Development of the Common Standard Curricula on International Transport and Logistics Basic Training for ASEAN Member States under Sustainable Human Resource Development in Logistics Services

International Rail Transport

Part 2

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The geography of rail transport: North America

- For example, all 7 Class I railroads are participating in the **Science Based Targets Initiative (SBTi)**, an international collaboration focused on limiting global warming to less than two degrees Celsius.
- **Norfolk Southern** has created the **“Trees to Trains**” program — a carbon-mitigation strategy that reforests thousands of acres in environmentally critical areas to offset the company’s carbon footprint.
- **BNSF is testing the first battery electric locomotive** in the United States and **Canadian Pacific** is participating in a pilot project **to test hydrogen fuel cell** locomotives..

Railroads Consistently Improve Fuel Efficiency

Fuel-efficient Locomotives: Acquiring and retrofitting thousands of new, more fuel-efficient locomotives that emit fewer criteria pollutants and GHGs over the past decade.

Operational Improvements: Carrying an average of 3,667 tons of freight per train in 2019, up 25% since 2000. By carrying more freight, railroads reduce unnecessary train and railcar movements, which reduces fuel use.

Fuel Management Systems: Developing and installing computer systems that calculate the most fuel-efficient speed for a train over a given route, determine the most efficient spacing and timing of trains on a railroad's system and monitor locomotives to ensure peak performance and efficiency.

Zero-emission Cranes: Increasing use of zero-emission cranes to transfer containers between ships, trucks, and trains at ports and rail facilities.

Aerodynamics & Lubrication: Adopting operational fixes to reduce fuel use. For example, advances in lubrication techniques reduce friction, ultimately decreasing drag and saving fuel.

Anti-idling Tech: Installing idling-reduction technologies, such as stop-start systems that shut down a locomotive when it is not in use and restart it as needed.

Distributed Power: Expanding use of distributed power (positioning locomotives throughout the train) to reduce the total horsepower required for train movements.

Training: Training employees and contractors to help locomotive engineers and other personnel develop and implement best practices and improve awareness of fuel-efficient operations.

The geography of rail transport: North America

- **More Rail Means a Sustainable & More Prosperous Future**
- If 10% of the freight shipped by the largest trucks were moved by rail instead, greenhouse gas emissions would fall by more than 17 million tons annually.
- That’s the equivalent of removing 3.35 million cars from our highways or planting 260 million trees. Here are three approaches to consider:
- **Institute market solutions to reduce emissions**
- > to achieve two key policy goals: encouraging businesses to ship their products using modes with lower GHG emissions — such as rail — and incentivizing transportation;
- > Broad climate change policies should provide long-term regulatory certainty to make investment and planning decisions in an economically rational manner while also maintaining their competitiveness. This approach will allow markets, not mandates, to drive the reduction in GHG emissions.

The geography of rail transport: North America

- > Policies that **demand change through market solutions — rather than prescriptive regulations** — hold the greatest promise for lasting change and meaningful emissions reductions.
- > Through well-designed policies, market behavior can — and will — shift toward lower-emission fuels and modes of transportation.
- - leverage market based competition;
- - encourage innovation solutions
- - allow varied approaches

The geography of rail transport: North America

- **Institute market solutions to reduce emissions**
- Programs that establish market incentives to reduce emissions from the freight transportation sector specifically:
- > encouraging businesses to ship their products using modes with lower GHG emissions — such as rail — and
- > incentivizing transportation providers to find the most cost-efficient ways to further reduce or eliminate emissions associated with their operations.

The geography of rail transport: North America

- **Ensure railroads can invest in maintaining and greening their infrastructure**
- An efficient and sustainable rail industry depends upon railroads' private investments, which the **Staggers Rail Act of 1980** helped make possible by creating a balanced regulatory system.
- **Partial deregulation** allowed railroads to improve their financial performance from anemic levels prior to Staggers to much healthier levels today.
- That has allowed **railroads to pour nearly $740 billion** — of their own funds, not taxpayer funds — back into their networks since 1980.
- These **investments have greatly improved the productivity and sustainability of their operations.** Policymakers must maintain the existing regulatory balance to ensure railroads can meet customers' needs in a safe, reliable and sustainable manner.

The geography of rail transport: North America

- **Safety**
- > Between 2000 and 2021, the **train accident was down 33%** and between 2000 and 2020, the **hazmat accident rate was down 60%.** The rail employee injury rate in 2020 was an all-time low.
- > America's railroads today have **lower employee injury rates** than most other major industries, including trucking, manufacturing, construction — even grocery stores.
- More than **99.99% of all hazmat moved by rail reaches its destination** without a release caused by a train accident.
- **Grade crossing collisions have declined 39%** since 2000.

The geography of rail transport: North America

- **Fuel-efficiency & Climate Change**
- > Freight railroads account for roughly **40% of U.S. long-distance freight volume** (measured by ton-miles); but account for **just 0.5% of total U.S. greenhouse gas emissions** according to EPA data, and just 1.9% of transportation-related greenhouse gas emissions.
- Railroads are the **most fuel-efficient way** to move freight over land, moving **one ton of freight nearly 500 miles per gallon** of fuel, on average.
- On average, railroads **are 3 to 4 times more fuel-efficient than trucks**. A single freight train can replace several hundred trucks.
- Greenhouse gas emissions are directly related to fuel consumption. That means **moving freight by rail instead of truck lowers greenhouse gas emissions by up to 75%, on average.**

The geography of rail transport: North America

- **Capacity & What the rails Haul**
- **Around 1/3 of U.S. exports move by rail.**
- The interconnected freight rail network **includes 7 Class I railroads** and approximately **630 short line railroads (Class II and III).**
- **> Short lines and Class I railroads operate in 49 states** and the District of Columbia, with short lines running over about 45,000 route miles and **Class I railroads running over about 92,000 route miles.**
- > **Class I railroads account for around 68% of freight rail mileage, 88% of employees and 94% of revenue.** Approximately 70% of the miles traveled by Amtrak trains are on tracks owned by freight railroads.
- > Freight rail is part of an integrated network of trains, trucks and barges that ships around 61 tons of goods per American every year; accounting for around 40% of long-distance ton-miles.

The geography of rail transport: North America

- > The Federal Highway Administration forecasts that total U.S. freight movements will rise from around 19.3 billion tons in 2020 to **25.1 billion tons in 2040 — a 30% increase.**
- > Since the Staggers Act was passed in 1980, **average rail rates adjusted for inflation have fallen 44%.** This means the average rail shipper can move much more freight for about the same price it paid more than 40 years ago.
- > In a typical year, **freight railroads haul around 1.7 billion tons of raw materials and finished goods**. Redesigned railcars have increased average tonnage**: in 2021, the average freight train carried 4,082 tons, up from 2,923 tons in 2000.**

The geography of rail transport: North America

- **Intermodal:**
- > In 2021, U.S. rail intermodal volume was 14.1 million units and **intermodal** accounted for approximately **27% of revenue for major U.S. railroads**, more than any other single rail traffic segment. It's been the fastest growing major rail traffic segment over the past 25 years.
- **Motor Vehicles & Parts**: Freight railroads carry 1.8 million carloads in a typical year. With a single train capable of carrying hundreds of cars, freight rail transports around 75% of the new cars and light trucks purchased in the U.S.
- **Paper & Lumber**: Freight railroads moved 1.1 million carloads of lumber and paper products in 2021. Paper and lumber include wood to build homes, newsprint and magazine paper and cardboard for packaging. Railroads also haul tens of thousands of carloads of recycled paper and cardboard each year.

Rail Freight: Challenges in EU

- **In the case of Europe; the scenario is rather different:**
- EU has 27 members each with its historical railway system;
- Though as a Community, it has agreed to increase the role of rail freight because of road pollution on the environment;
- Though European nations had started the railway integration much earlier; this had posed many challenges to **a system that calls for larger capacity trains**;
- In many of the **larger seaports**, the **rail lines are limited to 750m**; hardly enough to **handle 80 TEU**; **no chance to double-stack the containers**.

Rail Freight: Challenges in EU

- **The European freight rail industry has seen a steady decline over the past 70 years;** from around **60 % in the 1950s**, and **30 % in the 1980s**, to roughly **15 % today;**
- > **increasing fixed costs**, leading to loss of competitiveness and loss of volume, and consequential increasing fixed costs are more than challenging;
- > The rise of **new small and agile road transporters** can only worsened the situation for freight rail which was left with unhealthy structures and maintenance of unprofitable businesses because of political pressure.
- **The European Union** has plans to **double freight rail's modal share by 2030, while** reducing sector's CO2 emissions and to ease the congestion of major road connections: achieving this would see freight rail volumes grow by around 6 % a year in ton-kilometers (TKM).

Rail Freight: Challenges in EU

- **A massive shift in trajectory would be required to achieve this ambition.**
- **A European strategy to transfer a large proportion of transport from road to rail could focus on several key elements**,
- < including major **long-distance freight flows,**
- < **key connection points** such as ports, and
- > new industries that can replace volumes lost in declining sectors. **Regulators and operators could also play a role** in rethinking the regulatory model and reorienting the industry to become more customer focused, and more profitable.

