Transport Sector Strategy (2019-2024)

As approved by the Board of Directors on 30 October 2019

European Bank
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Table of contents

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Executive Summary

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- Transport is a catalyst for economic and inclusive growth. At the same time transportation across the economies where the Bank invests needs to be greener and more resilient to the impacts of climate change to ensure these economies follow sustainable paths.
- The Transport Sector Strategy (TSS) promotes **sustainable transport systems, which need to address the challenge embodying market principles, balance economic, environmental and social needs where not complementary and be responsive to the needs of people, industry and trade.**
- The TSS covers the Bank's activities across the transport sector, including infrastructure and services (excluding urban transport covered under the MEI Strategy). The TSS covers **all of the economies where the Bank invests** and interfaces with other strategies, approaches and policies of the Bank.
- **Four key sectoral challenges** will continue to influence how the Bank will support transportation in the economies where it invests:
  - **Widening Infrastructure Gap,** as growth in demand outstrips investment infrastructure, estimated at €1.4 trillion.
  - **State Ownership and Governance** and the slow pace of sector reform.
  - **Increasing Private Sector** participation to promote competition and innovation, including new technologies.
  - **Low Carbon** approach across the sector.
- These developments give rise to the interrelated strategic directions of the TSS, which aims to promote:
  - **Connected Networks** to improve access in line with the needs of businesses and individuals to support economic growth, trade and prosperity.
  - **Private Sector Participation** to encourage commercial principles that will drive sector and SOE reform.
  - **Environmentally and Socially Responsive** transport which reflects environmental and social needs and seeks to reduce inequality and regional imbalances.
  - **Low Carbon and Innovative Solutions** which will drive change and reduce carbon emissions.
- The Bank will take account of the backward linkage to clean energy where appropriate. The Bank will not finance infrastructure and services principally dedicated to the transportation of coal.
- Cross-sectoral linkages will be important in supporting connectivity, trade, lower carbon transport and innovative solutions.
- Successful implementation will require donor support, including blended concessional finance where appropriate and Technical Cooperation; effective corporation with other MDBs and actors in the sector, as well as international organisations driving policy and regulatory frameworks.

Scope of the Transport Sector Strategy

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Scope of the Transport Sector Strategy

The Transport Sector Strategy (TSS) covers transport infrastructure and services for all modes in the economies where the Bank invests at national and regional levels, taking into account specific investment needs and transition gaps, including:

- Roads: fleet, motorways, national, regional, local and rural.
- Railways: track, signaling, stations, rolling stock.
- Maritime: ports, inland waterways, shipyards, fleet.
- Aviation: airports, air navigation, airlines.
- Intermodal and logistics: logistics and intermodal platforms including fleets.

Urban transport is covered in the Municipal and Environmental Infrastructure (MEI) Sector Strategy. See Annex H for cross linkages between the Transport Sector Strategy and MEI Sector Strategy.

Interaction with Other Strategies

The TSS interfaces with other strategies, approaches and policies, including:

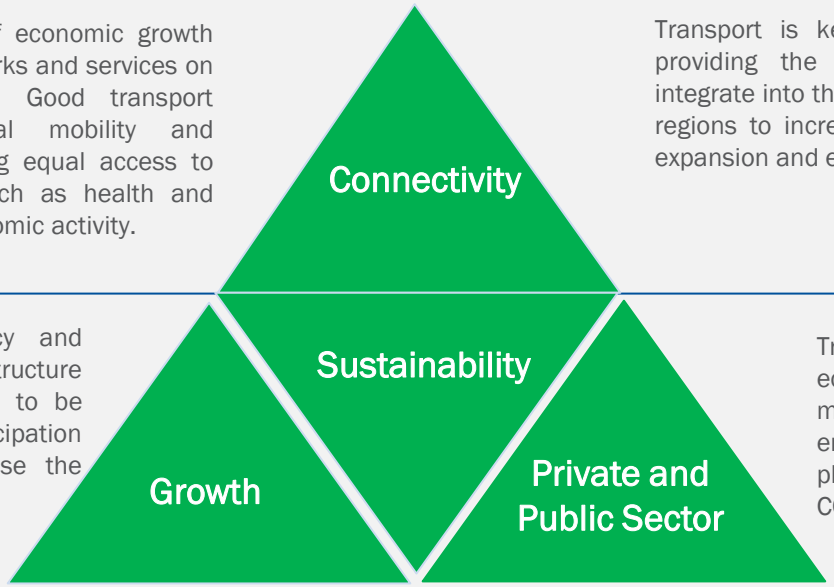
- Country strategies.
- Other sector strategies, such as the MEI Strategy, Energy Strategy, Agribusiness, ICT Strategies, Manufacturing and Services and Property and Tourism.
- Thematic strategies such as the Green Economy Transition Approach, Strategy for the Promotion of Gender Equality and the Economic Inclusion Strategy.
- Policies, such as the Environmental and Social Policy, Public Information Policy and the Concession Policy.

Overview of the Transport Sector Strategy

The TSS promotes delivery of **sustainable transport systems, which embody market principles, balance economic, environmental and social needs where not complementary and are responsive to the needs of people, industry and trade.**

Transport is a key enabler of economic growth and trade, providing the networks and services on which economies depend. Good transport systems facilitate individual mobility and movement of goods, providing equal access to employment and services such as health and education and promoting economic activity.

Transport is key to trade development and FDI, providing the means for emerging markets to integrate into the global economy. Trade is crucial for regions to increase and maximise opportunities for expansion and economic development.



Improving the governance efficiency and commercial-orientation of public infrastructure and services is essential and needs to be complemented by greater private participation to drive reform, innovation and close the infrastructure gap.

Transport systems are fundamental for economic growth and well-functioning markets. Transport has significant environmental and social impacts in terms of physical impacts, environmental connectivity, CO_2 and local air pollutants.

Cross-sector linkages: will be important in promoting connectivity, including with urban networks (Municipal and Mining); trade through better logistics and intermodal services (Agribusiness, Manufacturing and Services, Property and Tourism) lower carbon transport such as electric vehicles (Energy); innovative solutions based on enhanced informatics (Information and Communication Technologies). See Annexes H and I.

1. Implementation of the Previous Strategy

1.1 Snapshot of Activities During the Previous Strategy Period

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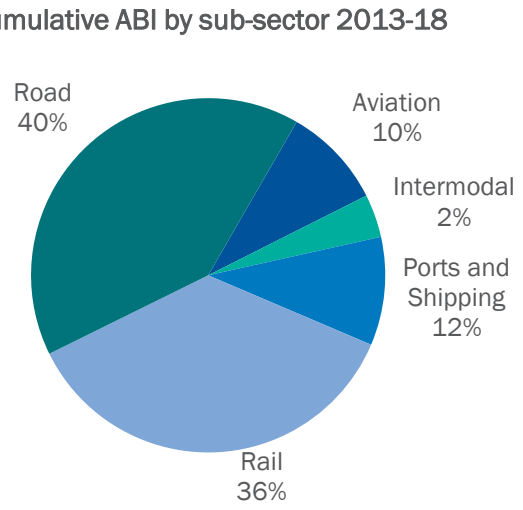
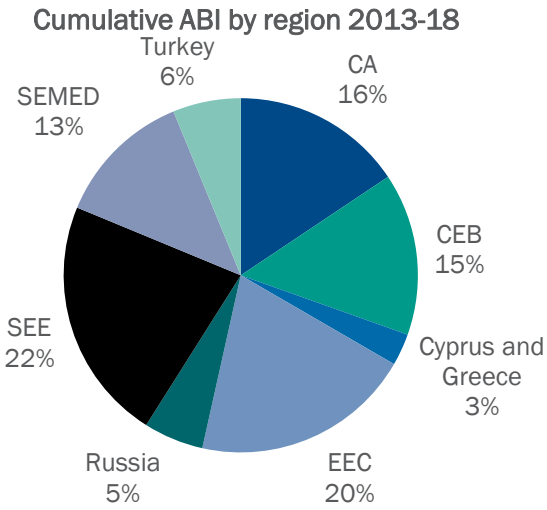
Key Figures

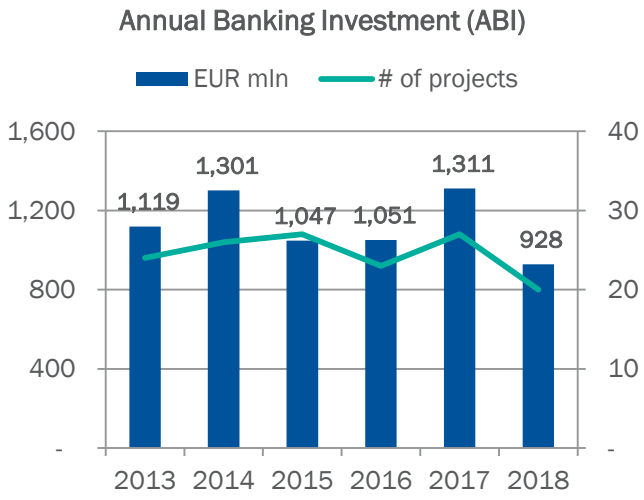
147 # projects	€6.8 bln Cumulative ABI
64% # of private and non-sov. projects	46% % of private and non-sov. ABI
64.6 Average ETI	73.6 Average PTI
€2.1 bln GET related projects[1]	1,175 kt CO_2 Reduction / yr

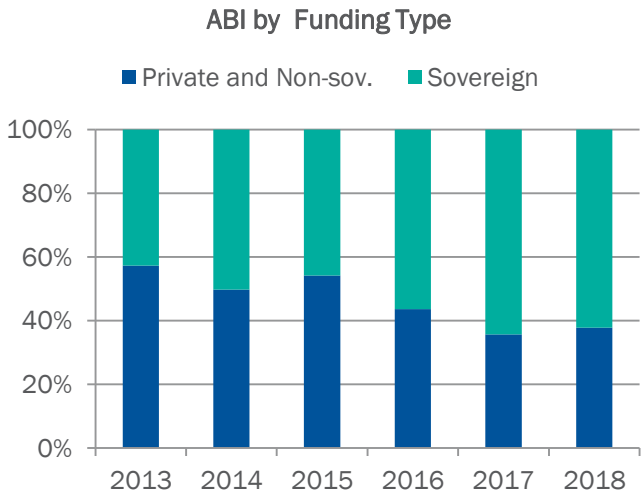
17

# of projects, involving: Trans-European Transport Network (TENTEC), Pan-European Networks, CAREC and TRACECA corridors









1. Implementation of the previous Strategy

1.2 Private Finance and Mobilisation

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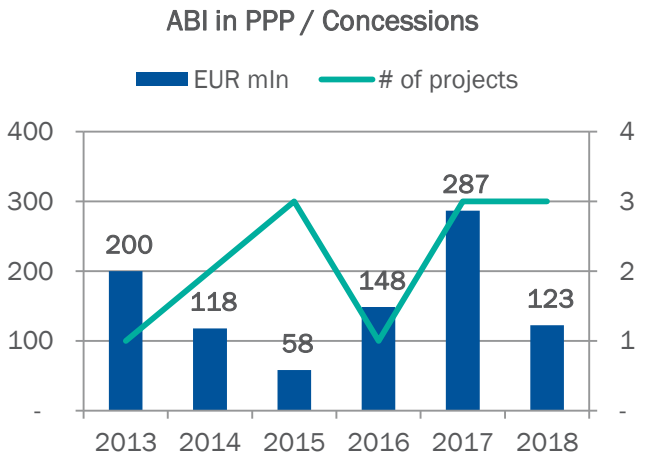
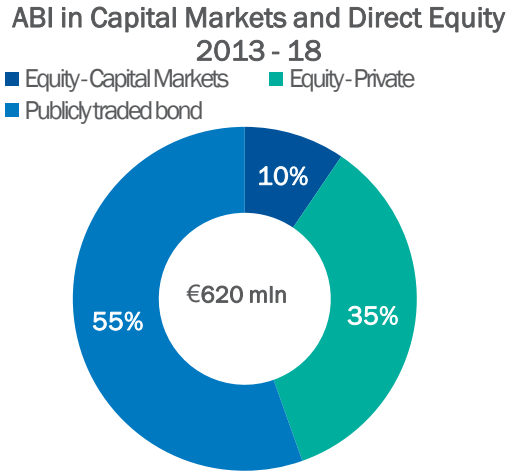
PPPs, Equity and Capital Markets

Over 2013-18, the Bank supported 13 new and mature PPP transactions in roads, ports and airports in 8 of the economies where it invests. The Bank's cumulative ABI for PPPs was €934 million and includes both debt and equity participations.

