



Promoting sustainable growth and combating global climate change

How the Luxembourg Rail Protocol to the Cape Town Convention
supports the United Nations' Sustainable Development Goals



Contents

	Page
Executive summary	3
The 2030 Agenda – the 17 Sustainable Development Goals	4
Sustainable transport drives sustainable development	4
Rail is the backbone of sustainable transport	5
The investment gap	6-7
The Luxembourg Rail Protocol delivers private sector financing for railway rolling stock	8
A rail-oriented future	8
Eliminating poverty and hunger, increasing health	9
Railways are vastly safer than roads	11
Economic growth – but not at any cost	14
Environmental action	15-17
Rail is the solution	18
The modal shift	19
Railways offer jobs and training	20
Manufacturing and new technologies	21
Sustainable cities and communities	22
Stronger institutions	23
The world needs the SDGs – and the Luxembourg Rail Protocol to help achieve them	24
Endnotes	25

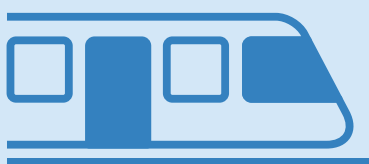


Executive summary

This study from the Rail Working Group examines how the Luxembourg Protocol to the 2001 Cape Town Convention on International Interests in Mobile Equipment (the Luxembourg Rail Protocol), once adopted, will play a significant role in promoting sustainable growth and combating global climate change in line with the UN's Sustainable Development Goals (SDGs).

To make the point most efficiently, this study only looks in detail at those SDGs where the impact of the Luxembourg Rail Protocol will be seen most directly: poverty, hunger, health and safety, work and economic growth, climate action, education, industry, innovation and infrastructure, sustainable cities and communities, strong institutions, and partnerships.

As outlined in *Mobilizing Sustainable Transport for Development*, the 2016 report by the UN Secretary General's High-Level Advisory Group on Sustainable Transport, partnerships between state and non-state actors, and the promotion of diversified funding sources and private sector investment, are critical for scaling up sustainable transport. This is precisely what the Luxembourg Rail Protocol will facilitate.



- > The international community has acknowledged that rail is the backbone of sustainable transport.
- > Due to the lack of sufficient public resources, rehabilitation and expansion of the railways will only be possible with private sector support.

Our core arguments are:

- > Rail-based transportation networks not only protect the environment, but also spur development.
- > By enabling and encouraging vastly expanded private sector funding for railway rolling stock, the Luxembourg Rail Protocol will contribute towards the growth of a much larger and more dynamic rail sector on every continent, which will be particularly significant in those countries and regions currently under-served by rail.
- > By supporting a modal shift from high-carbon, greenhouse-gas-emitting forms of transport (e.g. cars, trucks and aircraft) to railways, the Luxembourg Rail Protocol will promote the achievement of all the interlinked Sustainable Development Goals.



SUSTAINABLE DEVELOPMENT GOALS

The 2030 Agenda – the 17 Sustainable Development Goals

In 1992, the first United Nations Conference on Environment and Development, also known as the *Earth Summit*, was held in Rio de Janeiro. It was the culmination of a 20-year effort to define the UN's global sustainability agenda.

In 2015, the UN crystallised this mission into 17 interconnected global goals and 169 targets, known as the Sustainable Development Goals (SDGs). These came into force on January 1, 2016.

Their aim: to end poverty, protect the environment, and promote prosperity for everyone by 2030, through what is known as the 2030 Agenda.¹

What is sustainable development?

“ Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. ”

The Brundtland Report (Report of the World Commission on Environment and Development: Our Common Future), 1987

Sustainable transport drives sustainable development

Just as transport has long been acknowledged as a key enabler of economic growth, sustainable transport is now recognized as a vital driver of sustainable development, with a crucial role to play in holding back climate change and improving the lives of billions of people around the world.²

What is sustainable transport?

“ The provision of services and infrastructure for the mobility of people and goods - advancing economic and social development to benefit today's and future generations - in a manner that is safe, affordable, accessible, efficient, and resilient, while minimizing carbon and other emissions and environmental impacts. ”

Mobilizing Sustainable Transport for Development, Analysis and Policy Recommendations from the United Nations Secretary-General's High-Level Advisory Group on Sustainable Transport, 2016

SUSTAINABLE DEVELOPMENT GOALS





Rail is the backbone of sustainable transport

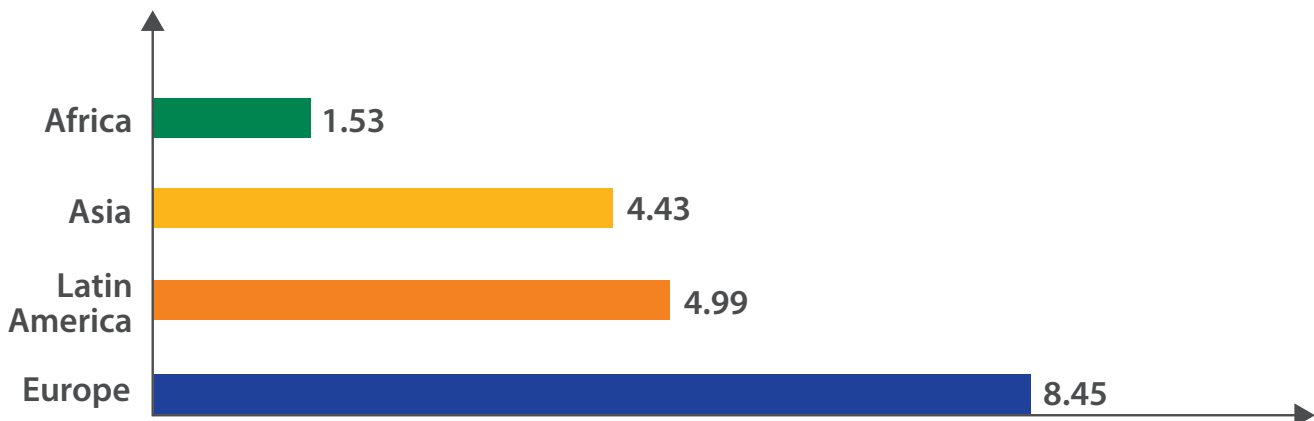
Amongst the various forms of motorized transport in operation, rail is accepted today as the basis for environmentally sustainable transport, with a core contribution to make towards mitigating climate change.³

Rail uniquely provides transport of people and freight that is environmentally sustainable, safe, efficient, reliable and affordable. It thus follows that improved and extended rail networks are essential for achieving the SDGs and reducing climate change.