Rail Freight: Challenges in EU

- **Doubling freight rail's modal share requires major transformation**
- > As far back as 2011, **the European Commission set a target of shifting as much as 30 % of road freight that is transported further than 300km** to other modes of transport, such as rail or waterborne transport by 2030—and **to increase this to more than 50 % by 2050**.
- > Such targets have been confirmed recently on the European level 4 and also by member states, such as France and Spain.
- > These objectives are in line with the motivation to build a greener and more digital transportation system that will be more resilient to future crises, **particularly in the context of the Paris Agreement on climate** and the stimulus plan launched to deal with the economic crisis associated with the COVID-19 pandemic

Rail Freight: Challenges in EU

- > However, the **effort required** to double freight rail's modal share throughout the EU **will be substantial**.
- > Goods transported **by rail would increase from 420 billion TKM today** to approximately **1,000 billion TKM in 2030**—a **yearly growth of 6.1 %.**
- > Which means in practice; that **France and Germany**, for example, would **need to shift 90 % of goods that are transported more than 500km**—and **50 % of goods transported more than 300km—to rail** to boost today's modal share from 19 % and 10 % respectively to the target of 30 %.
- > Similarly, for **Spain** to boost modal share from 5 % today to 30 %, it would need **to shift 55 % of transports beyond 500km**, or 40 % of transports beyond 300km to rail.

Rail Freight: Challenges in EU

- In an alternative perspective, **reaching 30 % modal share would mean shifting 70 % of food and agricultural products from road to rail in Spain.**
- Meanwhile in Germany, **the 30 % goal could be reached by shifting 60 % of all metal and ore volumes to rail.**
- Given today's preference for truck transport, **the freight rail industry will need to undergo a major performance shift if it is to provide a competitive alternative.**
- Today, truck transport is better positioned than rail in terms of cost, flexibility, and reach. Furthermore**, truck transport is expected to gain a cost advantage of between 20 and 30 % by 2050**, given **advances in driverless operations, flow optimization by advanced analytics, and fuel efficiency.** The rail industry would need to at least match these cost savings, if not exceed them significantly, to gain market share.
- **The situation is intensified by the fact that traditional customer industries for freight rail—such as coal, iron ore, and petrol—are declining.** In fact, **they are expected to decrease by 1 % a year until 2030. To make up for lost volumes, rail will need to grow seven times faster than road transport to reach the expected modal share of 30 %.**

Rail Freight: Challenges in EU

- **Freight rail in Western Europe has seen a steady decline**
- > Freight rail's modal share has been **in decline across Europe**, both in terms of **market share** and the **profitability** of major operators.
- > In **France** for instance, **modal share declined by 50 %,** from around 30 % in the 1980s **to 15 % today**. While, **road transport has been steadily increasing**. In 1980, less than 50 % of goods were transported by road. This rose to more than 75 % by 2018.
- > The decline in freight rail can be attributed to **3 factors:**
- - a loss or decline of **key customer industries**, the **withdrawal of railways from providing various unprofitable services,** and
- - **road transport improving its relative cost** position compared to rail services.

Rail Freight: Challenges in EU

- > First, **disappearance of traditional heavy-industry clients**: particularly coal and steel.
- > For instance, **European coal production decreased by 60 %** between 1990 and 2019.
- > In the **United Kingdom**, the **phasing out of coal** in the power industry caused a drop of 85 % of the TKM performance of coal transport by rail.
- > And in **Germany,** the volume of **coal, iron, and metal transported dropped by around 85 million tons between 1970 and 2017**—representing **a 60 % drop** in the volume of freight rail from all sectors in the country.

Rail Freight: Challenges in EU

- Second, **railways discontinued or reduced certain services**—such as single wagonload, break bulk transport, and expedited overnight services—as these showed low or negative margins and faced heavy competition from road transport.
- > Countries **like Spain, the United Kingdom, and Denmark**, for instance, no longer see any single wagonload traffic, which **used to comprise 20 to 40 % of all rail transport.** In parallel, associated infrastructure was heavily reduced.
- > For example, in Germany over the last 25 years **the number of private rail sidings dropped from around 11,500 to around 2,300**.
- Similarly, in France the **number of private access points dropped from roughly 11,200 in 1970 to 1,150 in 2019**.

Rail Freight: Challenges in EU

- > Third, road transport saw **a significant improvement in productivity with the arrival of more fuel-efficient trucks.**
- > Companies were also able to **engage workers at lower wage levels**, for instance by hiring drivers **from Eastern Europe.**
- > Additionally, new transport demands such as the **need for greater flexibility to accommodate just-in-time production, smaller lot sizes**, and decentralized flows gave road freight a natural advantage.

Rail Freight: Challenges in EU

- **Exceptions and successes exist**
- > While freight rail modal share declined across Europe, some countries and operators have managed to stabilize modal share—or even slightly grow it. Examples of successes highlight some key lessons which others can follow.
- **> Germany**, for instance, **increased rail's modal share from 16 to 19 %** over the last twenty years.
- > This was driven mainly **by a significant growth in exports** and the **use of container transport** from the country's ports to industrial centers in the mainland.
- > this required a targeted push to boost modal share **by investing heavily in rail infrastructure at key connection points** over the last 25 years.
- > For example, **investments in the Port of Hamburg** led to an increase in its rail share of hinterland container traffic from around 30 to just over 50 %.

Rail Freight: Challenges in EU

- > **In the United Kingdom**, rail volume dropped by 28 %, from 18 billion TKM in 1980 to 13 billion TKM in 1995, reflecting the loss of British hard coal and steel customers. But between **1995 and 2015 rail freight volume grew 46 % to 22 billion TKM**, because **privatized players were able to attract new customer segments**, particularly the construction industry, as well as service intermodal flows to and from ports.
- > In **Belgium and Poland**, cargo units underwent **privatization** and were able to reorient their business models, thereby **growing volumes while significantly cutting costs**.
- > **Austria** has managed, over roughly 30 years, to keep its freight **rail modal share just above 30 %.**
- Such support includes subsidies for operations and investments; **a differentiated tonnage limit for road transport that decreases the attractiveness of road transport for international freight transit**; substantial **tolls on highways**; and weekend and overnight traffic bans for international transit

Rail Freight: Challenges in EU

- Switzerland has also massively invested in rail infrastructure. For **example**, **the new Gotthard Tunnel** allows for **longer and heavier trains thereby reducing costs**. **Swiss Railways expects this intervention to increase freight rail volumes between Switzerland and Italy by 20 %.**
- In addition to these European outliers, examples from the **United States show that an industry consolidation can also have positive effects. The United States had 41 Class I railroad companies in 1978 but the market had consolidated to 7 major players by 2020.**
- **This improved railway companies' efficiency as well as profitability**. They are now in a **better position to innovate, have a more consistent pricing approach, and yield higher operating synergies,** for example **through better asset utilization**. Furthermore, **automated coupling—planned in Europe since around the 1970s and expected to be implemented from 2025 onwards— has been a US market standard for more than 100 years.**

Rail Freight: Challenges in EU

- **The 3 key lessons:**
- **First, railways could benefit from new dedicated target segments, convincing business plans, and concrete actions to increase modal share.**
- > **On a country level, Austria and Switzerland** provide good examples of concrete plans to shift freight from road to rail. **The British and Belgian** success stories illustrate the kind of management excellence needed at a company level to move forward**.**
- **Second, targeted infrastructure investment is key**. For instance, **the Gotthard Tunnel** and **investment in the Port of Hamburg** have each triggered a massive shift. By comparison, investments dispersed across European networks may have improved the situation, but have not been able to move the needle on modal share**.**
- **Third**, the **industry requires bold regulatory moves**. **Switzerland and Austria,** for example, have implemented a series of effective measures, which went beyond subsidizing rail on an incremental level.

Rail Freight: Challenges in EU

- A **European rail freight transformation can focus on three key elements**
- **> major transportation flows such as those between Spain and Central and Northern Europe**;
- > **major connection points such as ports that handle a large proportion of the import and export flows; and**
- **> new industries that could shift to rail and replace the volume lost by industries such as coal and steel.**

Rail Freight: Challenges in EU

- **West-East cross-border transportation flows**
- > **Huge volumes of goods are transported across the continent, but the majority move by road**. There is an opportunity to focus on the largest flows and put interventions in place to shift these volumes to freight rail.
- > **Major flows move from Spain and Portugal**, across France to countries in Central and Northern Europe, particularly Germany, Belgium, and the Netherlands.
- > More than **40 billion TKM of road freight move across France per year**, with an **average transport distance of over 500km**—this distance is the sweet spot for rail transport, yet only 5 % is on rail.
- > Capturing 50 % of this traffic would boost freight rail modal share in France by 5.5 percentage points, from 8.7 to 14.2 %.

Rail Freight: Challenges in EU

- **Ports on Europe's North-South axis**
- > Ports play a major role in the transport of European goods, handling around 50 % of imports and exports.
- > **Rail access to ports** is therefore a crucial factor in fulfilling Europe's aspiration for freight rail.
- > A good example is the **Port of Hamburg**. The port's long-term strategy of hinterland connectivity has always been a core pillar of its activities, enabling the port to increase its rail modal share to 51 % .
- > Several of the **major European import and export port hubs** have very low rail modal share, for example, 17 % in Felixstowe, 8 % in Antwerp, and 7 % in Valencia. Boosting those modal shares to the region of 40 to 50 % would have significant impact on the overall modal share of rail freight in Europe.