The relatively small number of PPPs reflects the weak pipeline of bankable infrastructure projects globally. The Bank's Sustainable Infrastructure Advisory Facility ("SIA") aims to support development of new infrastructure PPPs.

Over 2013-18, the Bank's equity investments totalled €276 million across nine projects. Over the same period, the Bank participated in five Eurobonds and local currency bond issuances committing ABI totalling €344 million.



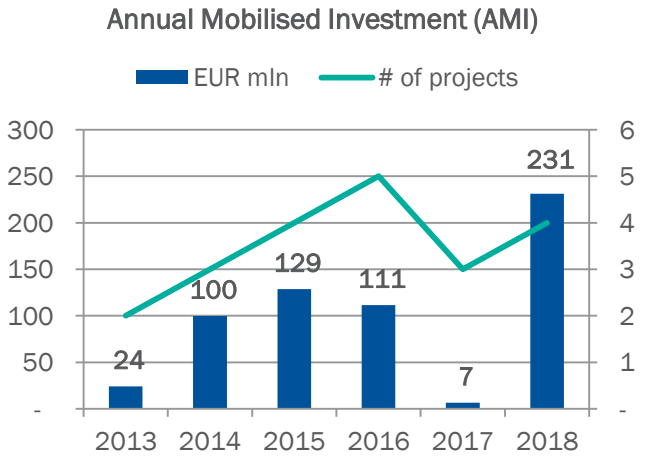


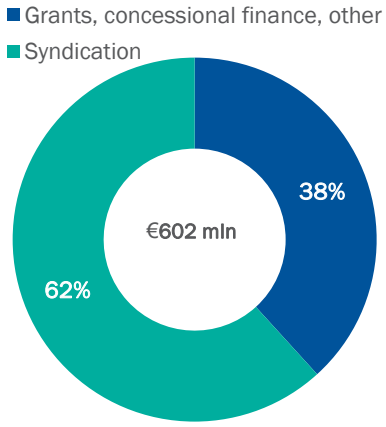
Concessional Funds, Grants and AMI

Concessional financing for green transport was mobilised from GEF and CTF. These products played an important role in promoting the green transport agenda and are expected to continue to do so in the next strategy period.

EU support, particularly via WBIF, continues to be a key source of financial support for project preparation, implementation and policy engagement in the Western Balkans, providing both technical cooperation and investment grants.

The bulk of the co-financing of transport infrastructure is mobilised from other IFIs or from commercial banks on a club basis for large infrastructure PPPs, which is not treated as AMI. However, AMI of €602 million was mobilised for 21 syndicated or grant supported transactions.





1. Implementation of the previous Strategy

1.3 Reform and Policy Dialogue

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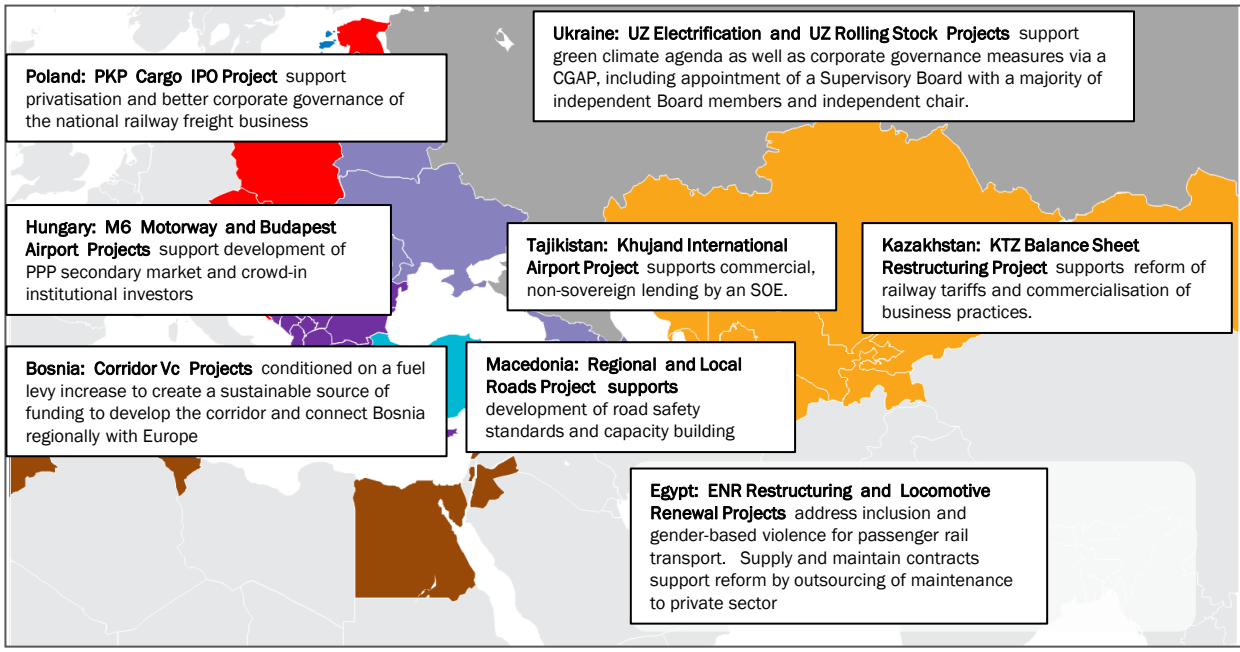
EBRD Investment and Related Reforms

Sector Reform: sector reform across the different transport modes is complex and often requires multiple EBRD investments and technical cooperation support to achieve on-going progress. The institutional and capacity building support means that the transition impact of the Bank's transport projects typically **increases** during project implementation. In addition, the Bank's engagement with governments through its sovereign and non-sovereign lending creates a platform for supporting private sector development, including greater use of PPPs and concessions to speed up the development of modern transport systems, introduction of best practice and use of best available technologies.

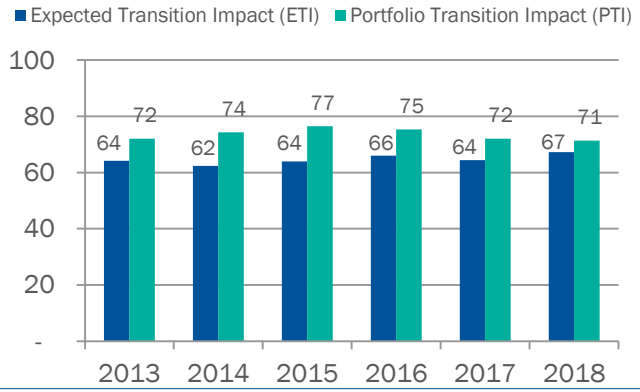
Climate Change: is a key challenge in the transport sector. The Bank promotes an "avoid-shift-improve" approach to reduce emissions and improve climate resilience . GET ABI delivery in any given year depends on project pipelines: for example, a high number of road projects deliver strongly on connectivity but deliver proportionately less on GET, whereas a high number of railway projects enhance annual GET delivery. On average during the Strategy period, the GET contribution of the Bank's transport projects accounted for 33 per cent of the transport annual business volume.

Inclusion: the Bank also made progress on gender and youth employment issues, supporting a major gender initiative for Egyptian National Railways and a number of inclusive procurement initiatives focusing on youth employment and training in the Western Balkans.

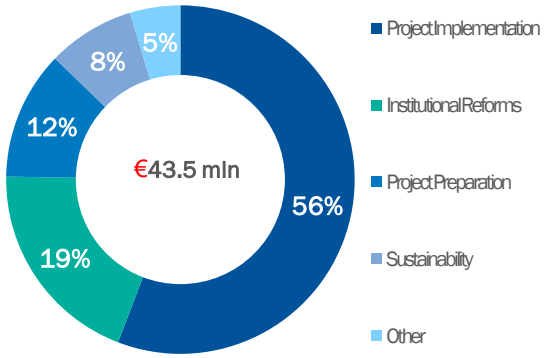
Donor funding : donor support remains central to delivery of the Bank's transport operations and progress on sector reform and sustainability. Technical cooperation totalling €43.5 mln equivalent was mobilised in the 2013-18 period, of which over 80 per cent supported project implementation, sector reforms and sustainability improvement.



Transport Transition Impact



TC Funding 2013 - 18



1. Implementation of the Previous Strategy

1.4 Operational Highlights

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Key Operational Highlights	
Improved access of businesses and consumers to markets including EU and regional markets[1].	67 of the 147 projects financed focused on connectivity (35 roads, 14 ports, 14 rail and 8 aviation). These financed about 2,000 km of roads, 800 km of railways, 5.0 million TEUs of port capacity and 17 million airport passenger capacity. The Bank also invested in 17 projects upgrading regional corridors such as TEN-T, WBCN, CAREC and TRACECA.
Expanded transport services markets[1]	64 of the 147 projects financed supported the expansion of transport services. The Bank supported the financing of circa 12,000 railcars, 130 locomotives, 1,500 units of trucks and other non-road equipment and 15 vessels. Investments across the logistic chain also included equipment, warehousing and other logistics infrastructure to improve efficiency.
Deeper private sector participation.	79 of the 147 projects financed were private sector projects. These included 18 SMEs, 21 PPPs, equity and capital market projects, with the remaining 40 being private sector loans. Of the 79 projects, 9 supported corporate governance improvements, 28 supported improvements in competition, growth and expansion and 22 supported both.
Reform of state-owned transport enterprises and the regulatory environment	68 of the 147 projects financed were state sector projects. 15 of these were financed on commercial terms with no state guarantee, deepening financial sustainability and the remaining were 53 financed on either a sovereign basis or a sovereign guarantee basis. Of the 68 projects, 47 supported SOE efficiency improvements. These included separation of policy and management functions, improved standards and certification, transparent financial reporting, improving corporate and climate related governance. Of the 68 projects, 8 supported improvements in the regulatory environment. These included track access charging in the rail sector, reform of freight operations and private sector participation, as well as cross border agreements to facilitate trade. Improving financial stability of the road sector through toll and fuel levy increases were supported to secure sufficient funding for network expansion and maintenance. Policy dialogue and development of the enabling environment for PPPs was also supported, using sovereign engagement as a platform. Of the 68 projects, 13 included elements of both SOE and regulatory reform.
Green Investments	59 of the 147 projects financed included GET components for a total ABI of €2.1 billion. These resulted in an estimated reduction of 1,174 kt of CO_2 emissions per annum.