However, while solid investment in rail is ongoing, with substantial rail projects both under construction and planned - many as part of the Belt and Road Initiative promoted and supported by China - there is obviously a very long way to go until the world has the level of rail infrastructure and equipment it needs, particularly in developing countries.

This is clearly illustrated by comparing rail density around the world:

Comparative rail density: km rail lines per 1000 km² total land area



Source: AfDB statistics and World Bank WDI database, 2013



The investment gap

According to the McKinsey Global Institute, to keep pace with projected growth, the world needs to invest USD 3.3 trillion annually on economic infrastructure (transportation, power, water, and telecoms). Rail accounts for about 10% or USD 330 billion of this.⁴ But with annual infrastructure investment of (only) USD 2.5 trillion, there is a global shortfall of USD 800 billion a year. Extrapolating these figures gives an annual investment gap for rail of USD 80 billion.

Investment in railways is urgently needed

The International Union of Railways, UIC, comments in its 2017 analysis of global rail projects⁵: “While investments in high-speed and metro networks are already going in the right direction, there appears to be a significant lack of investment for regular heavy rail, particularly commuter rail. The investment gap is especially large for low- and mid-income countries with quickly urbanising societies...”

Governments cannot carry the financial burden alone

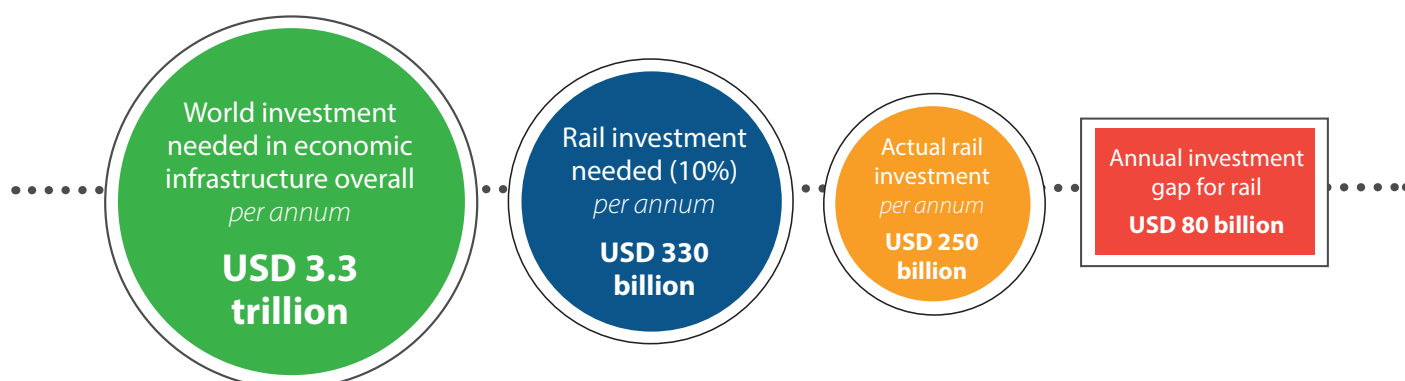
So there is broad acceptance that new rail infrastructure and equipment is urgently needed, particularly in developing countries. Given rising state indebtedness around the globe, however, it is also evident that governments cannot shoulder the

financial burden alone. Indeed, a 2019 report carried out for the Rail Working Group by global strategy consultants Roland Berger reveals the steady but limited withdrawal of state funding in Europe for procurement of new rolling stock.⁶

While infrastructure usually requires state involvement, by contrast railway rolling stock, like cars and trucks, does not have to be state financed or underwritten. It is here that private sector financing can relieve governments of a major financial burden.

Slow progress on private financing

The theory is sound, and the Berger report indicates a growing trend for the private sector to provide additional finance into the rail industry. But progress is far too slow. According to the report, over three quarters of European rolling stock procurement is still either state financed or underwritten, and this is restricting necessary investment because of government budgetary constraints and borrowing limits. In other parts of the world, but outside North America, the level of state involvement is even higher. Why is there so little private financing?





Risk is holding back private investment

The main reason is that the private sector is being asked to carry risks that are either unquantifiable or unduly burdensome. As a result, without strong state or commercial guarantees, private sector secured lenders and lessors are either reluctant to provide finance, or it becomes prohibitively expensive, especially if the assets being financed move across national borders.

The solution to this is for creditors to have a legal framework that enables them to:

> Enforce their rights and security in the financed assets

> Repossess these assets on debtor non-payment or insolvency no matter where the assets are located, and independent of state guarantees.

There are two other associated factors currently holding back private investment:

- > Absence of a unique global identification system for railway rolling stock
- > Lack of any public registry to record security interests in railway rolling stock



This is where the Luxembourg Rail Protocol to the Cape Town Convention comes in, because it substantially reduces the risks for private investors.



The Luxembourg Rail Protocol delivers private sector financing for railway rolling stock

The Luxembourg Rail Protocol is a new international treaty due to come into force in 2020, which creates a worldwide legal framework to protect private sector investment in railway rolling stock. It will establish an international registry to record security interests, accessible 24/7 online, and facilitate the registrar allocating a unique vehicle identifier for any item of rolling stock worldwide under a new unique rail vehicle identification system (URVIS).

As such, the Luxembourg Rail Protocol is a 'package of solutions' designed in cooperation with the rail industry and the finance community for a new era of railway expansion.