Rail Freight: Challenges in EU

- **New customer industries**
- > There is an opportunity to attract new customers to rail, particularly by expanding **market share in the paper and pulp, and battery industries**.
- > Today, around **300 million tons of wood are produced in the EU**, and most of this is transported by truck over short distances to factories and production sites, at least 20 % is transported over longer distances, of 250 to 400 km, for which rail would be more suitable; potentially **add 14 to 15 billion TKM to rail's modal share.**
- > Another possibility is the batteries for electric vehicles. An average battery **weighs of around 300 to 500 kg** for a mid-sized car. Given current production levels of around **20 million cars per year** —this industry has the potential to add demand for around **5 billion TKM of freight rail per year.**

Rail Freight: Challenges in EU

- > Putting these industries' logistics and supply chains on rail would require **some targeted investments**,
- - including the **establishment of sidings** or
- - **direct access points** to the rail network;
- - measures to **fully optimize last-mile management**; and
- - a **high level of service to bring both reliability and flexibility** to cater to clients' needs

Rail Freight: Challenges in EU

- **Rethinking the regulation model**
- could consider various actions on the following dimensions to support freight rail—beyond short-term subsidies—and set the foundation for a financially viable sector:
- > **Integrate rail and road infrastructure charges**. Stakeholders could develop an integrated view and financing approach, across rail and road, that reflects similar costs.
- Today, **significant costs of transport are externalized and born by society at large. However, road transport is responsible for a greater share of these costs.**
- A 2012 report from the **International Union of Railways (UIC) states that heavy duty vehicles are responsible for 14 % of all external costs of transport in Europe, and light duty vehicles are responsible for 9 %.**
- **This figure is only 1 % for rail. Establishing a level playing field would help companies choose the best transport mode, including being able to take sustainability issues into consideration.**

Rail Freight: Challenges in EU

- **Dedicate tracks to freight rail**.
- In Europe, passenger rail is prioritized over freight rail.
- Access to daytime slots, especially close to **critical nodes such as Paris or Lyon in France, is almost impossible for freight trains.**
- As the EU has a comparable ambition to grow passenger rail, this raises **the question of additional rail capacity or even dedicated lines for freight.**
- A **European freight rail master plan**—including dedicated projects, funding, and governance—**could prioritize end-to-end projects across Europe.**

Rail Freight: Challenges in EU

- **Consider infrastructure as a public good:**
- **- for more than 30 years, rail infrastructure operators have prioritized profitable lines over unprofitable ones based on the tolls they could generate.**
- **- to determine the value of a specific line in the context of its ecosystem, including the industries, territories, and main lines it serves.**
- **Enable new technology:**
- **- including track and trace, ERTMS, automatic coupling, and automated terminals.**
- **- DB in Germany and SNCF in France are testing several automated coupling technologies—no standards have been chosen yet, and rollout is not expected for several years. Accelerating this process is key.**

Rail Freight: Challenges in EU

- **Revisit the European competitive framework.**
- The **current operating model**, **leads to competition on marginal cost in an industry that already has a high fixed-cost share.**
- **The market has separated into various segments.**
- There is a **focus on highly competitive and profitable segments—such as long complete trains**, **and long distances**—and on segments that **can only be made profitable as a feeder for other transport, such as single wagon loads or short distances.**
- **Regional traffic**, incurring **major losses, is thus usually only offered by big incumbents.**

Rail Freight: Challenges in EU

- **Operators could focus on customer orientation**
- **Operators could play a role in reshaping the market. They could consider taking a more strategic approach to reorienting services to better meet customer needs**.
- Over the last 10 to 20 years, **operators have been focused on operational turnarounds.**
- **Changes in ownership have been driven mainly by the need to inject fresh capital or by the will to get rid of costly legacies and to run a more profit-oriented model**
- in other industries —**there has been a rise in trans-national companies with an international footprint that outweighs their incumbent markets by far**.
- This phenomenon **is often driven by large cross-border M&A activity; Freight rail would also benefit from thinking through its marketing and customer relationship models, which have not seen significant changes over the past 50 years.**

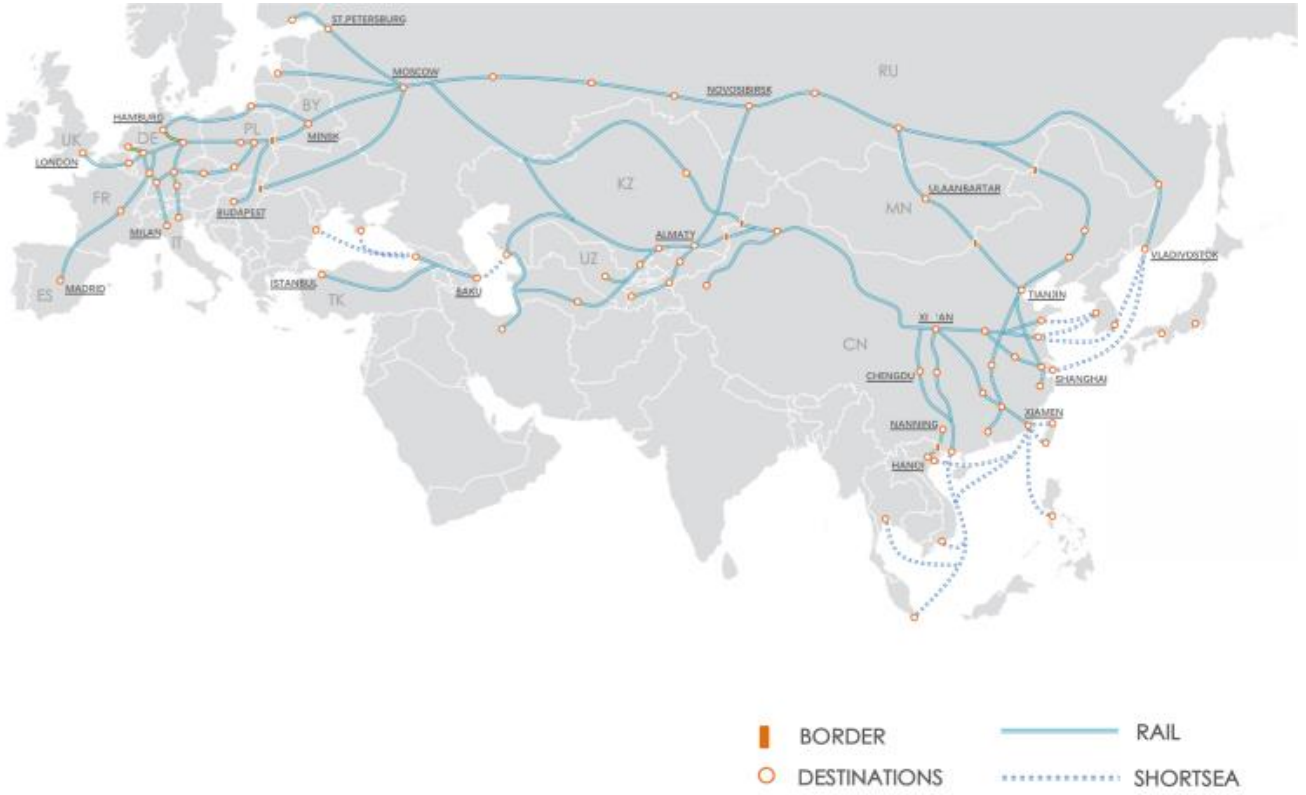
Rail Freight: Challenges in EU

- The rail operators could explore **4 options** for developing new market share:
- **Improve cost efficiencies by using all possibilities to improve economies of scale, scope, and skills**.
- For example, **rail operators could create truly seamless networks across the EU; develop new operating models to cover the first and last mile**;
- - consider **partnerships with other rail operators or new actors**; and
- - leverage new technologies such as **automatic coupling to optimize operations,**
- - **automatic processing to simplify back-office processes**, and
- - **advanced analytics to optimize network planning and train scheduling.**