1 Together 131 Projects financed the expansion of infrastructure and services, with the remainder (16 Projects) being a combination of restructurings and other transaction types

1. Implementation of the Previous Strategy

1.5 Lessons Learnt

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Challenges	Key Lessons
Sector reforms and SOE restructuring are complex and take time to implement .	Sector reform is complex and time consuming, requiring political will and strong commitment. On-going policy dialogue and engagement with SOEs are needed to maintain leverage to deliver on the changes required. Capacity building and technical cooperation to improve governance and standards are essential to achieve lasting reform.
Private Sector engagement and resource mobilisation should be a strategic priority (EvD Recommendation 1)[1].	Private sector engagement is a strategic priority for the Bank in the transport sector. This will be promoted through sector reform and restructuring of SOEs and supporting PPPs. Resource mobilisation is greatly needed to close the infrastructure gap and will be pursued. However, while some transport projects include AMI, substantially more finance is mobilised on a parallel basis (for example, by commercial lending clubs for large PPPs) , which is not treated as AMI.
Road safety and other E&S risks requires leadership and capacity building to bring significant change and target reduced loss of life and injuries on roads.	At the project level, road safety and road safety audits should be incorporated as early as possible in project design. At the government level, capacity building, training, active management of accident black spots, engagement and coordination across all E&S areas is required to achieve significant improvements.
Transport is a major source of GHG emissions and climate change continues to pose a risk for transport infrastructure.	Capacity building and technical cooperation for detailed design and E&S due diligence are required to improve design and implementation of climate resilient infrastructure. Suboptimal use of energy for transport provides scope to reduce emissions. Modal shift, training, knowledge transfer and considering backwards energy linkages are needed to move the sector onto a greener path.
Bankable PPPs remain limited in number. Institutional capacity, risk and affordability issues are key contributing factors in many economies where the Bank invests	The Bank's IPPF (now renamed SIA) provided a useful source of funding for institutional capacity building and project preparation to support PPP pipeline development. Coordinated IFI efforts are also needed to develop credit enhancement mechanisms to reduce risk and deepen market appetite for PPPs in some economies where the Bank invests.
Progress on electric mobility over long distances is one of the biggest constraints to decarbonising transport	Engagement at the government level to define national strategies and advances in technology are key to accelerating electrification of transport over long distances. Investments should be linked to strategic frameworks (national or international) where possible including NDC's, as well as take into consideration the potential impact of urban transport electrification under Green City Action Plans.
Collaboration with other actors in the sector should be a priority (EvD Recommendation 2)[1]	Collaboration with other actors is important to achieve the Bank's strategic objectives in the transport sector, particularly where objectives are aligned and can be jointly pursued. This is particularly true for regional frameworks like WBIF, Green Funds (for example, CTF, GCF, GEF) and sustainability initiatives promoted by the EU. Collaboration with international bodies setting industry regulations or standards can yield interesting transition results.
The scope of the TSS should include key content and design elements (EvD Recommendation 3)[1]	The new TSS is based on the current sector strategy template, which has evolved since the previous TSS was prepared, and addresses the critical elements relevant to the strategic role of the Bank in the sec tor.
Integration with Country Strategies and key performance indicators and accountability for implementation should be clarified (EvD Recommendation 4)[1]	Consistent with the Bank's overall results framework architecture, results are measured, monitored and reported at the country level as part of Country Strategy Results Framework. These results can be used to illustrate performance at the sector strategy level, for the purposes of demonstrating sector progress alongside the indicators defined in Section 4.

1. Special Study: EvD Transport Sector Strategy Review EvD ID: SS17 - 106

2. Sector Context and Transition Challenges

2.1 Key Drivers and Implications

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Key Sector Challenges

Widening Infrastructure Gap

- Economic growth and development requires transportation/mobility and better connected infrastructure and services.
- Public investment in transport infrastructure and services has failed to keep pace with the growth in demand.

State-ownership and Governance

- State-ownership remains high and the sector reform process moves slowly, particularly in the road and railway sectors.
- Weak governance and lack of competition is delaying development of efficient, modern transport systems and adoption of new technologies.

Increasing Private Sector

- Private sector involvement in provision of transport services and fleet has increased but needs to expand further to speed up development and boost economic growth.
- Private sector participation in the development, management and operation of transport infrastructure including under PPPs also needs to increase.

Low Carbon, Environmental and Social Focus

- Transport at the national and regional levels is a slow to change sector in terms of decarbonisation. Innovation, new technologies, carbon neutrality and modal shift all need to be accelerated.
- Safety, especially on roads, remains a significant economic and social cost.
- Gender and youth inclusion are further challenges with regards to access and employment.
- Maintaining ecological connectivity requires adoption of infrastructure permeability principles.

In the context of constrained public resources, environmental and social challenges and a sector where externalities are difficult to quantify, sector reform, capacity building, innovation and private sector engagement will require strong on-going support.

2. Sector Context and Transition Challenges

2.2 Widening Investment Gap

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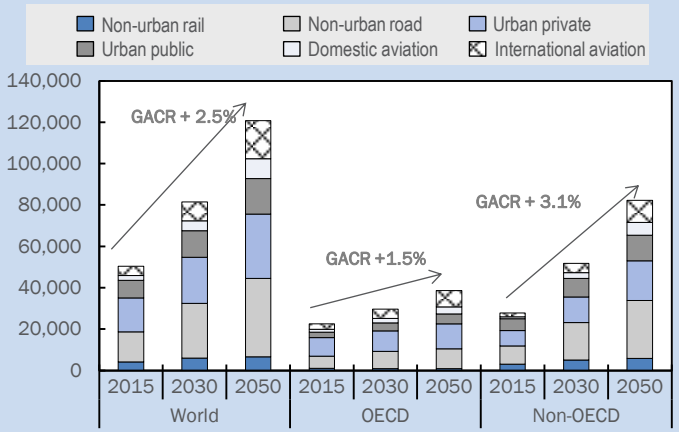
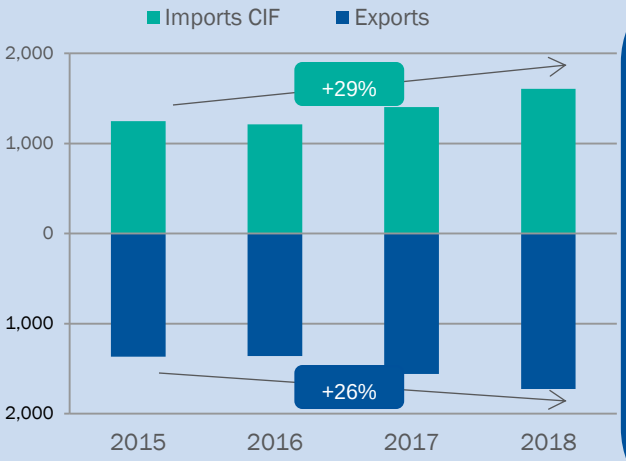
Demand for passenger transport by mode [1]

Billion passenger-kilometres, baseline scenario



[1] *Source: ITF Transport Outlook 2017*

Foreign Trade: EBRD Economies USD Bln [2]



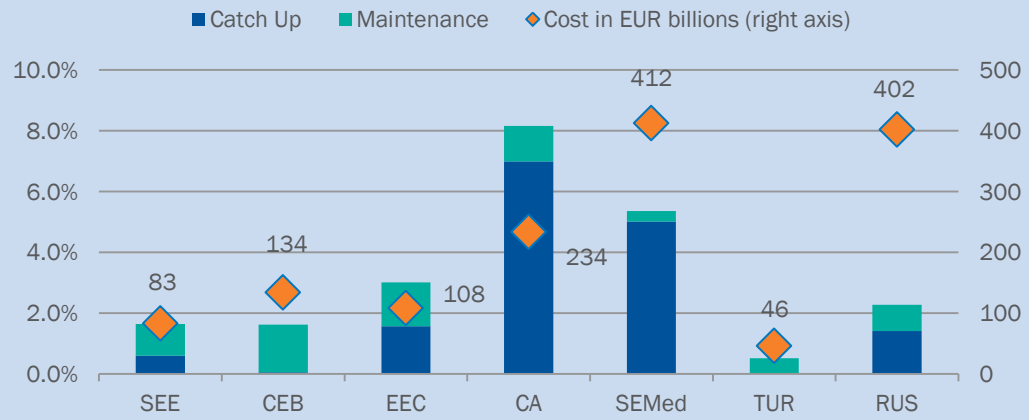
Transport Demand

Transport demand is strongly linked to GDP and population growth.

The demand for individual mobility is expected to more than double in the coming decades. This growth however is not uniformly distributed between regions where the majority of growth will be realised in Non-OECD regions.

With over USD 3.3 trn in foreign trade across economies where the Bank invests and strong growth expected in the coming decades, transport systems will need to be more flexible and modern with improved connectivity and efficiency. They will also need to provide higher capacity while becoming greener from an energy and emissions perspective and ensure safe, equal and affordable access for all.

Total Investment Needs for 2018 – 22, per cent to GDP [3]



Investment Gap

Transport investment needs in the Bank's regions are substantial and estimated at around €1.4 trn over the next 5 years just for road and rail![3] Bridging this gap will involve expenditure totalling approximately 2.6 per cent of combined GDP for each of the next 5 years, with EEC, SEMED and CA having the largest needs.

The investment needs are different across the different EBRD regions: for the regions with more advanced transport infrastructure, mainly CEB and Turkey, the principal investment needs relate to the replacement and maintenance of the existing road and railway infrastructure. At the other extreme are the regions of Central Asia, EEC and SEMED, where the main infrastructure investment needs relate to catch-up investment, i.e. greenfield infrastructure that is necessary to bring the infrastructure in line with expected infrastructure levels, given characteristics such as GDP per capita, population and land mass.

1 International Transport Forum 2107 Report
2 IMF data
3 EBRD transition report 2017-2018 and EBRD calculations. Analysis includes rail and road investments needs.

2. Sector Context and Transition Challenges

2.3 Public Resource and Capacity Constraints

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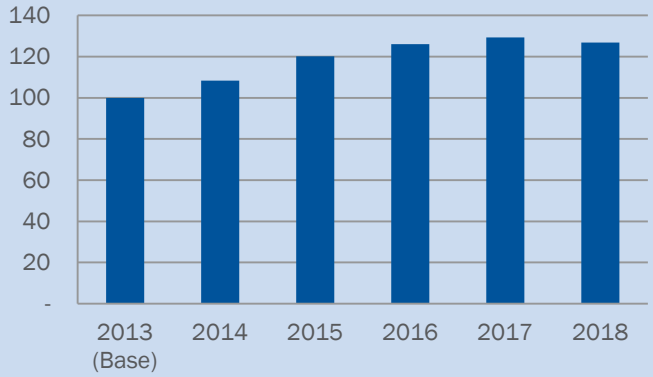
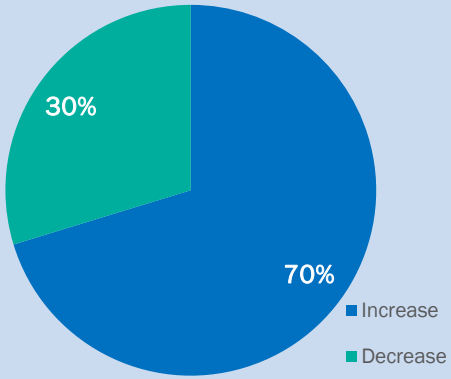
2013-18
Public Debt as per cent of GDP Evolution in Bank's Economies [1]



2013-18
Percentage of Bank's Economies showing an Increase / Decrease in leverage [1]



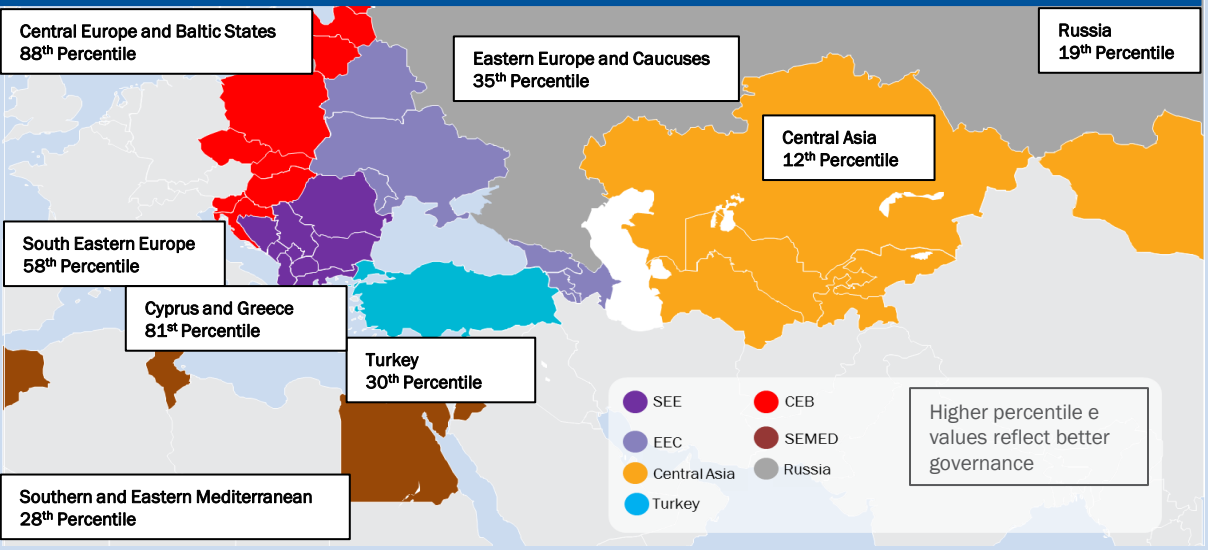
Fiscal Landscape

70 per cent of the economies where the Bank invests have experienced an increase in indebtedness over the previous strategy period with an average increase of 26 per cent across the region.