Because it removes the major hurdles to private sector investment in a key part of the rail industry, when adopted, the Luxembourg Rail Protocol will attract more private investors (such as banks, pension funds, insurance companies, and private equity funds) to the rail transportation sector.

The availability of cheaper, more abundant, and more accessible funding for railway rolling stock will allow networks of all kinds (intra-urban, urban, regional and international) to expand and fulfil their mission to support sustainable economic growth and protect the climate under the SDGs.

Major microeconomic benefits

According to Oxera Consulting LLP, which examined the direct microeconomic benefits of the Luxembourg Rail Protocol, savings (at present value) due just to the reduction in transaction and financing costs achieved by the Luxembourg Rail Protocol will amount to over:

EUR 19 billion | for 20 countries in Europe

EUR 13.9 billion | for 9 CIS states using the 1520mm gauge

EUR 1.3 billion | for South Africa⁷
(ZAR 20 billion)

A rail-oriented future

Although a key feature of the SDGs is that their success is deeply interdependent, there are several SDGs where the Luxembourg Rail Protocol can make a significant, direct difference through enabling the expansion of railway networks and the purchase of railway rolling stock of all kinds – from high-speed trains, to freight and passenger trains, to metros, light rail, trams, and even cableways, gantries and cranes on rails.

We will examine these SDGs in turn.



SUSTAINABLE DEVELOPMENT GOALS

Eliminating poverty and hunger, increasing health

The first three SDGs are concerned with fundamental issues:

.....

Goal 1: No poverty

.....



.....

Goal 2: Zero hunger

.....



.....

Goal 3: Good health and well-being

.....



Poverty, malnutrition, and poor health both hinder growth and drive instability across the globe. To take just one example of how the SDGs aim to tackle these issues: the UN sees a reinvigorated agricultural sector as critical to feeding the world's poor and hungry both today and in future.⁸ In order to double agricultural productivity in the developing world, among many other measures it has set targets to improve rural infrastructure and access to markets. This necessarily means improved transport.

With reference to health, the SDGs aim to halve traffic deaths and substantially reduce pollution-induced deaths by 2020 – sooner even than the 2030 deadline set for most SDGs.



Road fatalities

According to the World Health Organization's Global Status Report on Road Safety

OVER

1.35 million

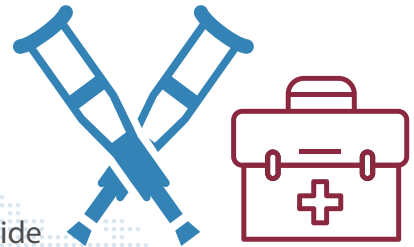
people died in road accidents in 2016



UP TO

50 million

people were injured worldwide



The impact on society is enormous. The report⁹ notes that:



More people die

as a result of road traffic injuries than from HIV/AIDS, tuberculosis or diarrhoeal diseases

Road traffic injuries are currently the

leading cause of death

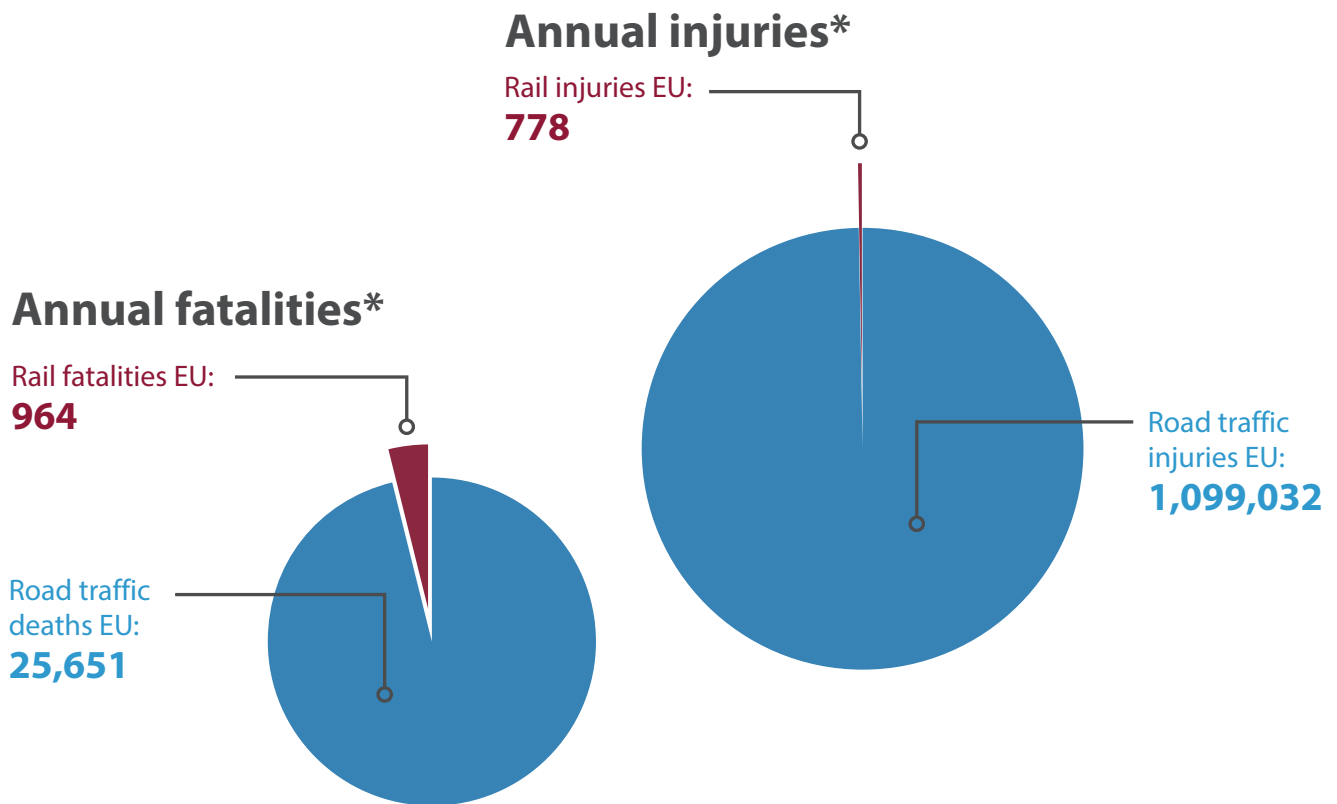
for children and young adults aged 5-29 years





