ (kg) emission for passenger journey from Paris to Milan



Carbon dioxide
greenhouse-gas, global warming

www.ecopassenger.org



Sustainable Development - Case Study

KTZ – Kazakhstan Railways

MEDICAL TRAINS





Within corporate social liability of business structures before society, since 2010 the joint-stock company "National company "Kazakhstan Railways" realizes the charitable project on the organization of running is advisory - diagnostic medical

The project is implemented for the purpose of providing country people of the remote regions of the Republic of Kazakhstan with the mobile versatile specialized consulting and diagnostic and medical help.

Annually three trains drive out to the remote stations and departures: «Densaulyk», «Zhardem» and «Salamatty Kazakhstan».

All Trains are equipped with a modern diagnostic and curative equipment, and also highly skilled medical personnel.

From the beginning of realization of project the trains «Densaulyk», «Zhardem» and «Salamatty Kazakhstan» visited the 1 051 station. About 299 thousand habitants are inspected, including 71 209 children.

1 210 thousand diagnostic procedures are conducted:

- *275 171 ultrasonic researches of internalss;*
- *6 865 spiographies;*
- *57 154 echoencephalographies and ultrasonic dopplerographies of cerebrum;*
- *91 195 electrocardiographies;*
- *98 208 measuring of ophthalmotonus;*
- *68 976 roentgenologic researches;*
- *17 050 esophagogastroduodenoscopies;*
- *651 930 clinical biochemical analysis;*
- *4 313 small ambulatory operations;*
- *19 video medical consultations;*
- *44 000 women are examined by mammologist;*
- *a stomatological help is rendered to 72 000 habitants.*



The Medical Trains project is the project, unprecedented in the history of the country, which has given the chance to people of the remote and hard-to-reach spots of accommodation to receive highly skilled medical care.



Other examples of targets set by individual rail companies in Asia Pacific

7 CLEAN ENERGY	Companies	CO ₂ targets	Energy Targets
	INDIAN RAILWAYS Country: India Source: UNDP (2011)	Saving of 3.33 million tonnes of CO ₂ by 2020 (80% over the period 2011/12-2020/21).	Saving of 4.05 billion kWh by 2020.
12 RESPONSIBLE CONSUMPTION	JR-EAST Country: Japan Source: JR-East (2014)	Halving of CO ₂ emissions from its railway business by FY 2030 compared to FY 1990. CO ₂ emissions: -30% by 2021 relative to 1991.	Energy Consumption: -8% by 2021 relative to 2011.
13 PROTECT THE PLANET	JR-WEST Country: Japan Source: JR-West (2016)		Energy consumption rate (MJ/Rolling-stock km) -3% compared to FY 2011. 83% Energy-saving railcars as a percentage of total railcars in FY 2018.
	KORAIL Country: South Korea Source: KORAIL (2015)	GHG mid-term reduction goals: -8% by 2019 from 2015 levels.	
	RZD Country: Russia Source: RZD (2014)	Reduction of the negative environmental impact (CO ₂ emissions) by 7% in 2017 and by 15% in 2030 compared to 2012 (optimistic scenario).	



Other targets to be encouraged by UIC and its members in Asia Pacific



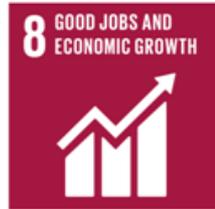
Formally integrate land-use and transport planning



Improve public transports, in general



Achieve significant shifts to more sustainable modes of inter-city passenger and goods transport



Diversify toward more sustainable transport fuels and technologies



Achieve improved freight transport efficiency



UIC & the UN Climate Change Agenda

Recent History, 2009-2016



Train to Paris policy recommendations

1

Prioritize transport emissions

It will not be possible to achieve the Intergovernmental Panel on Climate Change (IPCC) recommended “2 Degrees Scenario” without tackling transport emissions. All Intended Nationally Determined Contributions (INDC) should give thorough detailed consideration to transport.

2

Internalization of external costs

There is an urgent need for changes to transport policy, to introduce a consistent, fair policy framework that internalizes external costs.

3

Rebalance transport investments, to achieve a higher “carbon return”

1 US Dollar invested on 1 passenger-km in rail is 100 times more efficient than 1 US Dollar invested on 1 passenger-km in road in terms of CO₂ emissions.

4

Support electrification

The length of electrified railway lines has doubled in the period 1975-2011. Currently more than 21% of electricity comes from renewable sources, and this percentage increases every year.

5

Integrate rail stations into urban design and city logistics

Cities and megacities produce more than 70% of CO₂ emissions. The city centre location of railway stations enable effective intermodality through transfers to urban public transport services in addition to cycling, walking, car sharing and city logistics.