While in many of these economies the state is the principal investor in infrastructure, private sector participation through private investments and PPPs needs to increase to help reduce the infrastructure gap.

If required, concessional finance or grants will be mobilised selectively to encourage low carbon, innovative, and resilient investment which goes beyond "business as usual".

2017 World Wide Governance Indicators for the Bank's Economies [2]



Governance and Institutional Capacity

Delivering sustainable transport systems depends on good governance, which requires political will, effective legal and regulatory frameworks, institutional capacity, accountability, commercial discipline, best practice, for example, procurement, audit, environmental and social . Central Asia, SEMED, Turkey and Eastern Europe and the Caucasus have the largest governance gaps.

The sector reform needed to deliver good governance is often politically sensitive, complex and takes time to implement. High standards of governance will be supported by the Bank's sovereign projects. This will be complemented by policy dialogue and capacity building to promote reform and greater private sector participation to improve governance standards across the Bank's region.

1: 2013-2018 International Monetary Fund (IMF)
2: World Bank – 2017/2018 World Wide Governance Indicators and EBRD calculations. The WWGI constructs aggregate indicators across six broad dimensions and includes 1) Voice and Accountability 2) Political Stability and Absence of Violence 3) Government Effectiveness 4) Regulatory Quality 5) Rule of Law and; 6) Control of corruptions

2. Sector Context and Transition Challenges

2.4 Trade and Economic Growth

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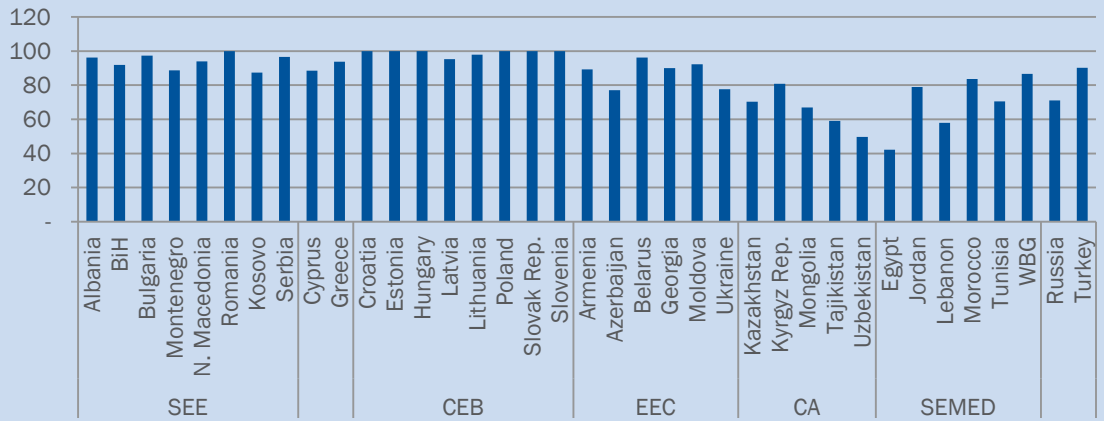
2019 Index for Ease of Cross Border Trade (100 Being optimal) [1]



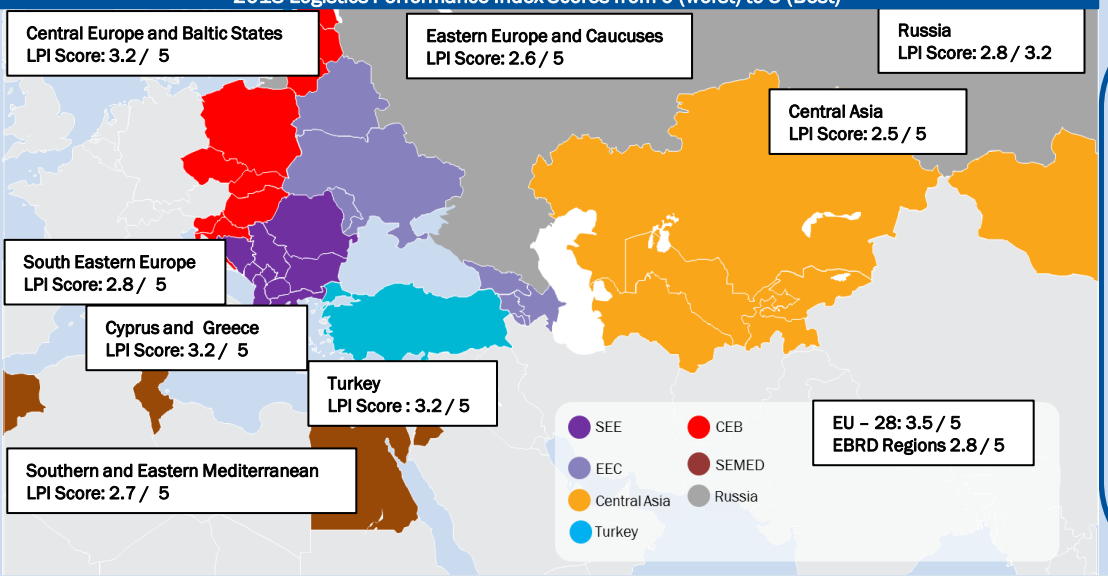
Cross Border Trade

Doing Business measures the time and cost (excluding tariffs) associated with sets of procedures within the overall process of exporting or importing a shipment of goods.

In the Bank's region, CEB and SEE have the highest scores for cross border trading averaging 99.1 and 94, respectively, which contrasts to CA and SEMED regions which led to average scores for these regions of 65.4 and 70, respectively. This implies that trading across borders involves relatively high time and cost associated in the latter two regions as measured by *Doing Business*.

Azerbaijan, Kazakhstan, Kyrgyz Republic, Russia, Tajikistan, Turkey, Ukraine, and Uzbekistan were assessed to have implemented reforms which made trading across borders easier during the period between June 2017 and May 2018.

2018 Logistics Performance Index Scores from 0 (worst) to 5 (Best) [2]



Logistics as a driver of Economic Growth

Logistics performance is highly correlated with trade expansion, export growth, attractiveness of FDI, all of which contribute to overall economic growth. The potential for boosting sustainable economic growth through improved green logistics is significant.

The Bank's region has relatively under-developed transport systems when compared to global peers. The WB LPI measures factors affecting logistics efficiency. The economies where the Bank invests still lag behind global competitors with the most significant disparities in EEC, CA and SEMED.

In a global environment where more consumers purchase goods online, better logistics performance will be required. This means improving infrastructure quality, harnessing private sector efficiencies, adopting best practices, improving governance, streamlining customs regulations and cross border activities and improving timelines and tracking capabilities through digitalisation.

1: 2018 World Bank: Logistics Performance Index
2: 2019 World Bank: Doing Business in 2019

2. Sector Context and Transition Challenges

2.5 Climate Change

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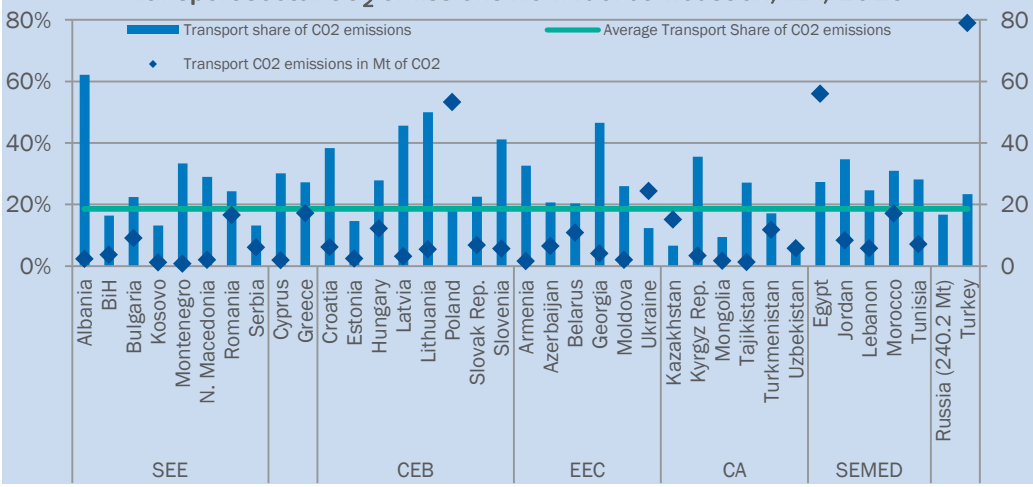
Transport sector CO_2 emissions from fuel combustion, IEA, 2016[1]

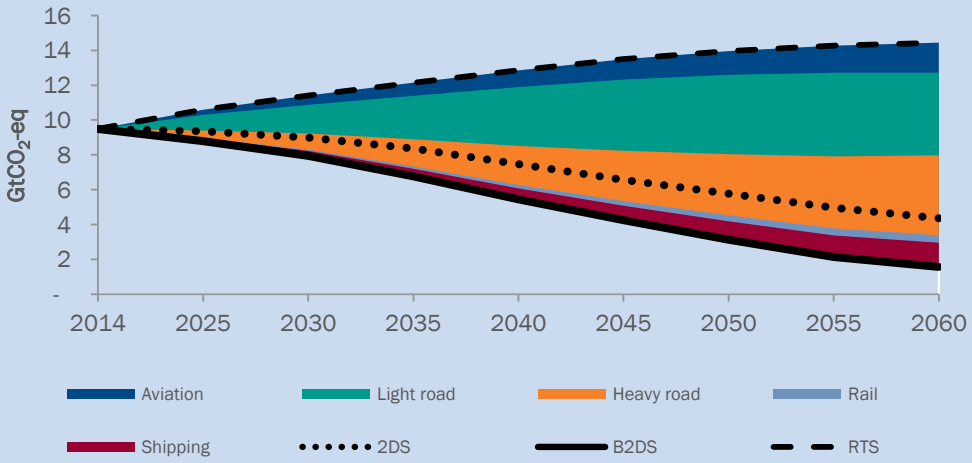


Transport Share of Combined Emissions

The transport sector is a slow to change sector with significant environmental impacts. It is predominantly described as a sector that is playing catch up to other sectors, such as energy. On average, the transport sector share of the combined fuel combustion emissions is around 19 per cent in the economies where the Bank invests. Local air quality and emissions also pose an increasing threat to human health but struggle to attract political focus and concessional finance.

The Global community is however making significant headway with international agreements such as the Paris Agreement (COP21), IMO Annex VI, the UN SDG's and ICAO CORSIA[3] will continue playing a critical role in advancing the decarbonisation agenda. The Bank has an important role to play in catalysing these initiatives and supporting both investment and policy related themes in the economies where the Bank invests.

World GHG emissions reductions by transport mode and scenario, 2015-60[2]



Reducing Emissions

Paris Alignment aims is to keep the global temperature rise well below 2 degrees. The 2 Degree Scenario (2DS) and Beyond 2 Degree Scenario (B2DS) are compared here with the Reference Technology Scenario (RTS) which reflects the worlds current ambitions and provides for a baseline. Under Paris Alignment, governments are obliged to submit their NDCs in 5 year cycles. Almost all NDCs have goals linked to the Energy Sector while other sectors, including transport are vaguely reflected and in some cases not mentioned at all.

More needs to be done to integrate green transport policies within NDCs and the Bank can play a role in supporting the Paris Alignment by supporting investments that are aligned with it. Economies that are lagging behind in terms of infrastructure capacity can offer opportunities to leap frog to investing in green infrastructure without the risk of locking into inefficient carbon intensive infrastructures and transport systems that can become stranded assets.

1:2016 National country reference data provided by the International Energy Agency (IEA), excludes global sectors of Maritime and Aviation.
2:2017 Energy Technology Perspectives – International Energy Agency
3:Carbon Offsetting and Reduction Scheme for International Aviation

2. Sector Context and Transition Challenges

2.6 Climate Resilience

European Bank for Reconstruction and Development

2017 ND Gain Regional Index

Summary of a regions vulnerability to climate change in combination with its readiness to improve climate resilience.

Policy and Capacity Building

Capacity to address climate resilience in transport infrastructure remains low in many economies where the Bank invests, in terms of the capacity of both public and private players to assess risks and implement climate adaptation actions. Up until now, many economies do not have the technical knowledge or experience of dealing with physical climate change impacts.