Railways are vastly safer than roads

Figures from Eurostat¹⁰, the statistical office of the EU, make it very clear how much safer railways are than roads:



*2016 - latest comparable figures available

Rail fatalities, which mostly involve unauthorized access, or take place at level crossings (only 44 of the EU rail fatalities in 2016 were passengers), represent just 3.7% of deaths on the roads in the EU. There are even fewer rail injuries than road traffic injuries, which cause enormous pain and suffering to individuals and their families, and damage to the wider economy as well.

Note: It is true that many more passenger kilometres are travelled by car, coach and trolleybuses. Nonetheless, while total fatalities on the railways in 2016 represented 3.62% of combined road and rail deaths, and 0.07% of combined road and rail injuries, passenger transport by rail constituted 7.7% of total passenger-travelled kilometres.



Air pollution from traffic

The World Health Organization reports

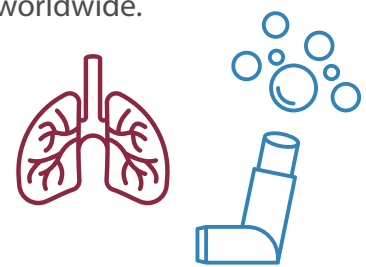
4.2 million premature deaths each year as a result of exposure to ambient (outdoor) air pollution, including from transport sources.¹¹



A study in *The Lancet Planetary Health* in April 2019¹² reveals

4 million

new childhood asthma cases a year can be attributable to NO₂ pollution (from road traffic and fossil fuel combustion), accounting for 13% of cases worldwide.



While some differences between regions, countries and cities can be attributed to data availability, an important outcome of this meta study is the evidence that existing WHO standards are not protective against childhood asthma:

92%

of the childhood asthma incidence attributable to NO₂ exposure was in areas with NO₂ concentrations below the values of the WHO's annual average guidelines.



Road congestion

The roads carrying our most precious freight (passengers) are not only dangerous to health, they are also increasingly congested. As the INRIX Global Traffic Scorecard¹³ shows, road traffic gridlock costs cities and countries across the globe billions of dollars every year. Furthermore, all over the world, and particularly in developing countries, roads are collapsing and in dire need of repair due to overuse by heavy trucks and buses, representing huge economic costs.

Moving traffic from road to rail is obviously the ideal way to meet these challenges, particularly if the locomotives used are powered by environmentally clean sources.



By stimulating growth in rail, the world's safest means of transportation, the Luxembourg Rail Protocol will enable farmers to more easily bring their goods to market and thereby improve their income and opportunities.

It will also help to save hundreds of thousands of lives a year through providing an ecologically sustainable alternative to road transport that:

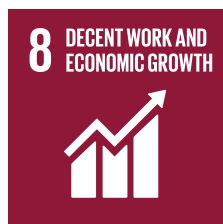
- > Avoids road traffic accidents*
- > Reduces noise and dangerous air pollution (from both gases and particulate matter)*
- > Lessens costly road congestion*
- > Slows down the destruction of overused road networks*



Economic growth — but not at any cost

Sustainable economic growth is the key to a brighter future

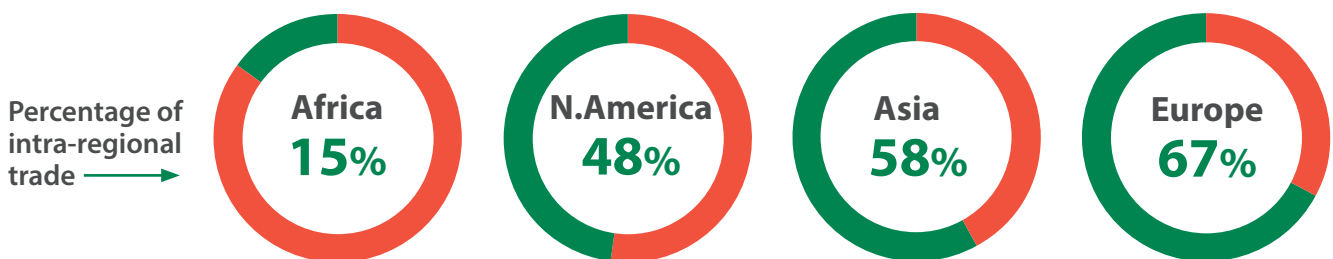
Goal 8: Decent work and economic growth



Economic growth cannot take place without having the right infrastructure in place. The road systems in many developing countries are already under the strain of meeting existing transport needs. Ambitious plans to expand mining and other commodity industries, as well as manufacturing, cannot succeed without an efficient, affordable, reliable and sustainable way to get goods to customers.

Looking at Africa as an example, the comments by Soteri Gatera, Chief of Industrialization and Infrastructure at the UN Economic Commission for Africa, could not be starker: "A lack of integrated African rail networks is holding back African growth and intra-continental trade."¹⁴ Africa's particularly low level of intra-regional trade is very clear:

Intra-regional trade (percentages)



Source: UN Economic Commission for Africa

As pointed out in an article in *Railways Africa*¹⁵ on the development of the African Continental Free Trade Area (AfCFTA), more railways will drive economic growth and support the higher levels of intra-continental and international trade needed by Africa (and other developing continents) to raise the living standards of their fast-growing populations. Bold projects like the North-South Rail Corridor linking six countries from the DRC to South Africa illustrate the acceptance of railways as the key to sustainable intra-regional trade. (Unfortunately, while the line is open, it is not yet working efficiently, due to unwillingness to allow rolling stock to cross national borders. This should change once the Luxembourg Rail Protocol is in place.)