Rail Freight: Challenges in EU

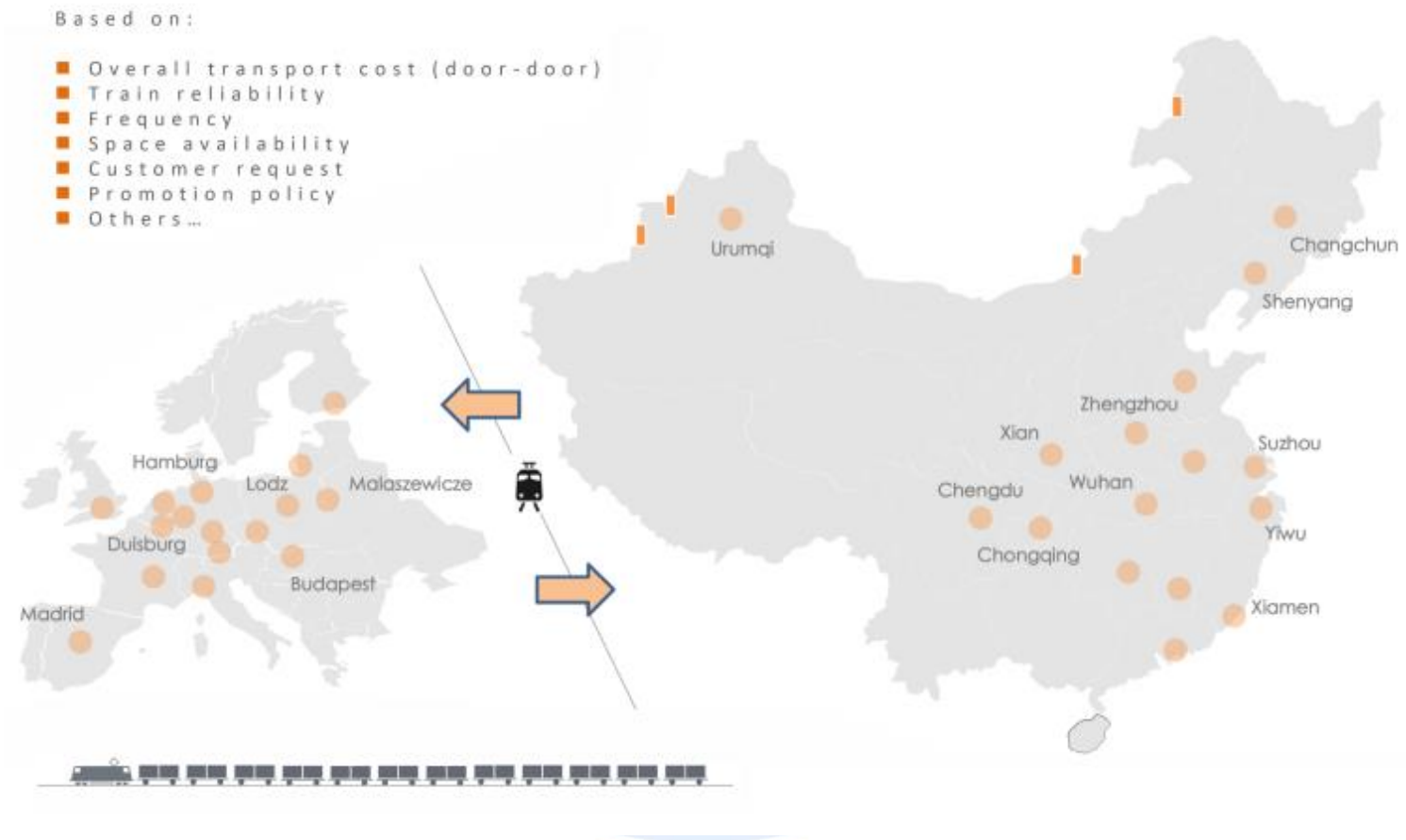
- **Approaches to entice freight to its service.**
- For example, **rail operators could implement easy web-based booking solutions for end-to-end logistics across operators and infrastructure managers**;
- - **apply advanced pricing approaches to attract volume**; and
- - **optimize margins.**
- - **rail operators could develop a clean sheeting tool for competitive modes, develop new tools to predict needs, and design select pricing points to offer a better value proposition to clients.**
- - **developing partnership with companies willing to lower their carbon emissions and create a more sustainable operation strategy**.

Railway Transport Across Eurasia



Railway Transport Across Eurasia

Railway Transport Across Eurasia



Railway Transport across Eurasian Landmass

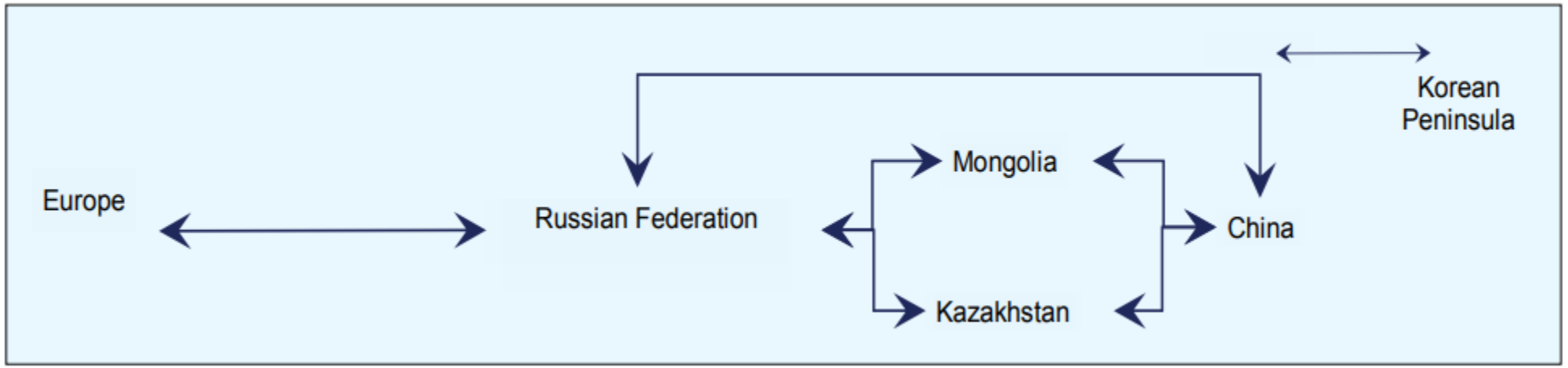
- The United Nations Economic and Social Commission for Asia and the Pacific (**UNESCAP**) has identified **three major transport corridors** that can enhance overland connectivity **between Asia and Europe**:
- (i) **Eurasian Northern Corridor: routes that connect the ports of Northeast Asia (Russian Far East and the east and northeast of the People's Republic of China) to Europe via Trans-Siberian Railway branches that run through the Russian Federation, and routes running through Mongolia and the Republic of Kazakhstan;**

Railway Transport across Eurasian Landmass

- (ii) **Eurasian Central Corridor: routes linking the Russian Federation and the European Union (EU) with China, the countries of Central Asia and the ports of the Arabian Sea;** and
- (iii) **Eurasian Southern Corridor: routes that link China and the countries of Southeast Asia with the sea route to Europe.**
- > Identifying the relevant transport routes that connect the Republic of Korea and NE -Asia to Europe.
- It will also assess the infrastructure quality of the network and analyze the operationality of the corridors.