Scaling up knowledge is essential to addressing climate risks in a holistic manner. Capacity-building for transport infrastructure practitioners would enable long-term climate resilience planning, and allow physical climate risk management to be fully integrated into policy and investment decision making. More strategic planning is needed to look beyond the project level and consider the criticality of interlinking transport networks and value chains and their intersection with climate risks.

Infrastructure Climate Resilience

The transport sector also faces significant risks resulting from impacts of climate change such as sea-level rise, extreme temperatures, storms, floods and landslides. Many transport related infrastructure assets have useful lives of over 50 years when properly maintained. These long timescales require the integration of climate resilience into the design of transport infrastructure now. Moreover, looking beyond just the infrastructure, the risks to transportation from damage, disruption and delays that may be caused by extreme weather events and climate change, pose a substantial economic risk to closely interlinked global supply chains, with significant repercussions for trade and development.

Understanding and addressing these risks is essential to ensure that the infrastructure can continue to function in a future with climate change and that transport networks are able to fulfil their role in enabling global trade.

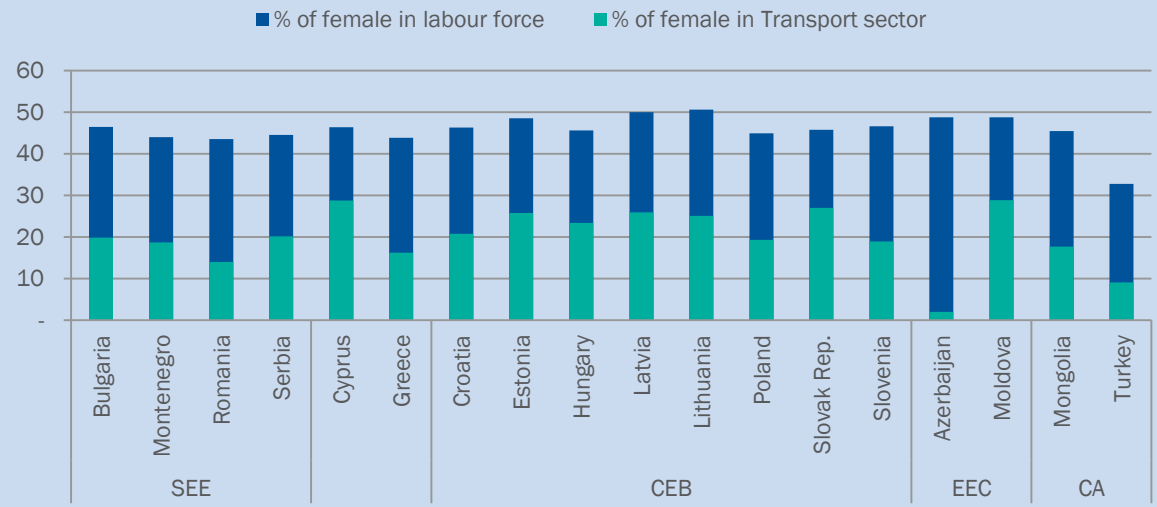
1:2017 Notre Dame Global Adaptation Initiative.

2. Sector Context and Transition Challenges

2.7 Inclusion and External Costs

European Bank for Reconstruction and Development

Female participation in labour force 2017-18 [1]

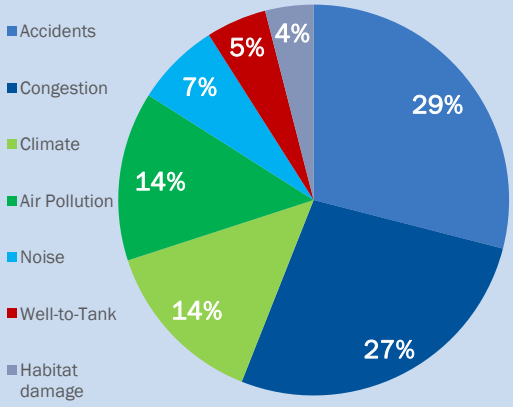


Female Participation in the Transport

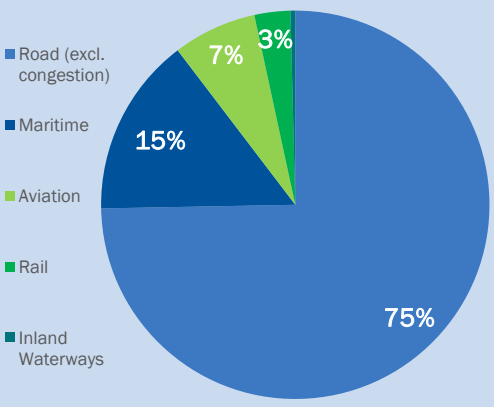
Female participation in the economy-wide workforce in the identified sample of the economies where the Bank invests is around 46 per cent on average.

Female participation in the transport sector, however, is much lower dropping to around 20 per cent. Even though the transport sector, and related jobs, is by and large considered a male dominated sector, the promotion of gender equality and economic inclusion through increased access to employment and skills is important to support a more gender-balanced approach in the sector. Equal access to services based on affordability and personal safety, especially for low income groups, women, ethnic minorities and people with disabilities are also promoted.

External Costs by Cost Category (EU 28) [2]



External Costs by Transport Mode (EU 28) [2]



Externalities are Substantial

The transport sector facilitates access to markets, jobs, health care and education to all economic and social groups, with a wide geographic coverage. However improved transport systems are also associated with adverse externalities, such as road accidents, emissions, climate change and other environmental and social impacts, which can be substantial.

For developed markets such as those in the EU-28[1], external costs are estimated to be €1 trillion per year, or 7 per cent of combined GDP. In less developed economies this could increase to more than 10 per cent of GDP depending significantly on the level of road fatalities and environmental regulations in each region.

1: European Commission (mobility and transport score board), region labour statistics
2: Multimodal Sustainable Transport: internalisation of external costs December 2018 (Connecting Europe)

2. Sector Context and Transition Challenges

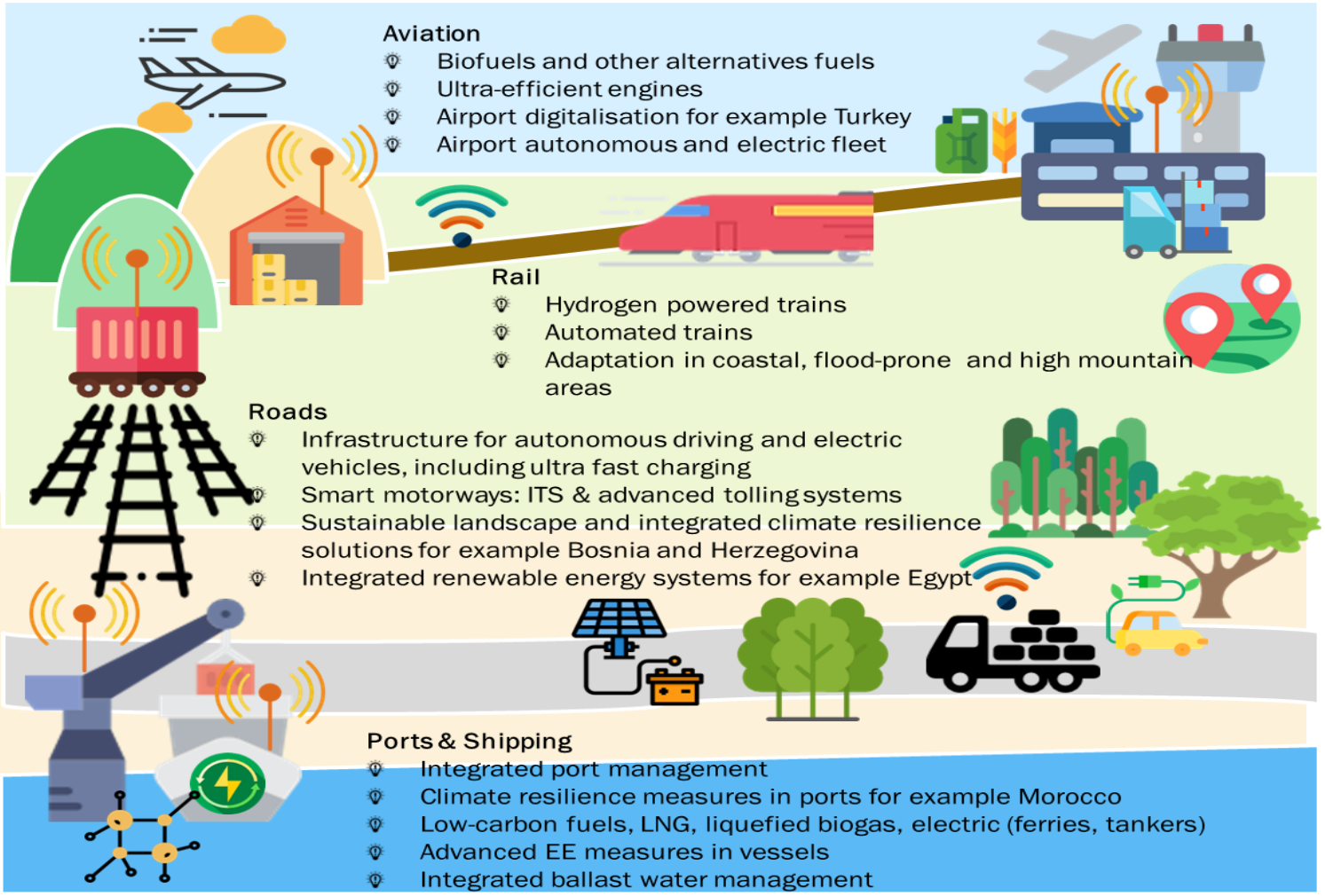
2.8 Innovation and Technology Opportunities in Transport

European Bank for Reconstruction and Development

The Bank recognises the importance of introducing new technologies to increase efficiency and reduce the carbon intensity of the sector. The timing will depend on the speed of technological advances for long distance transport, client readiness and economic value of the innovative solutions.

Cross-cutting Logistics

- Reverse logistics and pooling solutions to support circular economy
- Automation in warehouse and terminals for example Ukraine, Georgia
- Ultra-efficient cooling/freezing technologies along cold value transport chains
- Advanced intermodal solutions for example Turkey, Bulgaria
- Digital solutions to optimise movement of goods, such as single window transit corridors for example Caucasus
- Electric vehicles for short distances for example postal operations Egypt



References to emergence of these innovations and technologies illustrative only and are not intended to be exhaustive.
See Annex G for more detailed information on innovation and new technologies in the sector and Annex H for cross linkages to urban transport.