But with governments unable or reluctant to take on more debt, the only way to get the rolling stock required is to use private sector financing.



The Luxembourg Rail Protocol will make private sector rail financing more achievable and affordable.

Indeed, based on experience with the long-established Aircraft Protocol to the Cape Town Convention, export credit agencies should offer a discount on their risk premiums of at least 10% in relation to debtors located in countries signed up to the Luxembourg Rail Protocol.

The Luxembourg Rail Protocol's common legal framework will also aid regional integration, as operators and financiers will feel secure about rolling stock moving across jurisdictions.

Environmental action

Many of the 17 SDGs have an explicitly environmental intent. Our need for a greener future is urgent and unavoidable, as the work of the UN's Intergovernmental Panel on Climate Change (IPCC) and the Paris Agreement make clear. Carbon dioxide and greenhouse gas emissions continue to rise, and their growing impact on the world's climate cannot be ignored. While environmental sustainability is a feature of almost all SDGs, climate change is particularly highlighted in two of the main goals:

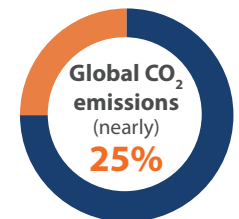
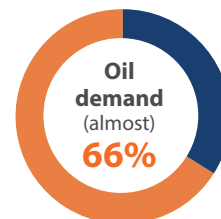
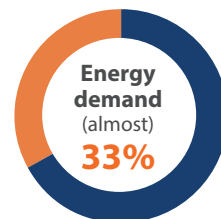
**Goal 7:
Affordable and
clean energy**



**Goal 13:
Climate
action**



The challenge is unmistakable: how to move towards low- or zero emissions without sacrificing economic growth? There is no doubt that the transport industry must be at the centre of any solution. Why? According to the International Energy Agency (IEA), the transport sector overall is responsible for:



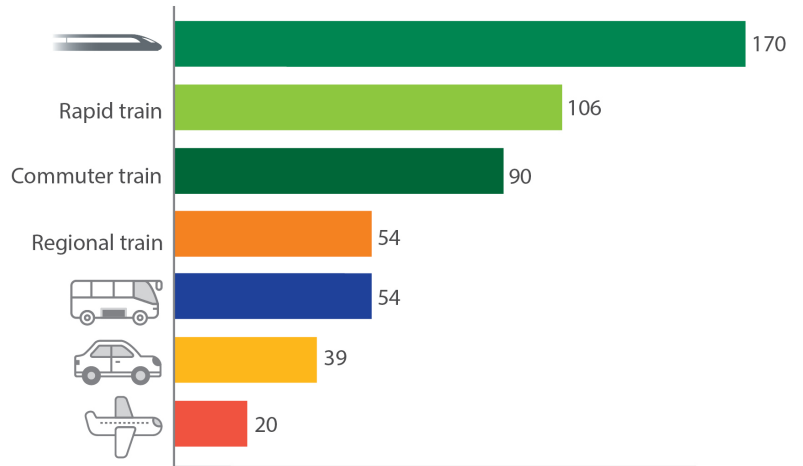


This makes transport a key focus for reducing energy use. But it is important to note that not all modes of transport are the same in terms of **energy efficiency** and emissions.

Energy Efficiency

Passenger-kilometres carried per unit of energy (1kwh = 0.086kpe)

Source: EEA (2018)

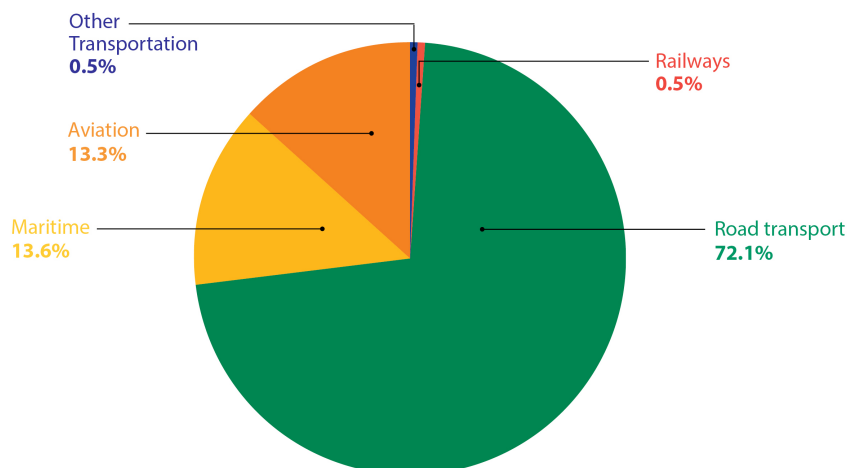


Private vehicles, which mostly run on petrol or diesel fuel, are the main contributors to climate change through their emissions of long-lived carbon dioxide and short-lived black carbon (generally the product of diesel vehicles). Black carbon emissions not only have a comparatively stronger warming effect, but also disproportionately contribute to particulate

matter pollution, which is "most closely associated with increased air-pollution related mortality." ¹⁶ The World Health Organization reports that the transport sector "is the fastest growing contributor to climate emissions." ¹⁷ Emissions from transportation increased by 2.5% annually from 2010 to 2015. ¹⁸

EU (Convention) — Share of transport greenhouse gas emissions

Source: EEA (2018)