6

Support modal shift for freight transport, with simplification of border crossing and standardization across rail corridors

Simplification of border crossing and standardisation of the rail system for transport corridors is needed to promote a shift towards low carbon, efficient, multi-modal sustainable freight transport.



United Nations Secretary-General's High-level Advisory Group on Sustainable Transport



Members



Carolina Tohá
Mayor of Santiago, Chile
(Co-chair)



Martin Lundstedt
CEO, Volvo Group
(Co-chair)



Frank Appel
Chief Executive Officer, Deutsche Post DHL



Milica Bajic-Brkovic
President, Int. Society of City and Regional Planners



Morten Engelstoff
CEO of Services & Other Shipping, Maersk



Alain Flausch
Secretary-General, UITP



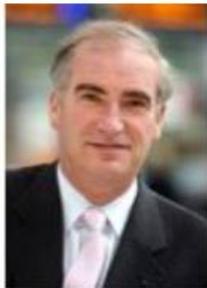
Tewolde Gebre Mariam
CEO, Ethiopian Airlines



Patrick Ho
Deputy Chairman and SG, China Energy Fund Committee



Victor Kiryanov
Deputy Minister of Interior, Russian Federation



Jean-Pierre Loubinoux
Director General, UIC



Maty Mint Hamady
Mayor of Nouakchott, Mauritania



Tanya Müller García
Secretary of Environment Mexico City



Len Roueche
Chief Executive Officer, Interferry



Elattuvalapil Sreedharan
Indian Engineering Service



Jose Viegas
Secretary-General, International Transport Forum, OECD



Nancy Young
Vice President, Environmental Affairs, Airlines of America



UIC, its missions

<https://www.youtube.com/watch?v=PbCCGQLrCb4>

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

Key Challenges in terms of

INNOVATION

STANDARDISATION

TRANSMISSION

DISSEMINATION

STRATEGIC ADVICE



UIC Asia-Pacific Vision 2050



Commissioned by Mr. Vu Vincent, Director Institutional Relations & Coordinator Asia-Pacific
 Author: Sustainable Development Foundation
 September 2015

STRATEGIC ACTION PLAN FOR UIC ASIA-PACIFIC

2016-2019
 UPDATED VERSION / MARCH 2016




**UIC RAILWAY
ASSET MANAGEMENT
CONFERENCE**

6-7 APRIL 2017
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Training Session 2017

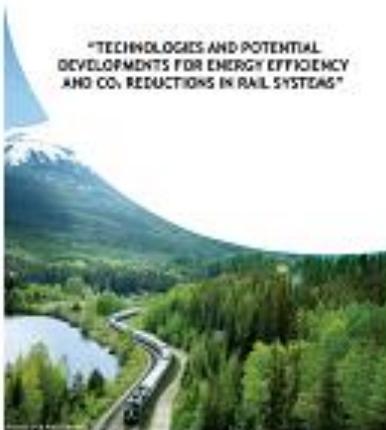
*Integrated Transport
and Logistics Planning
and Operations*



Seoul, Korea
24-28 April 2017



**"TECHNOLOGIES AND POTENTIAL
DEVELOPMENTS FOR ENERGY EFFICIENCY
AND CO₂ REDUCTIONS IN RAIL SYSTEMS"**




CHALLENGE 2050
 THE RAIL SECTOR VISION

<http://asia.uic.org/>



UIC MEMBERS SITUATION in ASEAN (February 2017)

UIC Members :



MALAYSIA



VIETNAM



INDONESIA

Next UIC Members :



MALAYSIA



THAILAND



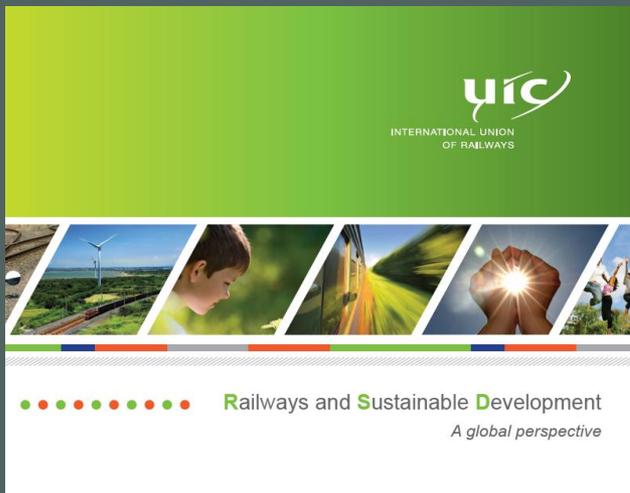
LAOS

February 2017



INTERNATIONAL UNION
OF RAILWAYS

unity, solidarity, universality



■ ■ ■ Thank you for your kind attention

Milko Papazoff, UIC

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*Tenth Regional EST Forum in Asia
16th March 2017*