2. Sector Context and Transition Challenges

2.9 Transition Challenges by Theme

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Competitive	**Market Responsive Infrastructure and Services:** A well-functioning and competitive transport market stimulates innovation, new technologies and promotes efficiency, pushing down costs and improving timeliness and the quality of service for end users. **Institutional Reform and Regulatory Improvements:** The Bank supports institutional reform of SOEs to improve efficiency, transparency and accountability in the management of transport infrastructure and services. The primary means to achieve this through reforms aimed at decentralisation, tariff and structural reform, commercialisation and greater private sector participation.
Well-Governed	**Policy Dialogue:** Efficient and market-oriented sector policy and market structures – unbundling and liberalisation of railways; separation of policy and operations in roads and the liberalisation of maritime and aviation and support strategic planning across transport modes. **Corporate Governance and Standards:** Poor corporate governance is an impediment to the promotion of competitive markets and FDI. Corporate governance improvements in line with international best practices increase transparency and unlock opportunities. Along with international environmental and social standards, the Bank will prioritise sustainable transport and support low carbon solutions, which applies climate-related governance methodologies support the move by SOEs and private companies towards efficient technologies, higher standards, lower-emissions and improved sustainability. **Road Safety:** Road safety, including road infrastructure and occupational road safety, remains as a huge challenge in the economies where the Bank invests. WHO[1] estimates that there were more than 89,000 road fatalities in the Bank's region in 2018, with the associated costs ranging between 1 per cent of GDP in Hungary to 3.2 per cent of GDP in Lebanon. The Bank will continue to support and incorporate road safety initiatives where possible.
Resilient	**Funding :** Many transport SOEs are not economically viable. Increased user charges and dedicated tax funding is needed to sustain both investments and infrastructure maintenance. **Diversification of financial sources:** Transport infrastructure in many economies where the Bank invests relies heavily on sovereign financing. Corporate and project financing needs are underdeveloped and the use of more sophisticated market instruments, bonds and equity listings, can be further developed.
Integrated	**Network reliability:** Regional transport networks suffer from significant under investment and maintenance gaps in many economies where the Bank invests. Some economies are especially vulnerable to service disruption. Additionally, some networks suffer from high capacity utilisation which create bottlenecks and inefficiencies. **Intra-regional Connectivity:** Transport supports individual mobility and the ability to access public services, for example, health, education and jobs. This requires coordination of the interfaces between regional and urban transport systems. In addition, integration of different transport modes such as rail, road and maritime under logistic hubs will be key to achieving higher levels of economic development. **Regional and International Connectivity**: Links between economies and transport of people fosters competition and international trade. Cross border integration remains a key pillar for trade, competition and creating an enabling environment for growth.
Inclusive	**Access to Services:** Access through development of transport systems helps reduce disparities in terms of opportunity and development, particularly for women, youth and vulnerable groups or those living in remote rural areas. **Gender :** The Bank will support transport-related responses to Gender Based Violence and improvement in the overall safety of the travel environment for women.
Green	**Low Carbon Transport:** Transport represents 19 per cent of overall carbon emissions in the economies where the Bank invests. Achieving the goals of the SDGs and Paris Agreement will require considerable climate change mitigation and resilience measures, including shifting more freight and passengers to railways, rolling-out new technologies and capturing the significant opportunity of electric mobility and supporting the long term decarbonisation of aviation and maritime transport . This will contribute to building more efficient, less polluting (C02, NOx, SOx, PM), flexible and resilient transport systems. A greener transport sector will also drive innovation, new technologies and competiveness in the sector.

1: 2018 World Health Organisation fatality data and 2015 World Health Organisation GDP losses data

3. Strategic Directions

3.1 Overview

European Bank
for Reconstruction and Development

Aim

The Bank will promote sustainable transport systems, which embody market principles, balance economic, environmental and social needs where not complementary and are responsive to the needs of people, industry and trade.

How?

Interrelated Strategic Directions

By connecting, reforming and decarbonising transport systems making them commercially-oriented, competitive, sustainable and safe.

1. Connected Networks
2. Private sector participation
3. Environmentally and Socially Responsive Transport
4. Low carbon and Innovative Solutions

Interface with Bank-wide approaches, initiatives and policies, other sector strategies and country specific characteristics

What we will not do

Transport infrastructure or services principally dedicated to the transportation of coal

3. Strategic Directions

3.2 Regional Context

European Bank for Reconstruction and Development

Distinct patterns in strategic priority areas emerge at **regional level** depending on the economies' readiness, implementation capacities, and market dynamics on the ground. The examples of potential focus investment and policy dialogue areas provided below will target opportunities to close specific transition gaps [1].

	Connected Networks					Private Sector Participation		Environmentally and Socially Responsive Transport			Low Carbon And Innovative Solutions				Financing Structures			
	Road	Rail	Logistics	Maritime	Aviation	Sector Reform	Private Sector	E&S	Road Safety Impact	Inclusive	Low Carbon	Climate Resilience	Electrification /Alt Fuels	Innovation	Sovereign	Sub-sov and Pvt	PPPs	Capital Markets and other
Central Asia, Russia	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CEB		✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	✓	✓
EEC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SEE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SEMED		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓
Turkey	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓ Rail	✓	✓	✓

1: The above are examples of potential areas of engagement. Actual areas of engagement are not restricted to these areas. Analysis of transition gaps and prioritisation of Bank's activities at the regional level are performed in EBRD Country Diagnostics and Country Strategies respectively.

3. Strategic Directions

3.3 Connected Networks (1)

European Bank
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Connected Networks

Improved Quality and Connectivity of Network Infrastructure

Primary TI targeted | Integrated

Roads:

- Complement co-financing partners with investment in constructing, upgrading and modernising of motorways, national, regional, local and rural cross border road infrastructure to improve access to markets and services, and create linkages to key transport networks and corridors.
- Supporting corridors and network plans such as TEN-T, WBCN, CAREC, TRACECA and BRI in the economies where the Bank invests.
- Policy dialogue on sustainable funding of road maintenance and performance-based maintenance, where feasible out-sourced to the private sector.

Railways :

- Investment in rehabilitation and expansion of national, regional and sub-urban rail infrastructure and signalling, to improve access to markets and services, and create linkages to key transport networks and corridors, including TEN-T, WBCN, CAREC, TRACECA and BRI in the economies where the Bank invests.
- Finance rolling stock renewal and fleet expansion, station development, leasing and other support services to improve service quality, remove bottlenecks and encourage modal shift.

Logistic and Intermodal:

- Support integration and optimisation of logistic operations through investment in fleet, warehousing, storage, sorting and intermodal infrastructure and services.
- Promote paperless, seamless transit corridor through digitalisation and improved cross border cooperation.

Maritime:

- Investment in port infrastructure, superstructure, and equipment, including clean berthing of ships in ports (for example, cold ironing or LNG fuel switching) to support transhipment and gateway trade.
- Encourage development of inland waterways and inland ports through policy dialogue and investment support.
- Promote introduction of sustainable charging regimes to optimise trade routes.

Aviation:

- Investment in airports terminals, particularly by the private sector, and airside infrastructure.
- Support financing of associated services such as aircraft maintenance and airport service providers.
- Investment in air navigation systems to provide safe, regionally integrated air traffic management services.
- Selectively support financing of airlines and other aircraft-related investments based on the feasibility, transition gaps and sustainability of such investment.

3. Strategic Directions

3.4 Private Sector Participation (2)

European Bank
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Private Sector Participation

EBRD Project related Reform to support Market–based Transport

Primary TI targeted | Resilient | Competitive | Well-Governed

Promoting Sector reform:

- Promote a market-based approach by combining financing of priority public sector transport projects with policy dialogue, capacity building and sector reform requirements.
- Leverage sovereign financing to create a platform for supporting private sector access, including greater use of PPPs and concessions to speed up the development of modern transport systems, introduction of best practice and use of best available technologies.

Restructuring of State-owned Enterprises (SOEs):

- Support the transformation of SOEs into commercially-oriented entities, including separation of policy and operations, restructuring along business lines; improving governance, commercial-orientation, financial sustainability through adoption of "user-pays" principles or fully-funded public service obligations under Public Service Contracts.
- Encourage SOEs to finance investments on a non-sovereign, commercial basis to reduce reliance on state budgets, for example, for renewal of freight rolling stock or upgrading of air navigation systems, which benefit from cost-based funding structures
- Support outsourcing of non-core activities, where feasible.

Promote Private Sector Participation

Primary TI targeted | Resilient | Competitive

Private Sector Operations:

- Support private sponsors investing in commercial transport operations such as fleet expansion, rail freight services, logistics, port operations and, selectively, airline operations.

Public Private Partnerships:

- Encourage greater use of PPPs, where appropriate, through policy dialogue and technical cooperation supported by the Bank's SIA programme.
- Provide tailored financing solutions to private sponsors of PPPs, alongside co-financing partners across the economies where the Bank invests .
- Support the development of the secondary PPP market by refinancing debt and equity to attract new classes of investor, such as institutional investors.

Innovative financial instruments:

- Promote the development of credit enhancement, guarantees and other blending instruments.
- Support capital markets development, including Green bonds.
- Provide innovative financing solutions tailored to client needs.

3. Strategic Directions

3.5 Environmentally and Socially Responsive Transport(3)

European Bank
for Reconstruction and Development

Environmentally and Socially Responsive Transport

Improved Capacity to Address Environmental, Social and Safety Challenges

Primary TI targeted | Well-Governed | Green

Environmental and Social challenges:

- Assessment of investment impacts on biodiversity, pollution and social factors, for example, land acquisition, noise, air quality and safety in accordance with EBRD ESP Performance Requirements are to remain at the forefront of the Bank's transport operations.
- Focus on stakeholder engagement and supporting public and private clients, with technical cooperation, where needed, to identify environmental and social impacts and develop and implement Environmental and Social Action Plans.
- Support capacity building and development of systematic approaches to address, minimise and reduce environmental and social risks and encourage attainment of higher standards and industry certification by public and private sector clients, where appropriate.

Road Safety:

- Continue to work collectively with other MDBs to tackle road safety issues.
- Engage with national authorities at the policy level to encourage the development of national and regional road safety strategies where opportunities arise, including safe driving campaigns, black spot management, data collection and so on.
- Continue to engage with educational institutions in the economies where the Bank invests to support training of professionals involved in safe road design and road safety auditing; and with local communities to raise awareness of road safety through locally-targeted road safety campaigns.
- Promote private sector occupational road safety, focusing on safe driving practices, telematics, improving driver behaviour.
- Require road safety audits for Bank-funded projects, focusing on safe designs and modal intersections, such as level crossings.

Increased Inclusion and Equal Access to Transport Infrastructure and Services

Primary TI targeted | Inclusive

Making Transport Inclusive:

- Policy dialogue on development of inclusive, affordable and sustainable transport in line with the Bank's Strategy for the Promotion of Gender and Economic Inclusion, as well as specific initiatives targeted in the country strategies.
- Promote gender equality and economic inclusion through increased access to employment and skills, for example, by promoting the adoption of inclusive procurement practices for major infrastructure projects, which can provide work experience, training and potentially permanent job opportunities for young people regardless of gender.
- Encourage equal access to services for all groups of people in an effort to address inequalities and regional imbalances, especially for low income groups, young people, women, ethnic minorities and people with disabilities.
- Support transport-related responses to Gender Based Violence and improvement in safety of the travel environment for women.

3. Strategic Directions

3.6 Low Carbon and Innovative Solutions (4)

European Bank for Reconstruction and Development

Low Carbon and Innovative Solutions

Decarbonisation and Reduced Vulnerability to Climate Change

Primary TI targeted: Green

Decarbonisation:

- Avoid/shift/improve: support reduced travel/ need to travel to reduce emissions by bringing transport systems closer to centres of economic activity.
- Policy dialogue focusing on governance, transforming transport and travel patterns and promoting lower emission transport
- Support policy measures which seek to internalise external costs of emissions through pricing, potentially including carbon pricing.
- Scale up investment in less polluting modes, for example, railways, inland waterways, intermodal and logistics to encourage modal shift.
- Promote energy efficient technologies and designs, digitalisation, energy management systems, fleet scrappage and replacement.

Climate Resilience:

- Combine policy dialogue, capacity building and blended financing to promote climate adaptation.
- Scale up climate resilience solutions, for example, sustainable landscapes, adaptation solutions in coastal, flood prone and mountain areas.

The Bank will target a GET contribution of at least 40 per cent of average ABI from its transport operations over the Strategy period and carrying out a climate resilience risk assessment for all public sector projects for construction or modernisation of transport infrastructure over €50 million.

Electrification and Use of Cleaner Fuels

Primary TI targeted: Green; Competitive; Well-Governed

Electrification:

- Support investment in electrification of railway track and rolling stock to encourage modal shift, particularly from road to rail.
- Encourage and support investment in and planning for road transport charging infrastructure growth to facilitate move from short distance, urban fleet electrification to electrification of long-distance, intercity electric transportation/mobility, taking into account potential impacts of urban transport electrification under Green City Action Plans for electrification of regional and intercity transport.
- Policy dialogue and technical assistance to encourage governments in the economies where the Bank invests to future proof infrastructure investment, reduce the risk of technology lock-in, consider leap-frog technologies and improve the interface between urban and intercity electric transport/mobility.
- Promote electrification in airports (for example, off-road fleets, electric ground tugs) and ports (for example, cold ironing of vessels electric tugs/barges).
- Account to be taken of backward linkages to fuel sources used for electricity generation, where appropriate.

Fuel Switching:

- Policy dialogue and capacity building to promote switching to less carbon-intensive fuels or higher quality fuels with less sulphur.
- Promote investment in alternative low-carbon fuelled vehicles, for example, hydrogen powered trains, liquefied biogas ships, where feasible.
- Investment in clean berthing of ships by switching to LNG in ports, as an alternative to cold ironing.
- Investment in shipyards, including floating docks, to provide capacity to develop energy efficient vessels and low emitting engines, as well as provide retrofitting services and maintenance.