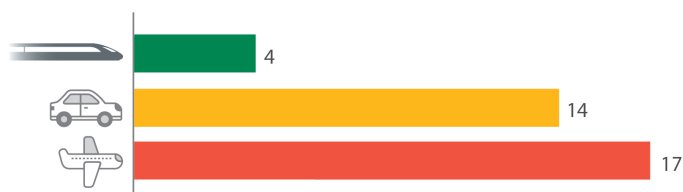


Rail volumes up, emission levels down

The rail sector, however, is bucking this trend, and the gradual increase of freight and passenger transportation by rail is making an important contribution to the reduction of overall emission levels. Whereas a lorry requires approximately 2.214 megajoules (MJ)¹⁹ of energy expenditure per kilometre to move 1 ton of goods, a freight train only needs 0.295 MJ. Even a crammed four-person car-pool is 58% more polluting (in terms of pounds of CO₂ per passenger mile) than light rail at full occupancy.²⁰ With further investment and research, rail looks set to become the first zero-emission mode of transport. Markus Hecht, a rail specialist teaching at the Technical University of Berlin, argues that the ongoing introduction of automatic coupling and four-axle bogies could more than double the current power of regenerative braking systems. This would inevitably lead to large reductions in braking emissions, as well as increased energy efficiency.²¹

CO₂ Emissions

Kilograms of CO₂ emissions per 100 passenger-kilometres
Source: EEA (2018)



Rail has four more advantages:



- 4 } - Higher capacity
 - A smaller footprint
 - Immediate availability
 - Less use of resources

Capacity and footprint

Rail's superior capacity makes it ideal for fighting congestion, a key form of noise and air pollution. Furthermore, rail requires much less space to move people and goods than roads. One train can carry the same amount of freight as 50 trucks. And a recent report suggests that a 9m-wide metro railway track bed can carry the same number of passengers as a 175m-wide road used by cars. The potential benefits for urban planning and smog reduction are evident.

Availability

Full deployment of electric vehicles (EVs) and connected and automated vehicles (CAVs) will take several years. Rail solutions, however, can provide immediate and proven answers to the challenges of reducing urban pollution and improving air quality.²² Simply put, rail is the best way to reverse climate change sooner rather than later.

The environmental and health benefits don't stop there. While the adoption of electric road vehicles must be encouraged, they are not fully green technologies. Tyres and brakes produce significant particulate air pollution. And electric vehicles neither address the challenge of congestion and road-related injuries, nor the need for healthier and more active means of travel.

Resources

The durability and longer lifetime of rolling stock is another important factor. When compared with private passenger cars, rolling stock typically has a longer service life, with an average lifespan of 30-35 years. There are also many 60-year-old reconditioned locomotives still operating. Furthermore, the annual mileage of rolling stock is often a high multiple of that of a car. Shifting from cars to rail will result in a massive reduction in raw material requirements. More people will be transported using fewer resources. The potential benefits to the environment are undeniable.



Rail is the solution

Unlike other types of transport, the rail sector is part of the solution to climate change – not part of the problem. For example, while the rail sector carries 8% of the world's passengers and 7% of global freight, it uses only 2% of total transport energy, proving its exceptional energy efficiency credentials.²³

As IEA Executive Director Dr Fatih Birol has stated, "The rail sector can provide substantial benefit to the energy sector as well as the environment. By diversifying energy sources and providing more efficient mobility, rail can lower transport energy use and reduce carbon dioxide and local pollutant emissions."²⁴

Rail is responsible for just

2%

of CO₂ emissions for passenger transport²⁵

3%

of emissions for freight transport²⁵



Rail's environmental advantages are clear:

Since 1990, railway energy consumption has improved by

37% per transport unit²⁶

and railway carbon emissions have improved by

30% per transport unit²⁶

This is on target to meet the objectives of the Paris Agreement on Climate Change, as well as the voluntary targets announced in the UIC Low Carbon Rail Transport Challenge presented at the 2014 UN Climate Summit.²⁶

Electrification has expanded to cover

33%

of the global rail network²⁷

Electricity now powers almost

45%*

of all rail activity²⁷

Renewable energy powers over

20%

of electric powered trains²⁷

* Obviously, the key here is to switch to non-fossil sources of electricity.

Today, rail is

3x less polluting than road travel & **4x** less polluting than air travel Source: EEA (2018)

By using green energy based on wind or hydropower, or hydrogen-powered locomotives, railways can become zero carbon operators, achieving more transport activity without emissions.²⁸

By comparison with roads and motorways, rail systems use far less land, thus not only improving resource efficiency but also helping to maintain biodiversity.

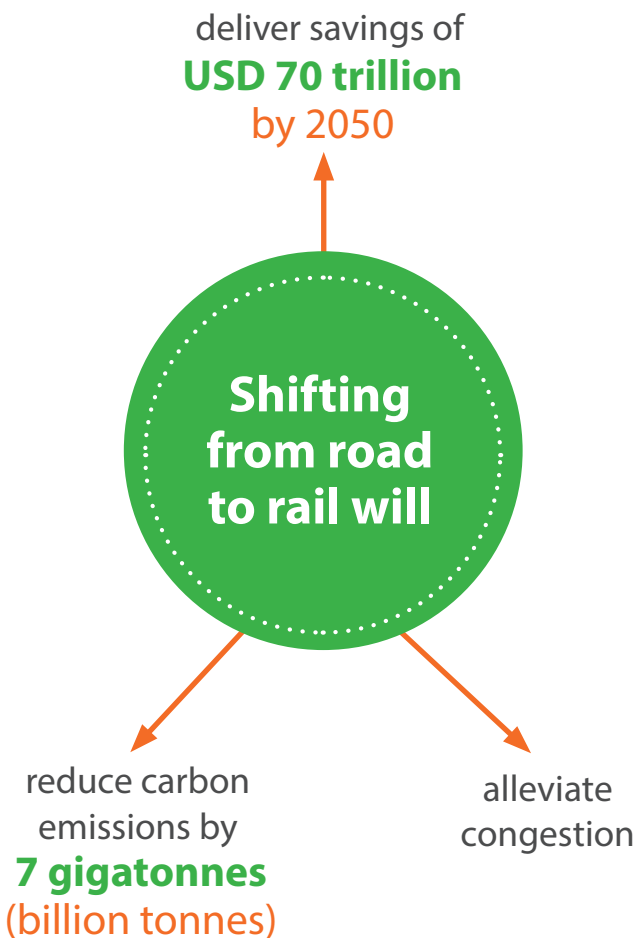


The modal shift

It is crucial for the rail sector to increase its market share so that future transport demand can be met without further damaging the environment. This means a modal shift from road traffic and other high-carbon and greenhouse gas emitters to rail.