Railway Transport across Eurasian Landmass

Figure 1 Eurasian Northern Corridor: schematic routes



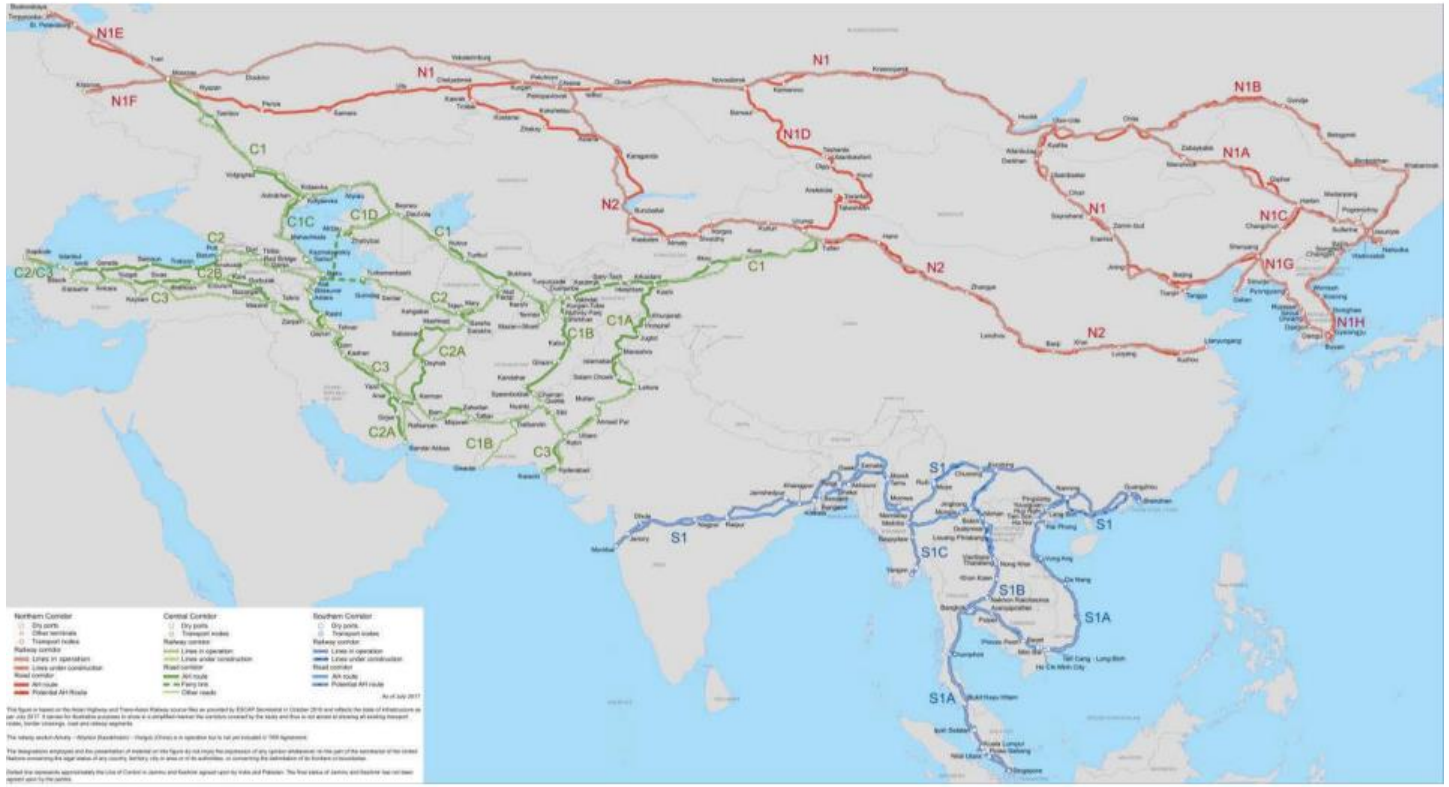
Source: ESCAP

Railway Transport across Eurasian Landmass

- **Northeast Asia is one of the world's most dynamic and influential economic hubs**.
- > **Transport is the core constituent of its economic growth**, with the opportunities provided by the subregion's ports, maritime connections, railways and roads are pivotal to the economies of the region;
- > An **efficient intra-subregional logistics network** combining railways, roads, waterways, seaports and inland intermodal facilities, is ensuring the competitiveness, economic productivity, growth and development of the region.
- > the subregion **land connections to Central and Western Asia**, and to Central Europe via China or the Russian Federation, will open new business horizons for the Korean Peninsula and wider Northeast Asia.

Railway Transport across Eurasian Landmass

Figure 2 ESCAP Eurasian Transport Corridors



Source: ESCAP.

Railway Transport across Eurasian Landmass

- The **Eurasian Northern Corridor** provides the backbone of transport connectivity between Asia and Europe:
- Given **complexity of the transport connectivity and the economic importance** of the corridor, many regional and subregional initiatives have been created;
- Various Intergovernmental Organization are involved:
- - the **Eurasian Northern Corridor International Carriage by Rail (OTIF);**
- - the **Organization for Cooperation between Railways (OSJD);**
- - the **Central Asia Regional Economic Cooperation** (**CAREC);**
- - the **Greater Tumen Initiative (GTI);** and
- - the **Euro-Asian Transport Linkages** (**EATL)** joint project of UNESCAP/UNECE

Railway Transport across Eurasian Landmass

Table 1 Overlapping initiatives for the main sections of the Eurasian Northern Corridor

Branches of the Eurasian Northern Corridor	Shared with
N1: Tianjin – Beijing – Ulaanbaatar – Ulan-Ude – Novosibirsk – Chelyabinsk – Samara – Moscow	CAREC Corridor 4; EATL routes 1, 6; GTI Siberian Land Bridge; OSJD Corridors 1, 11; OTIF Corridor 1
N1A: Vladivostok – Harbin – Chita	GTI Suifenhe Corridor; OSJD Corridor 1
N1B: Vladivostok – Khabarovsk – Chita	EATL routes 1, 6; GTI Siberian Land Bridge; OSJD Corridor 1
N1C: Dalian – Harbin – Chita	GTI Dalian and Suifenhe Corridors; OSJD Corridor 1.
N1D: Urumqi – Hovd – Novosibirsk	CAREC Corridor 4.
N1E: Moscow – St. Petersburg – Finland	No overlap.
N1F: Moscow – Belarus	EATL route 1; OSJD Corridors 1, 11
N1G: Busan – Seoul – Pyongyang – Sinuiju – Beijing	No overlap.
N1H: Busan – Rajin – Khasan	No overlap.
N2: Lianyungang – Lanzhou – Urumqi – Khorgos – Almaty – Chelyabinsk – Samara – Moscow	CAREC Corridors 1, 2, 5; EATL routes 2, 4, 5; OSJD Corridors 2, 5.

Source: ESCAP, 2017.

Railway Transport across Eurasian Landmass

- **Economic development along the Eurasian Northern Corridor**
- > the routes of the Eurasian Northern Corridor comprise **both rail and road options,** except for the road-only Barnaul – Hovd – Urumqi section (N1D).
- > They **connect the north of Central Asia, Mongolia and Siberia to the Bohai Gulf ports of Tianjin and Dalian in China** to the **Baltic port of St. Petersburg** and the ports of Vladivostok, Nahodka and Vostochny in the far east of the Russian Federation.
- >To leverage these linkages, countries along the route are actively building an **inland terminal network, which includes more extensive dry port facilities**

Railway Transport across Eurasian Landmass

- At country level, **economic clusters are being developed along the corridor through the creation of logistics facilities** by setting up special economic zones including **dry ports and logistics terminals** along the Eurasian Northern Corridor.
- > Examples of these investments can be found in Moscow, Novosibirsk, Nizhniy Novgorod, Yekaterinburg, Khabarovsk, Ulan-Ude, Ussuriysk, Zabaykalsk, Irkutsk and Chita in the **Russian Federation**;
- > Ulaanbaatar, Saynshand and Zamin-Uud in **Mongolia**;
- Harbin, Erenhot, Suifenhe, Xi'an and Lanzhou in **China;** and
- > Busan, Seoul, Pyongyang, Sinuiju, Mango, Wonsan, Chongjin and Rajin on the **Korean Peninsula.**

Railway Transport across Eurasian Landmass

- **Northern Corridor.**
- **The scope of the BRI covers the entire Eurasian Northern Corridor, and the project seeks to both establish and promote transport links while ensuring the growth of economic cooperation and co-prosperity in the involved regions**

Railway Transport across Eurasian Landmass

Figure 3 Eurasian Northern Corridor routes

Railway Transport across Eurasian Landmass

- **Infrastructure connectivity [from NE Asia]**
- Routes **N1 and N1B** of the Eurasian Northern Corridor
- - are the **main trunk of the Trans-Siberian Railway**, a traditional and stable land connection between Asia and Europe.
- - **The route (Moscow – Nahodka) is made up of 9,288 km of double-tracked electrified**

Railway Transport across Eurasian Landmass

Due to **differences in electrification systems**,

at least **3 changes of locomotives are required** along the way.

- > The **Trans-Siberian Railway** is mainly **used for freight transport** within the Russian Federation, and the railway itself hosts some **45 % of domestic railway freight traffic.**
- > **Freight flows** along the Trans-Siberian Railway are highly **unbalanced:**
- the direction travelling west to east accounts for 95 % of all freight traffic, while only 5 % of the freight moves from east to west, **this in a way, compliments the China- EU trade**

Railway Transport across Eurasian Landmass

- **The Zabaykalsk (Russian Federation) – Manzhouli (China) section** is made up of combined 1,435/1,520 mm gauge tracks.
- The double-tracked **Manzhouli – Harbin section of the N1A** on the Chinese side has recently been electrified, with train speeds along the line increasing from 80 to 120 km/h.
- **The Harbin – Mudanjiang section** is non-electrified double track, but electrification works have started.
- The **Mudanjiang – Suifenhe** section is single-track non-electrified. Route N1A of the Eurasian Northern Corridor in the Russian Federation at **the Ussuriysk – Grodekovo section** is single-track non-electrified,
- while **the Grodekovo – Suifenhe (China**) cross-border section is single-track with a combined 1,435/1,520 mm gauge

Railway Transport across Eurasian Landmass

- **> The N1C railway route (928 km in length) connects the ports of Dalian and Yingkou to northeast China and then to the Trans-Siberian, is double-tracked and electrified.**
- > The **N1 section** running **Ulan-Ude (Russian Federation) – Ulaanbaatar (Mongolia) – Tianjin (China) or {**the Trans-Mongolian route or the Trans-Siberian branch to Mongolia}. The part from **Ulan-Ude up to Zamin-Uud on the Mongolia/ China border, is 1,520 mm broad gauge, single-track and non-electrified**.
- > **The Chinese section to Tianjin is 1,435 mm standard gauge, the Erenhot – Jining part is single-track non-electrified and the Jining – Beijing stretch is double-track electrified; with delays usually taking place at border crossings (owing to break of gauge), the route also has lengthy stops at Choir, Saynshand and Ulaanbaatar for technical inspection and locomotive changes**

Railway Transport across Eurasian Landmass

- The **operational efficiency of the Tianjin – Ulaanbaatar railway** is negatively affected by **unreliable transport times** that are **caused by unpredictable transloading times at Tianjin port**.
- Cargo arriving in Tianjin that has Mongolia as its destination is often subject to congestion at the port.
- The **Chinese section of the N2 route** is **standard gauge**, while **the Russian Federation and Kazakhstan use 1,520 mm broad gauge.**
- - Break of gauge on this route happens in Khorgos on the China – Kazakhstan border. **Rail traffic on the Russian Federation – Kazakhstan part of the corridor benefits from unified technical standards and conditions, and from a common customs area.**

Railway Transport across Eurasian Landmass

- The Khorgos – Yining section on the Chinese part of the corridor **is single-track non-electrified,**
- **Yining – Jinghe is single-track electrified and the route from Jinghe to Lianyungang is double-tracked electrified**.
- The **Kazakhstan section of route N2 is mostly double-track electrified**,
- - while Kokshetau – Petropavlovsk and the newly built **Zhetyken – Khorgos lines are single-track non-electrified.**
- Challenges in Kazakhstan: some **70 % of railway tracks;** require rehabilitation: **Rolling stock is old**; shortages in container platforms, and the number of locomotives is decreasing.