Improved Innovation and Penetration of New Technologies

Primary TI targeted: Green; Competitive; Well-Governed

Digitalisation and Big Data:

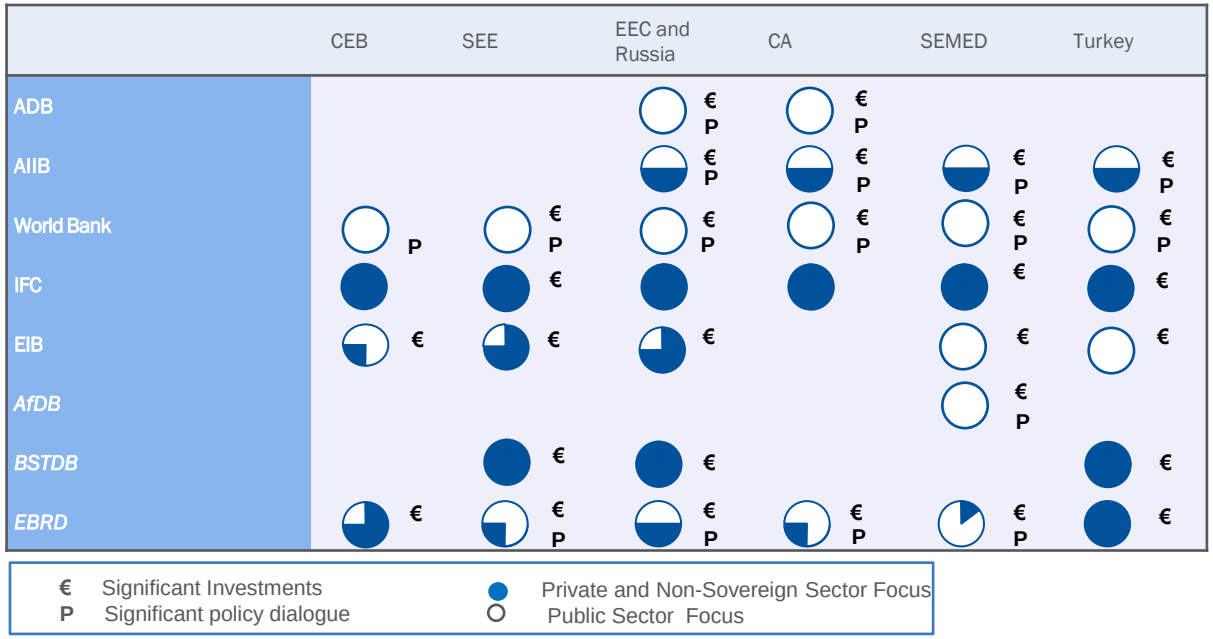
- Support digitalisation to improve traffic management and tracking of goods/vehicles using real-time data. Promote better access to/sharing of digital transport data with public and private stakeholders to increase supply chain efficiency, promote safety and provide for paperless trade corridors.

4. EBRD position in relation to other IFIs and Partners

European Bank for Reconstruction and Development

EBRD is differentiated from other IFIs by its:

- Readiness to offer a full range of commercial, sub-sovereign and sovereign instruments in the sector tailored to client needs and to promote sector reforms.
- Strong local presence and close government relationships providing ability to achieve policy outcomes and deliver results .
- Ability to mobilise co-financing for green investments (GCF and GEF).
- Strong expertise in structuring highly complex PPPs transactions and providing capacity building support.
- Proven agility to participate as a significant investor in time-critical capital market transactions.



Co-financing under Previous Strategy

- Cumulative co-financing from IFIs, commercial banks, bi-lateral financial institutions, institutional investors and so on totalled ~ €12 billion over the period 2013-18.
- Grants supporting the Bank's connectivity focus and concessional funding to support low-carbon technologies and climate resilience investments totalled ~ € 230 million over the period 2013-18.
- Transport PPPs and concessions attracted ~ €6.3 billion of the total co-financing raised.

Future cooperation with other IFIs will focus on:

- Coordination on policy dialogue and sector reform.
- Co-financing to address connectivity gaps.
- Joint collaboration on global initiatives, including promotion of sustainable transport.
- Collaboration with new market players in the region, for example, AIIB, AFC, DBC,BOC .

IFI activity mapping based on publicly available information.

5. Performance Monitoring Framework (1)

European Bank
for Reconstruction and Development

Connected Networks

Specific objectives	Activities	Tracking indicators	
		Outputs	Outcome (for relevant countries tracked in Country Strategies)
Improved quality, connectivity and integration of road, rail, logistics, maritime and aviation infrastructure and services.	• Investments • Policy engagement • Capacity building • Technical Cooperation • Concessional Finance • Partnerships	• Number/Volume of investments in regional networks (TEN-T, CAREC TRACECA, WBCN and BRI) • Kms of roads modernised or extended • Kms of railway track modernised or extended • Number/volume of investment in port infrastructure • Number/volume of investment in airport infrastructure • Fleets modernised, replaced, increased in terms of trucks, vessels, railcars , aircraft financed • Number/volume of investments in logistics • Number of investments in new or improved passenger services • Number of clients supported to enter new markets or expand operations in existing markets	• Additional new and upgraded kms on regional corridors • Net increase in infrastructure usage and/or capacity • Increase port capacity by cargo/passenger handling capacity • Increase airport capacity by cargo/passenger handling capacity • Increase in infrastructure access and/or capacity (AADT for passenger, freight tonnage)

Note: (i) The Performance Monitoring Framework has been designed to align with the Bank's approach to results measurement. Outcomes tracked across all activity types and aggregated at country level where relevant based on Country Strategy Results Framework under a relevant quality.

5. Performance Monitoring Framework (2)

European Bank
for Reconstruction and Development

Private Sector Participation

Specific objectives	Activities	Tracking indicators	
		Outputs	Outcome (for relevant countries tracked in Country Strategies)
Commercialisation of SOE's and Market-Based Transport	• Investment • Policy engagement • Capacity building • Technical Cooperation • Concessional Finance • Partnerships	• Number/volume of sovereign projects, including reform components or training and capacity building • Number/volume of investments supporting non-sovereign financing by SOEs	• Number of projects covenanting sector reform or capacity building • Number of financially sustainable SOEs able to borrow on commercial terms • Number of cases of SOEs accessing the bond market • Number of partial privatisations of SOEs via private placement or capital markets
Increased Private Sector ownership and participation		• Number/volume of transactions supporting private sector ownership/participation • Number/volume of blended or credit enhanced financing transactions • Number/volume of PPPs financed • Number/volume in capital market and private placement transactions (Debt and Equity)	• Number of PPP contracts or concessions implemented • Number/volume of innovative financing schemes (for example, bonds, credit enhancements, risk sharing/mitigation facilities, blended finance solutions) • Volume of capital market financing mobilised (Debt and Equity) • Targeted composition of investors achieved by final close capital market transactions

Note: (i) The Performance Monitoring Framework has been designed to align with the Bank's approach to results measurement. Outcomes tracked across all activity types and aggregated at country level where relevant based on Country Strategy Results Framework under a relevant quality.

5. Performance Monitoring Framework (3)

European Bank for Reconstruction and Development

Environmentally and Socially Responsive Transport

Specific objectives	Activities	Tracking indicators	
		Outputs	Outcome (for relevant countries tracked in Country Strategies)
Improved Capacity to Address Environmental, Social and Safety Challenges	• Investments • Policy engagement • Capacity building • Technical Cooperation • Concessional Finance • Partnerships	• Number of ESAPs agreed • Number of E&S capacity building TCs • Number of E&S client certifications supported • Number of Road Safety Initiatives undertaken, including road safety audits	• Number of ESAPs implemented • Increase in number of clients with E&S certification • Safer roads based on number of designs including safety audit recommendations • Greater awareness of road safety linked to number of road safety campaigns supported • Percentage of road safety recommendations implemented
Increased Inclusion and Access to Transport Infrastructure and Services		• Number of inclusive procurement processes • Number of gender initiatives supported	• Number of gender awareness initiatives that supports safer transport environment for women • Number of people receiving new/improved skills as a result of training (including inclusive procurement for youth) • Number of companies with improved inclusion practices.

Note: (i) The Performance Monitoring Framework has been designed to align with the Bank's approach to results measurement. Outcomes tracked across all activity types and aggregated at country level where relevant based on Country Strategy Results Framework under a relevant quality.

5. Performance Monitoring Framework (4)

European Bank for Reconstruction and Development

Low Carbon and Innovative Solutions

Specific objectives	Activities	Tracking indicators	
		Outputs	Outcome (for relevant countries tracked in Country Strategies)
Decarbonisation, electrification and reduced vulnerability to climate change in transport systems	• Investments • Policy engagement • Capacity building • Technical Cooperation • Concessional Finance • Partnerships	• Number of policy engagements supporting low-carbon solutions • Number/volume of GET-impact investments • Number of climate-related policy initiatives supported • Percentage of climate resilience assessments undertaken for sovereign infrastructure projects • Number of projects including climate resilience measures • Number/volume of investments supporting electrification or switch to cleaner fuels	• Number of sustainable transport plans adopted • Volume of GET-impact investment that increase green transport solutions implemented • Volume of GET-impact investment that increase climate resilient infrastructure • Total CO_2 Emissions reduced in tonnes/year) • Total Air emissions reduced (NOx, SOx, PM in tonnes/year
Improved Innovation and Penetration of New Technologies		• Number/volume of investments in new technologies • Number/volume of investments in innovative transport solutions	• New, updated and/or technologically advanced equipment or fleet introduced for example, number of projects supporting modernisation of signalling, traffic and safety management, other innovative technologies

Context Indicators (Source + Baseline)

- Road Quality Index/Score (World Economic Forum, 2018)
- Rail Service Efficiency Index/Score (World Economic Forum, 2018)
- Aviation Service Efficiency Index/Score (World Economic Forum, 2018)
- Transport Sector CO2 emissions (International Energy Agency, 2016)
- Logistics Performance Index (World Bank, 2018)
- Governance Indicators (World Bank, 2018)

Note: (i) The Performance Monitoring Framework has been designed to align with the Bank's approach to results measurement. Outcomes tracked across all activity types and aggregated at country level where relevant based on Country Strategy Results Framework under a relevant quality.

Annexes

European Bank
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Annex A: Abbreviations

Annex B : Environmental and Social Policy and the Transport Strategy

Annex C: TSS (2013-18) Achievement of Strategic Performance Indicators

Annex D: Infrastructure Gap – Roads
Infrastructure Gap – Rail
Infrastructure Gap – Maritime
Infrastructure Gap – Aviation

Annex E: Electrification of Transport

Annex F: Logistics Performance Index (LPI)

Annex G: Transport Sector Innovation and Technologies – Overview
Transport Sector Innovation and Technologies by Theme
Transport Sector Innovation and Technologies by Mode

Annex H: Cross-Sector Linkages to the Municipal Sector

Annex I: Cross-Sector Linkages to Other Sectors

Annex J: Linkages to Sustainable Development Goals

Annex K: Project Example of Connectivity supported by the Bank in Western Balkans - Corridor Vc

Annex L: Road Safety – Overview of the Bank's Approach

Annex M: Project Example of the Gender focus supported by the Bank in Egypt and Kosovo