According to the IEA, taking into consideration full transport costs including fuel, operational expenses and vehicles, through shifting from road to rail, sustainable transport can deliver savings of USD 70 trillion by 2050, while reducing carbon emissions by 7 gigatonnes (billion tonnes) and alleviating congestion.²⁹

As we have already seen, a shift from road to rail will also increase safety and remove a source of pollution that shortens millions of lives.



Once in place, by reducing creditor and operator risk, the Luxembourg Rail Protocol will facilitate more and cheaper private finance to support new rolling stock procurement and help lower barriers to entry for smaller, lightly capitalised operators.

It will also create choice and flexibility for public and private operators on the cost and type of funding, and enable governments to deleverage state operators' rolling stock portfolios by refinancing with private capital. This will make a decisive contribution towards strengthening the rail sector and increasing its market share.



SUSTAINABLE DEVELOPMENT GOALS

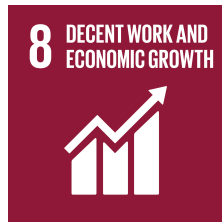
Railways offer jobs and training

SDGs 4 and 8 focus on education, training and jobs. Despite the fact that rail automation is increasing and there are reductions in the number of personnel on some trains in some countries, the expansion of railways around the world promises vastly increased job opportunities as well as technical and vocational training in the rail sector. It also supports employment in the wider economy.

Goal 4: Quality education



Goal 8: Decent work and economic growth



A joint study by CER, the Community of European Railway and Infrastructure Companies, and economic consultants Ecorys, concluded that demographic changes will spur the hiring of young people, and railway operators will continue to play a sizeable role in providing technical and vocational training. The report also showed that despite the 2008 crisis, in Europe "railway companies have retained existing staff members and hired new ones."³⁰ To show some more examples:

Brazil

Five private railroad concessions up for renewal will potentially generate:

100,000
direct jobs

50,000
indirect jobs ³¹

India

The Mumbai-Ahmedabad High-Speed Rail project is expected to produce:

4,000 (operations and maintenance)
direct jobs

16,000 (employment opportunities)
indirect jobs ³²

As the rail industry becomes increasingly IT-enabled, this will also make it easier and more attractive to hire female workers.

Numerous studies have confirmed the essential role of the rail sector for the labour market overall. Expanded rail connections not only impact positively on job creation, they also help to protect societies' most vulnerable citizens. Public transport is crucial for people without private vehicles who need to travel for employment.



By drawing private financing into the railway sector and allowing it to expand and develop new technologies, the Luxembourg Rail Protocol will help to further energize these efforts, boosting railways as an important employer and as an enabler of employment in other industries.

Furthermore, since lessors of rolling stock can also be expected to demand better maintenance of their equipment, which will now be much easier to track and manage thanks to the unique rail vehicle identification system established under the Luxembourg Rail Protocol, as well as new tracking technology, this will translate into more local maintenance centres offering employment and training opportunities, and significant skills transfers in countries expanding their rail networks.



SUSTAINABLE DEVELOPMENT GOALS

Manufacturing and new technologies

The growth of industry and manufacturing is clearly linked to economic development and many of the SDGs. How are railways and the Luxembourg Rail Protocol involved in this?



Goal 9:
Industry, innovation and infrastructure

Railway rolling stock manufacturers are constantly innovating. Cutting-edge technologies include not only better wagons and locomotives, but also improved railway tracks, signalling and station infrastructure.



The Luxembourg Rail Protocol will attract more domestic and foreign capital investment into the rail industry, which will enable the purchase of more efficient rolling stock and stimulate the development and manufacture of innovative wagons and locomotives with new technologies to meet the industry's sustainability goals.

More investment in rolling stock will also lead to more efficient use of existing rail infrastructure, and support both new and rehabilitated lines.

Another aspect of the Luxembourg Rail Protocol is that it will facilitate operating leases of rolling stock, which in turn is expected to lead to more standardised equipment and economies of scale for manufacturers, resulting in significant cost savings.

Some state-of-the-art examples include: →

Regenerative braking

which returns energy to the grid when trains slow down

Supercapacitor trams

which run on rechargeable batteries and eliminate expensive overhead catenary

Low-noise rolling stock

Automated train operation

High-speed trains

Automatic coupling systems

Artificial intelligence and platooning

(when several train sets run on the same track just 50m apart, possible thanks to AI controls)

Real-time rolling stock location and diagnostic systems

Variable-gauge rolling stock

Positive train control

(e.g. the European Rail Traffic Management system)

Hybrid, clean diesel & hydrogen/fuel cell locomotives – the ultimate low carbon transport (when hydrogen is produced using green electricity)



Sustainable cities and communities

Urbanization, the shift in residence from rural to urban areas, continues to grow as never before. The United Nations in 2009, and the International Organization for Migration in 2015, estimated that around 3 million people move to cities every week.



Goal 11: Sustainable cities and communities

While today, 55% of the world's population lives in urban areas, this is projected to rise to 68% by 2050. About 90% of this growth will take place in Africa and Asia.³³ By 2030, the world is projected to have 43 megacities with more than 10 million inhabitants, mostly in developing regions.

Unless we take urgent action, congestion, air pollution, greenhouse gas emissions, lengthy commutes, noise pollution, and more traffic accidents will be the result.

So a key target under this goal is to provide safe, affordable, and sustainable urban (public) transport systems for all, and to improve road safety, notably by expanding public transport, by 2030.

Urban rail systems – such as metros, trams and light rail systems – are frequently electrified, meaning that local emissions of greenhouse gases are close to zero (although reducing brake dust is an ongoing challenge). Such railways will be a vital part of the transport mix to achieve this target for greater public transport in an environmentally sustainable and efficient manner.