Railway Transport across Eurasian Landmass

- **Conditions at Kazakhstan BCPs.**
- However, **the situation in Kazakhstan is slowly improving**.
- While railways in the Russian Federation are not generally afflicted by a shortage of wagons, **wagon management difficulties can cause local deficits at certain times.** The situation is gradually improving through the application of better practices in fleet operations, and through an increase in the speed of empty runs.
- To Russia and Kazakhstan, the modernization of their wagon fleet has been promoted by the entry into force of the **new technical regulations of a Customs Union that prohibits the usage of obsolete wagons thus** stimulating operators to replace them.

Railway Transport across Eurasian Landmass

- **The Connection between China and North Korea**
- The **N1G route** runs from **Beijing and the Liaoning Province** of China **to Dandong railway port**, and **onwards to the Shinuiju railway port [**Democratic People's Republic of Korea]; then to Pyongyang and further **to the cross-border port of Kaesong,** [with the possibility of extension to Seoul and Pusan].
- > The track between **Shinuiju and Pyongyang is 225 km long**, and **Pyongyang to Kaesong is 177 km of standard gauge track.**
- Most railway lines connecting the **Korean Peninsula to China are single track; with** cross-border bridges built before the 1930s. Their **surfaces are in a bad condition and they are too old to meet the demands of future trade flows**

Railway Transport across Eurasian Landmass

- **On the N1H route**, the **Tumangan-Khasan border crossing** provides **a railway connection between the Korean Peninsula and the Russian Federation, a direct access to the Trans-Siberian Railway network.**
- {There is an **initiative to rebuild** the Khasan – Rajin railway line and to simultaneously construct a cargo terminal at Rajin Port}
- > The initiative also includes the **promotion of transit cargo traffic by rail from the north-eastern provinces of China through Rajin Port on the Korean Peninsula,** and onwards to the Russian Federation.
- > Part of the initiative is the **reconstruction of the Tumangan – Rajin section**, with **dual-gauge tracks** (both 1,520 mm and 1,435 mm); **facilitating Chinese cargo transport through Rajin Port to the Russian Federation**

Railway Transport across Eurasian

- The **Khasan- Rajin** railway
- Connection between North Korea
- and Russia

Figure 4 Khasan – Rajin railway connectivity

Source: Ministry of Transport of the Russian Federation.

Railway Transport across Eurasian Landmass

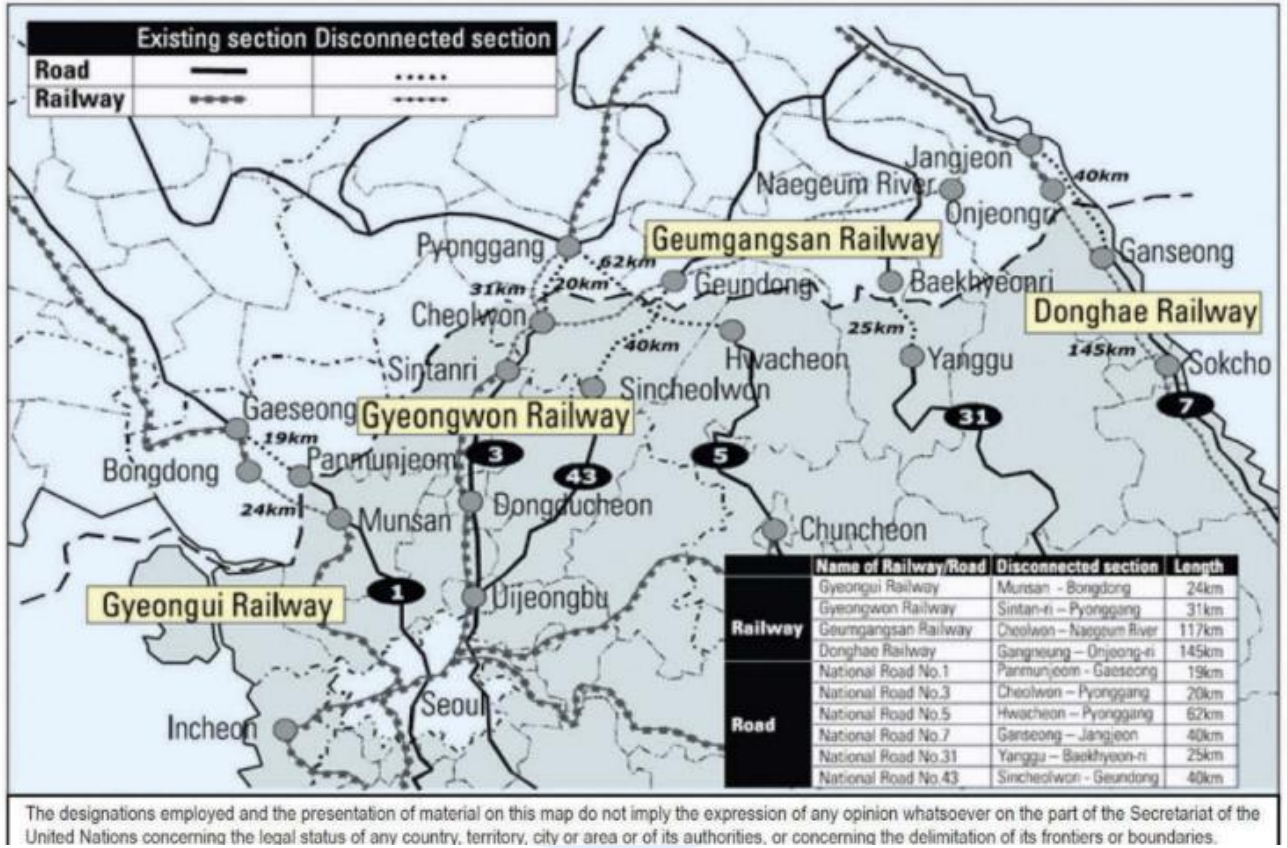
- **Characteristics of the railway systems on the Korean Peninsula**
- The railway system in the **Democratic People's Republic of Korea** accounts for 75 % of passenger and 90 % of freight transport.
- It **uses standard gauge (1,435 mm) track** and includes **5,302 km of railway lines** (Ministry of Unification, 2014), of which **98 % is single-track.**
- Of these 5,302 km of railway, only an **estimated 1,100 km was built after 1960**, meaning that the technology employed across most the system is outdated.
- The **electrification rate is around 80 %,** but the electric traction system is the **older 1,500-volt DC (direct current) model**, as opposed to the newer 25 kV AC (alternating current) system.

Railway Transport across Eurasian Landmass

- **The Gyeongui Line and the Donghae North Line were restored and rehabilitated between 2000 and 2004;** both lines operated from 2007 to 2008, after which operations again ceased.
- Both the railway systems in the Democratic People's Republic of Korea and the Republic of Korea have **the same gauge**, **with some technical differences between the two systems:**
- • **Different gradients and dimensions of wagons and locomotives;**
- • **Differences in traction, designed maximum speeds, coupling and brake standards;**
- • **Differences in signaling systems, power supplies and track circuits; and**
- • **Differences in the weights of tracks and the quality of sleepers**.

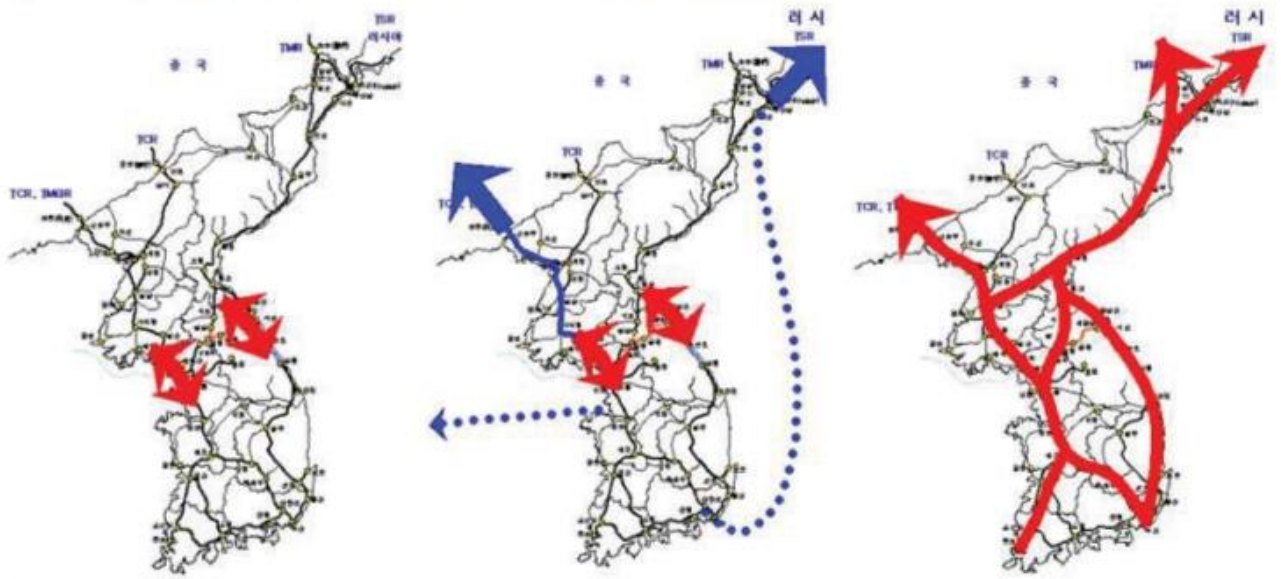
Railway Transport across Eurasian Landmass

Figure 5 Land connections between Democratic People's Republic of Korea and Republic of Korea



Railway Transport across Eurasian Landmass

Figure 6 Roadmap for the re-establishment of Trans-Korean Railway connectivity



Phase 1	Phase 2	Phase 3
Connection between S-N	Improve N. Korean Railroad	Modernize N. Korean Railroad
Minimum maintenance of N. Korean railroad → create/reinvest profits from transportation business	Improve N. Korean railroad → expand transportation business, organize an international consortium	Modernize N. Korean railroad to a 'new' railroad → complete Eurasia Land Bridge

Railway Transport across Eurasian Landmass

- **The Central Asian Region:**
- **Many international bodies have been involved with the development of this region:**
- **- the TEM and TER projects as well as their Master Plan;**
- **- the EU High Level Group;**
- **- the UNESCAP time/cost-distance methodology;**
- **- the development of freight villages concept;**
- **- the IRU (for road) and TER project (for rail) border crossing monitoring activities;**
- **- the co-financing, development and upgrading of the AH network;**
- **- the demonstration runs of container block trains**

Railway Transport across Eurasian Landmass

- > the **EU is a Customs Union** where the **border formalities are minimal, and the risk of unnecessary bureaucracy is diminished**.
- **> The success of the Euro-Asian land transport routes ultimately remains sensitive to numerous factors, including cost, reliability and time.**
- **> However, much remains to be done to overcome the lack of appropriate infrastructure and transport equipment, non-harmonized legislation, and institutions and practices that are conducive to unofficial payments and red tape.**
- **> The high transport costs and the longer time for goods to reach the markets make exports from EECCA countries relatively expensive, harming their competitiveness.**

Railway Transport across Eurasian Landmass

- **Common UNECE-UNESCAP strategic vision for Euro-Asian transport links**
- > **Euro-Asian Conference on Transport of May 1998 in St. Petersburg, Russian Federation**; this desire was later elaborated upon in declarations in 2000 and 2003.
- > In 2000, UNECE and UNESCAP put forward their "**Common UNECE-UNESCAP Strategic Vision for Euro-Asian transport links"**
- **> the UNECE Working Party on Transport Trends and Economics (2001) and adopted by the UNECE Inland Transport Committee (2002)**

Railway Transport across Eurasian Landmass

- The proposed **4 major Euro-Asian transport corridors** (Trans-Siberian, TRACECA, Southern, and North-South), defined as follows:
- **Trans-Siberian: Europe (PETC II, III and IX) – Russian Federation – Japan, with three branches from the Russian Federation to:**
- **Kazakhstan-China;**
- **Korean Peninsula;**
- **Mongolia-China.**

Railway Transport across Eurasian Landmass

- **TRACECA: Eastern Europe (PETC IV, VII, VIII, IX) – across Black Sea – Caucasus – across Caspian Sea – Central Asia**
- **Southern route: South-Eastern Europe (PETC IV) – Turkey – Islamic Republic of Iran, with two branches to:**
- **> Central Asia – China**
- **> South Asia – South-East Asia/Southern China**
- **> North-South: North Europe (PETC IX) – Russian Federation, with three branches to:**
- **> Caucasus – Persian Gulf**
- **> Central Asia – Persian Gulf**
- **> Across Caspian Sea – Islamic Republic of Iran – Persian Gulf**

Railway Transport across Eurasian Landmass

- **The Euro-Asian transport links Project**
- > The project involves United Nations' 5 regional commissions – **UNESCAP, UNECE, ESCWA,ECLAC and ECA -**
- > The UNECE-UNESCAP component was designed to follow-up on the "**Common UNECE-UNESCAP Strategic Vision for Euro-Asian Transport Links."**
- **> The project aims to assist Member States to strengthen their national capacities for inter-regional land and land-cum-sea transport linkages,** and its impact on regional and economic development.
- > aiming **to strengthen the capacities of national officials**,
- > **identifying major impediments** to the smooth movement of goods internationally,
- > improving **inefficient border crossing practices and poor implementation of international conventions; physical infrastructure provision and quality; non-physical obstacles to inter- and intra-regional trade**

Railway Transport across Eurasian Landmass

- > Countries participating are: Afghanistan, Armenia, Azerbaijan, Belarus, Bulgaria, China, Georgia, Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, Moldova, Romania, Russian Federation, Tajikistan, Turkey, Turkmenistan, Ukraine and Uzbekistan.

Railway Transport across Eurasian Landmass

- **SPECA is dealing with transport and border crossing;**
- > **electrical energy production** and distribution;
- > **water management;**
- > **sub-regional cooperation** on diversification of gas and oil pipeline routes;
- > the **International Economic Conference on** Tajikistan;
- > attraction of **foreign direct investment** into the countries of the sub-region;
- > **protection of the environment** and development of small and medium enterprises

Railway Transport across Eurasian Landmass

- **Currently SPECA is dealing with transport and border crossing;**
- **> electrical energy production and distribution;**
- **> water management;**
- **> sub-regional cooperation on diversification of gas and oil pipeline routes;**
- **> the International Economic Conference on Tajikistan;**
- **> attraction of foreign direct investment into the countries of the sub-region;**
- **> protection of the environment and development of small and medium enterprises**

Railway Transport across Eurasian Landmass

- **> focuses primarily on the movement of tradable goods both within and between sub-regions**
- **– particularly those that are able to be consolidated and shipped via standard twenty or forty foot containers.**
- **Energy exports such as crude oil and natural gas – whilst of considerable economic importance – are not considered in this study because their delivery methods differ from those of standard goods exports.**

Railway Transport across Eurasian Landmass

- **The E-rail network:**
- **UNECE European Agreement on Main International Railway Lines (AGC)**
- the European Agreement on Main International Railway Lines (AGC) **provides the international legal in Europe**, aiming to facilitate international rail tr**framework for the development of a coherent international rail network** affic throughout the continent.
- The **AGC identifies the rail lines of major international importance, the E-rail network,** and defines the infrastructure parameters to which they should conform.
- It defines infrastructure parameters for **two categories of lines: those already existing and those to be newly constructed.**
- The latter are again divided into the lines for freight and passenger traffic and those for passenger traffic only.

Railway Transport across Eurasian Landmass

- The **E-Combined Transport network**: UNECE European Agreement on Important **International Combined Transport Lines and Related Installations (**AGTC)
- >The European Agreement on Important **International Combined Transport Lines and Related Installations (AGTC)** provides the technical and legal framework for the development of efficient international combined road/rail transport infrastructure and services.
- **> Combined road/rail transport comprises the transport of containers, swap bodies and entire trucks on railway wagons to and from especially equipped terminals**

Railway Transport across Eurasian Landmass

- **> The AGTC determines all important European railway lines** used for international combined transport, identifies all terminals, border crossing points, ferry links and other installations important for international combined transport services.
- > **European States that become Contracting Parties to the AGTC** commit themselves to its implementation, including the construction or the upgrading of the railway lines and related combined transport installations in their territories, within the framework of their national programmes but without any time constraints

Railway Transport across Eurasian Landmass

- **> The Protocol on Combined Transport on Inland Waterways to the European Agreement on Important International Combined Transport Lines and Related Installations (AGTC)** establishes uniform requirements to be met by the infrastructures and services of combined transport using inland waterways.
- This Protocol has been **signed by 12 States**, of which **7 have already deposited an instrument of ratification or acceptance.**
- The **Protocol will come into force upon ratification or acceptance by five States, three of which are linked in a continuous manner by the waterways identified in the Protocol.**
- Annex II of the **Agreement lists inland navigation ports of international importance,** while Annex III sets out technical and operational characteristics of inland waterways of international importance.

Railway Transport across Eurasian Landmass

- **Trans-Asian Railway network**
- The Trans-Asian Railway (TAR) originally consisted of a **Southern corridor going through South-East Asia, Bangladesh, India, the Islamic Republic of Iran, Pakistan and Turkey,** but was later expanded under the **Asian Land Transport Infrastructure Development (ALTID)** project to cover the whole of Asia.
- It was made possible by a lessening of political tensions between some of the countries involved, the **prospects of rapid economic development** in the region and **implicitly the possibility of greater economic exchanges** within it.