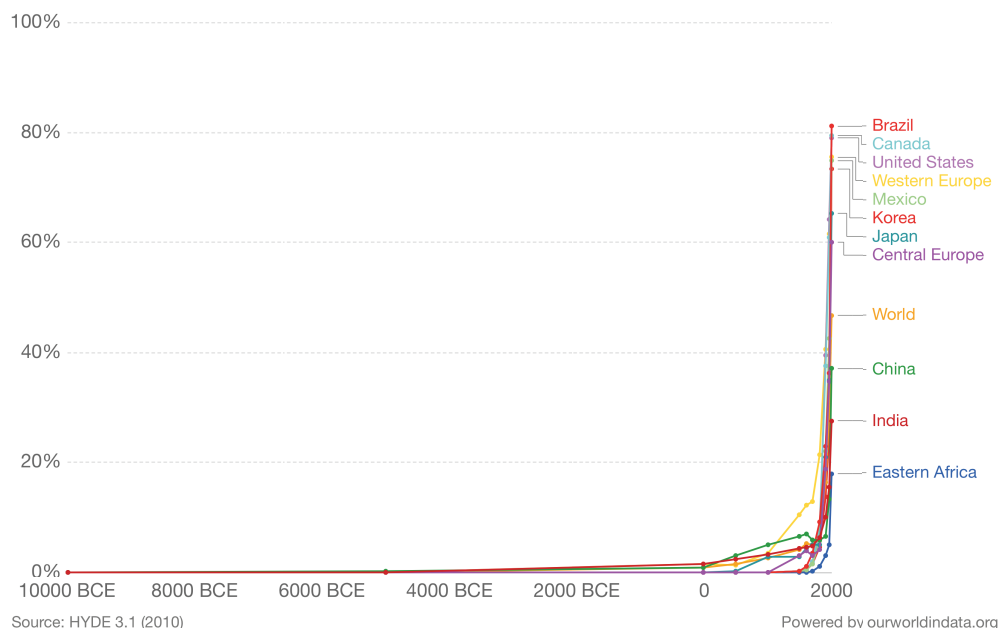


Here again, the Luxembourg Rail Protocol will open up opportunities to use the private sector to fund the necessary investments in rolling stock to ensure high-capacity, environmentally friendly, safe and pollution-free transport within and between cities.

Our World in Data

Share of the population living in urbanized areas

Share of the total population, in a particular region or country, who live in urbanized areas.





Stronger institutions

A core feature of the SDGs is their focus on the mobilization of financial resources for capacity building and technological progress.



Goal 17: Partnerships to achieve the goal

According to the UN, “urgent action is needed to mobilize, redirect and unlock the transformative power of trillions of dollars of private resources to deliver on sustainable development objectives. Long-term investments, including foreign direct investment, are needed in critical sectors, especially in developing countries. These include sustainable energy, infrastructure and transport The public sector will need to set a clear direction.”³⁵



The aim of the Luxembourg Rail Protocol to encourage private sector investment in the railway industry fits this focus exactly.

The developing world has long suffered from both unsustainable public sector debts and inadequate access to private credit. The Luxembourg Rail Protocol seeks to reverse this.

It will deliver a market that will be more transparent, fair, and reliable, while providing governments with private sector financial support within a legal framework that ensures flexibility and control.



Goal 16: Peace, justice and strong institutions



The Luxembourg Rail Protocol is a protocol to a well-established international treaty, the Cape Town Convention on International Interests in Mobile Equipment. At its core is a strong, common international legal framework and two supporting structures:

- 1) The introduction of a unique rail vehicle identification system (URVIS) that will:**
 - > *be critical for registering creditor security interests in rail equipment*
 - > *make it easy to track the location and status of rolling stock in real time*
 - > *support customized maintenance programmes*
 - > *let governments more effectively monitor the cross-border operation and interoperability of railway equipment running on regional or continental rail networks*
- 2) The establishment of the world's first international public registry of security interests in railway rolling stock. This will be accessible online 24/7 for financiers to register their interests in financed equipment and check for potential prior claims.**

These features of the Luxembourg Rail Protocol will produce a cheaper and more transparent system of railway financing and thereby contribute to accomplishing SDG 16.



The world needs the SDGs — and the Luxembourg Rail Protocol to help achieve them

The United Nations has formulated sustainable development goals that may seem overly ambitious. But this notion is flawed and defeatist. The gravity of our needs and the necessity of these goals were excellently summarized by former Secretary General Ban Ki-moon: “We don’t have plan B because there is no planet B!”³⁶

Rail is the best hope for the global transport sector to deliver sustainable environmental growth while mitigating climate change and supporting the aspirations of people and governments in all parts of the world.

Achieving the SDGs will require massive investment, but the public sector cannot carry the burden alone. Private finance is needed, which must be at affordable rates if it is to fill the gap. This means that lenders and lessors must have security that their rights will be upheld in law, with practical systems in place to regulate and support this.



These requirements will now be met by the Luxembourg Rail Protocol which, by offering a common system worldwide, makes it easier for foreign investors to understand local legal conditions and thus more willing to lend at affordable rates to operators in countries they may previously have avoided.

The Luxembourg Rail Protocol will reduce the cost of both international and domestic private finance:

- > *More credit will be available – from both foreign and domestic lenders - leading to a more competitive lending environment and thus to lower lender margins.*
- > *Lower risks will mean that banks will have lower capital allocation requirements, which will lead to lower margins charged to borrowers.*
- > *The lower risks involved thanks to the Luxembourg Rail Protocol will mean that lower rewards are required by creditors, allowing them to reduce costs for borrowers.*
- > *Thanks to lower risks, there will also be lower export credit agency financing costs.*
- > *Documentation will be easier and faster to produce – reducing transaction costs.*

Altogether, this will lead to lower barriers to entry for operators and other stakeholders, making the rail industry more flexible, more competitive, and stronger.



Implementing the Luxembourg Rail Protocol to the Cape Town Convention and supporting the development of the rail industry will be a major step towards tackling our greatest challenges and fulfilling the SDGs.



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