Railway Transport across Eurasian Landmass

- **The Asian side of the Eurasian**
- **Accordingly, UNESCAP concluded a feasibility study on connecting the railways of China, Mongolia, the Russian Federation and the Korean Peninsula with a view to identifying the TAR routes in the countries concerned.**
- The study also considered **route requirements and the border crossing facilitation measures required to assist in organizing efficient container land bridges between Asia and Europe** that could compete with shipping services.
- The **TAR network now covers 28 member countries and comprises 81,000 km of railways that are vital arteries** for the development of the **international trade and provide regional connectivity and linkages to the world**

Railway Transport across Eurasian Landmass

- The **Agreement provides for the creation of a Working Group on the Trans-Asian Railway** Network to consider its implementation and any proposed amendments. The Working Group will also be a **forum for joint programmes of action.**
- In order to facilitate the **operationalization of the TAR network, UNESCAP has implemented demonstration runs of container block-trains along the Trans-Asian Railway Northern Corridor linking China, the Korean Peninsula, Kazakhstan, Mongolia, and the Russian Federation.**
- The demonstration runs have shown the capabilities of international **freight rail corridors to serve international trade between Asia and Europe**

Railway Transport across Eurasian Landmass

- **UNECE- Trans-European Railway (TER) networks**
- **> the Trans-European Railway (TER) Projects** are **sub-regional cooperation frameworks established in 1977 and 1990 respectively by the Governments of the Central, Eastern and South-Eastern European Countries under the aegis of the UNECE for the development of coherent road, rail and combined transport infrastructure networks and the facilitation of international traffic in Europe.**
- > At present, **17 countries are members of TER10 and 15 countries are members of TEM.**
- The **Projects have been instrumental in the development of international road and rail links in the participating countries and are designed to harmonize the management, maintenance and operational procedures of the motorways and railways in the region and their integration in the Pan-European context.**

Railway Transport across Eurasian Landmass

- > They have established and assisted in **construction of the TEM Network extending 23,797 km, out of which 7,201 km are in operation, representing 30 % of TEM and 1,682 km under construction,**
- > the identification of the **TER Network extending over 24,000 km, and contributed to the interoperability of the European railway system enabling the integration of respective national systems.**
- > the **Pan-European Road and Rail Corridors in the CEE region (the TEN-T in the EU member countries that are also members of the UNECE),**
- **>** the formation of the **new strategic transport plans of Europe and for the extension of the TEN-T in the neighbouring countries and regions**

ESCAP: Guidelines for Development of Railway Marketing

- **Some marketing insights to rail service as transport mode**
- It is interesting to note that UNESCAP has been advocating the economic improvement of the Asian region through creating the outlines for the study on the logistics supply chain and with it, the importance of the land modes of transportation:
- With it, their studies on land modes of transportation across the Eurasian landmass:
- Here UNECSAP has advocated some views on commercial marketing and the survival of the railway industry in the region.
- **- twin key issues of customer satisfaction and profitability of the railway as a transport mode;**
- **-** to reconcile the needs of customers for a minimum quality and quantity of product or service with the need for the producer or service provider for profit.

ESCAP: Guidelines for Development of Railway Marketing

- **UNESCAP on marketing rail services**
- The role of marketing in such circumstances will be to determine and implement measures to improve the net worth of that business to the organization, failing which, to implement a plan for withdrawal from the business.
- It should be noted that such an approach contrasts with the still popular misconception that marketing is all about sales maximization.
- While a sales maximizing strategy usually leads to increased revenue, it could also mean reduced profit for the organization; it is, however, always about profit maximization, or loss minimization, as the case may be.
- Taking into account the special characteristics of railways, “marketing” in a railway environment can be defined as:
- “**A method and process for planning, mobilizing and applying the resources of the railway in order to satisfy customer demand and to realize a profit for the railway”**

ESCAP: Guidelines for Development of Railway Marketing

- **The “Marketing Mix”, or the Seven P’s**
- > marketing includes the full range of activities needed to achieve voluntary and profitable exchanges of products or services between two parties.
- > aiming at 1 or more of the 4 variables known as the Marketing Mix, with the intention of improving the organization’s profitability.
- These variables, also known as the **Seven P’s, are Product, Price, Promotion, Place, People, Processes and Physical Evidence**.

ESCAP: Guidelines for Development of Railway Marketing

- **Product**
- > this is the service offered to customers, both existing and prospective; it is associated to support level (the capacity of the organization to deliver an acceptable standard of service); and its branding, or its association with a particular image or identity.
- The **core products of railway organizations are transportation services**, but increasingly railway organizations are diversifying their activities in fields which are not wholly related to their core business, such as commercial property, or real estate, development.

ESCAP: Guidelines for Development of Railway Marketing

- For **railway freight service**, the design and presentation characteristics of the product are generally:
- > the **route covered;**
- > the **service frequency;**
- > the **operational reliability** of the service (e.g. adherence to scheduled transit time, etc);
- > the **security** provided for consignments (e.g. against pilferage and damage);
- > the convenience and **efficiency of loading/unloading facilities** at rail freight terminals; and
- > the availability of a **convenient delivery service to the final destination** (i.e. door-door delivery service).

ESCAP: Guidelines for Development of Railway Marketing

- **Railway freight service,** the tariff payable by customers for the transport of their consignments is usually expressed **as a rate per ton-km**, and may include charges for other services, such as the loading/unloading of freight consignment;

  > **freight charges may be either published or negotiated rates**. If published rates, they will appear in the railway organization's standard schedule of charges, and will be **available to all customers.**

  > If they are **the result of a process of commercial negotiations;** they will generally be incorporated in **long term haulage contracts** between the two parties, and will not be disclosed to other parties.

- > By definition, negotiated rates will be available **only to the contracting customers,** subject to their agreeing to meet **certain other contractual conditions.**

ESCAP: Guidelines for Development of Railway Marketing

- **Freight tariffs are less likely to be subject to control by government** than passenger tariffs, yet government imposed ceilings on published freight tariffs are not uncommon throughout the region.
- In most cases, **railway organizations have the ability to offer discounts off the level of freight tariffs** in order to expand business, and in a majority of cases they also have the ability to increase the level of freight tariffs in order to recover cost increases

ESCAP: Guidelines for Development of Railway Marketing

- Only a **relatively few railway organizations have encouraged market segment specialization especially most railway sales forces have not been able to develop the specialized knowledge of individual market segments** needed to **effectively sell railway services to these segments.**
- There is now clearly **an urgent need to focus railway sales force activity on individual market segments and at the same time to ensure that this activity is fully coordinated** with other forms of promotional activity, such as advertising.

ESCAP: Guidelines for Development of Railway Marketing

- **WHY DO RAILWAYS NEED MARKETING?**
- > It is an undeniable fact that railways worldwide are facing unprecedented competition from other transport modes, particularly from road transport;
- > railways are being exposed to market forces and associated competitive pressures, threatening their long term survival;
- > Their capacity to respond effectively depends mainly on their ability to transform themselves from the non-profit making agencies of government into vibrant, to profit driven and market oriented commercial enterprises.
- > this requires a fundamental shift in the driving philosophy of railway organizations and their adoption of a marketing culture, systems and practices, vital to this process;
- > a major change in the attitude and expectations of governments with respect to the future role of their railway organizations.

ESCAP: Guidelines for Development of Railway Marketing

- > Data supplied by the **Malaysian Railway** in index format suggest that the level of cost recovery for that system stands at 107 % after an allowance for depreciation and at 120 % without.
- > However, after removal of income and costs for non-core business (mainly commercial property), it may be inferred from the data supplied that cost recovery would stand at only 96 % after an allowance for depreciation and at 109.6 % without - suggesting th**profitability of the railway is heavily dependent on its non-core business.**at the
- > of 6 of the 8 railways reviewed, only **India and Viet Nam providing the two exceptions.**
- In the case of India, the revenue generated by the railway exceeds the level of operating costs by almost 40 %. In India, the reality that there is a substantial cross subsidy between freight and passenger traffic.

Rights and Duties of the Railways and its customers (e.g. forwarders

- **UIC/FIATA permanent contact group**
- The UIC / FIATA (International Freight Forwarders' Association) permanent contact group enables UIC's members **to exchange best practices and ideas between the railway undertakings and freight forwarders** with particular emphasis on market trends:
- - exchange main trends and market developments
- - learn about the requirements of the market
- - facilitate an increase of the modal split (transfer road volumes to rail)

Rights and Duties of the Railways and its customers (e.g. forwarders

- **Enable business to:**
- > stimulate joint businesses on the indirect market
- > be enabler (no price discussions)
- > Facilitate networking activities:
- > meet for seminars (e.g. The Market Place Seminar)
- > Review legal framework conditions in Europe (supported by CLECAT as well as CER)

Rights and Duties of the Railways and its customers (e.g. forwarders

- **Working Structure**
- The UIC/FIATA permanent contact group has two main activities:
- 1. **Regular meetings of the contact group**
- The regularly meeting enables UIC's members to meet FIATA's members on a regular basis to exchange ideas and trends within the freight railway sector. The meeting takes place once a year.
- 2. **Organization of the Market Place Seminar**
- Since 2008 UIC and FIATA have jointly organized a market place seminar with the aim to create opportunities for increased cooperation and business development within the rail sector.
- Seminars were successfully held in Prague (2008), Istanbul (2009), Barcelona (2010), Hamburg (2011) and Vienna (2013).