Annex N: New Strategy - Key Changes and Developments

Annex A: Abbreviations

European Bank
for Reconstruction and Development

1	2DS	2 Degree Scenario
2	AADT	Annual Average Daily Traffic
3	ABI	Annual Bank Investment
4	ADB	Asian Development Bank
5	AFC	Africa Finance Corporation
6	AfDB	African Development Bank
7	AIIB	Asian Infrastructure Investment Bank
8	AMI	Annual Mobilised Investment
9	B2DS	coo
10	BEV	Battery Electric Vehicle
11	BiH	Bosnia and Herzegovina
12	BMS	Building Management Systems
13	BOC	Bank of China
14	BREAM	Buildings Research Establishment Environmental Assessment Method
15	BRI	Belt and Road Initiative
16	BSTDB	Black Sea Trade and Development Bank
17	CA	Central Asia
18	CAREC	Central Asia Regional Economic Cooperation
19	CEB	Central Europe and Baltic States
20	CNG	Compressed Natural Gas
21	CO2	Carbon Dioxide
22	COP21	The twenty-first session of the Conference of the Parties (referring to the countries that have signed up to the 1992 United Nations Framework Convention on Climate Change)
23	CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
24	CTF	Climate Technology Fund
25	DBC	Development Bank of China
26	E&S	Environmental and Social
27	EBRD	European Bank For Reconstruction and Development
28	EE	Energy Efficiency
29	EEC	Eastern Europe and the Caucasus
30	EEDI	Energy Efficiency Design Index
31	EIB	European Investment Bank
32	EMS	Energy Management Systems
33	ENR	Egyptian National Railways
34	ESAP	Environmental and Social Action Plan
35	ETI	Expected Transition Impact
36	EU	European Union
37	EUR	Euro currency
38	EvD	Evaluation Department
39	FDI	Foreign Direct Investment
40	GCF	Green Climate Fund
41	GDP	Gross Domestic Product
42	GEF	Global Environment Facility
43	GET	Green Economy Transition
44	GHG	Green House Gas
45	GIP	Good International Practice
46	GLP	Green Logistics Programme
47	ICAO	International Civil Aviation Organization
48	ICTs	Information Communication Technology Services
49	IDB	Inter-American Development Bank
50	IEA	International Energy Agency
51	IFC	International Finance Corporation
52	IFI	International Financial Institution
53	IMF	International Monetary Fund
54	IMO	International Maritime Organisation
55	IPPF	Infrastructure Project Preparation Facility
56	ITS	Information Technology Systems
57	KFAED	Kuwait Fund for Arab Economic Development
58	LED	Light Emitting Diode
59	LEED	Leadership in Energy and Environmental Design
60	LNG	Liquefied Natural Gas
61	LPG	Liquefied Petroleum Gas
62	LPI	Logistics Performance Index
63	MDB	Multilateral Development Bank
64	MEI	Municipal and Environmental Infrastructure
65	MRV	Monitoring Reporting and Verification
66	ND Gain	Notre Dame Global Adaptation Initiative
67	NDCs	Nationally Determined Contributions
68	NOx	Nitrogen Oxides
69	OECD	Organization for Economic Cooperation and Development
70	OFID	OPEC Fund for International Development
71	PBMC	Performance-Based Maintenance Contracting
72	PDE	Policy Dialogue Engagement
73	PM	Particulate Matter
74	PPP	Public Private Partnership
75	PTI	Portfolio Transition Impact
76	PV	Photovoltaic
77	R&D	Research and Development
78	RSA	Road Safety Assessment
79	RSCs	Road Safety Components
80	RTG	Rubber Tyred Gantry Cranes
81	RTS	Reference Technology Scenario
82	SDGs	Strategic Development Goals
83	SEE	South-eastern Europe
84	SEI	Sustainable Energy Initiative
85	SEMED	Southern and Eastern Mediterranean Region
86	SIA	Sustainable Infrastructure Advisory Facility
87	SMATSA	Serbia and Montenegro Air Traffic Services Agency
88	SME	Small and Medium Sized Enterprises
89	SOE	State Owned Enterprise
90	SOx	Sulphur Oxides
91	SPI	Strategic Performance Indicator
92	Sub-Sov	Sub Sovereign
93	TC	Technical Cooperation
94	TEN-T / TENTEC	Trans-European Transport Network
95	TEU	Twenty Foot Equivalent Unit
96	TI	Transition Impact
97	TRACEA	Transport Corridor Europe-Caucasus-Asia
98	TSS	Transport Sector Strategy
99	UIC	International Union of Railways
100	UN	United Nations
101	UNCTAD	United Nations Conference on Trade and Development
102	UNECE	United Nations Economic Commission for Europe
103	USD	US Dollars
104	WB	World Bank
105	WBCN	Western Balkan Core Network
106	WBIF	Western Balkans Investment Framework
107	WHO	World Health Organization
108	WTO	World Trade Organisation
109	WWGI	World Wide Governance Indicators

Annex B: Environmental and Social Policy and the Transport Strategy

European Bank
for Reconstruction and Development

Issues → **Challenges** → **Approach**

E&S ISSUES

The environmental and social issues which are typically encountered and need to be effectively managed during the implementation of transport projects include: pollution and nuisance control measures (such as air, noise and waste); labour and working conditions (in particular in the supply chain); health and safety of workers and communities; economic and/or physical displacement and related compensation; impacts on biodiversity, ecological connectivity and related ecosystem services; protection of cultural resources; and meaningful stakeholder engagement.

E&S APPROACH

The Bank is aiming at addressing these gaps through Environmental and Social Action Plans tailored to individual project risks, Green Economy and Transition (GET) identification and monitoring and through the provision of Technical Cooperation funded support to its clients in areas such as: capacity building; support in implementation of the ESAPs and development of management plans (for example, resettlement plans, biodiversity management plans and stakeholder engagement plans); support in tender preparation and project implementation to improve contractor E&S management and monitoring; general improvement of environmental and social management practices in line with Good International Practice, including infrastructure permeability principles, and GET requirements (such as project components related to proactive habitat enhancement, reduction of air emissions, circular economy and use of sustainable materials).

E&S CHALLENGES

Challenges for clients implementing projects in line with the Bank's Performance Requirements in the Transport sector include: limited institutional capacity on E&S issues; cascading E&S requirements to contractors and subcontractors and monitoring their performance during project implementation; more effective management of the land acquisition, resettlement and livelihoods restoration process; insufficient collection of biodiversity baseline information to inform impact assessments; application of tools on securing ecological connectivity and wildlife permeability; road safety including occupational road risk management; noise and air emission controls to achieve international standards; improved assessment and management of community and occupational safety risks including Gender based violence; limited leverage to implement resettlement plans in linear public private public partnerships and meaningful stakeholder engagement throughout the project lifecycle.

Annex C: TSS (2013-18) Achievement of Strategic Performance Indicators

European Bank for Reconstruction and Development

SPI 1: Policy Dialogue Engagement (PDE) – Achieved

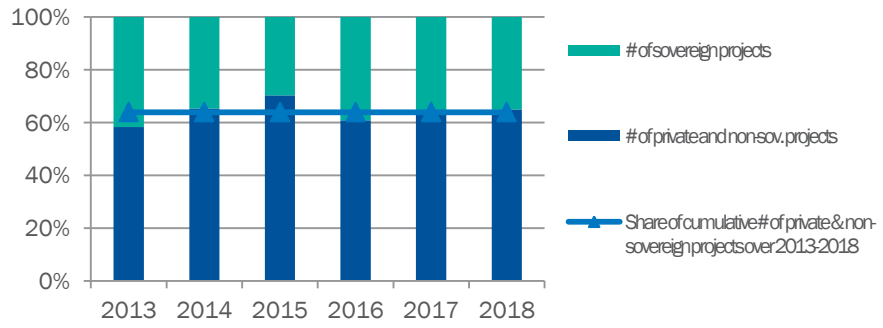
Transformation of 3-5 sovereign clients into commercially-oriented or partially commercially-oriented entities, which can raise finance on a non-sovereign basis or contract-out operations to the private sector.

Year	# of Projects with PDE focus	State / Non Sovereign	Country Focus
2013	5	3	BiH, Croatia, Kazakhstan, Montenegro
2014	6	2	BiH, Egypt, Kazakhstan, North Macedonia, Moldova
2015	5	3	BiH, Kosovo, North Macedonia, Morocco
2016	7	1	Albania, BiH, Croatia, Kazakhstan
2017	8	2	BiH, Croatia, Egypt, Kosovo, Moldova, Serbia, Ukraine
2018	5	2	BiH, Kosovo, Montenegro, North Macedonia, Serbia

- *Railways:* SOE non-sovereign debt for rolling stock upgrades, balance sheet restructuring via bond issues.
- *Roads:* SOE outsourcing of maintenance activities.
- *Aviation:* SOE non-sovereign lending for upgrading of air navigation systems.
- *Ports:* Equity raising via public listing of share capital.

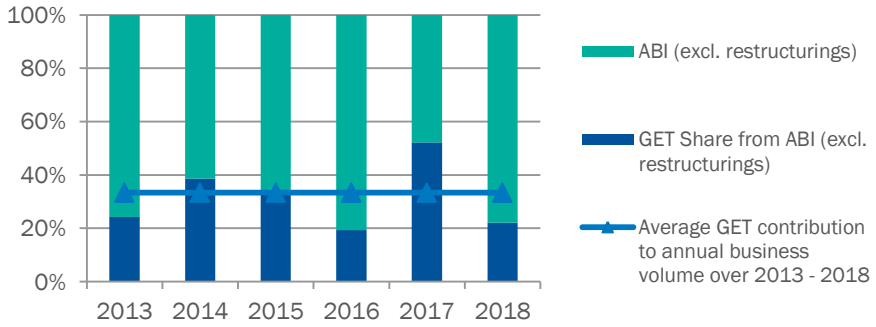
SPI 2: Commercial Orientation – Achieved @ 64 per cent

At least 60 per cent of projects structured on a private or non-sovereign basis (calculated as an average of cumulative project numbers over a five year period).



SPI 3: Green Transport focus – Achieved @ 33 per cent

- Increase the Transport GET (SEI) contribution to 25 per cent of Transport annual business volume over the Strategy period.



SPI 4: Road safety focus – Achieved

Ensure that within five years all public sector road projects are subject to a road safety assessment (RSA) that identifies the risks to be reduced and at least 50 per cent of such projects to include specific road safety components (RSCs) or initiatives to enhance the impact of the Bank's project on improving road safety in the economies where the Bank invests.

Over the period 2013-18, 100 per cent of the Bank's public sector road projects were subject to a road safety assessment (RSA) and 89 per cent of such projects included specific road safety components (RSCs).

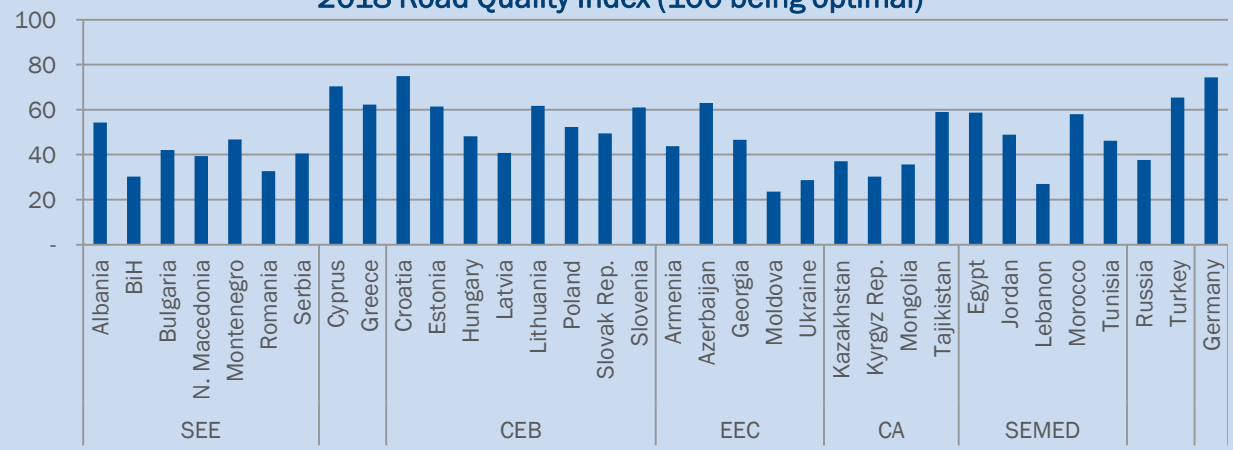
Year	2013	2014	2015	2016	2017	2018
Public Sector Road Projects	6	3	5	5	3	5
Projects with RSA	6	3	5	5	3	5
Projects with RSC	6	3	5	2	3	5
RSA / Total Public Road projects	100%	100%	100%	100%	100%	100%
RSC / Total Public Road projects	100%	100%	100%	40%	100%	100%

Even though the Bank has made headway in building capacity and incorporating road safety audits within its Projects, the incorporation of these recommendations remain challenging with the Wester Balkans being the most receptive.

Annex D: Infrastructure Gap – Roads

European Bank
for Reconstruction and Development

2018 Road Quality Index (100 being optimal) [1]

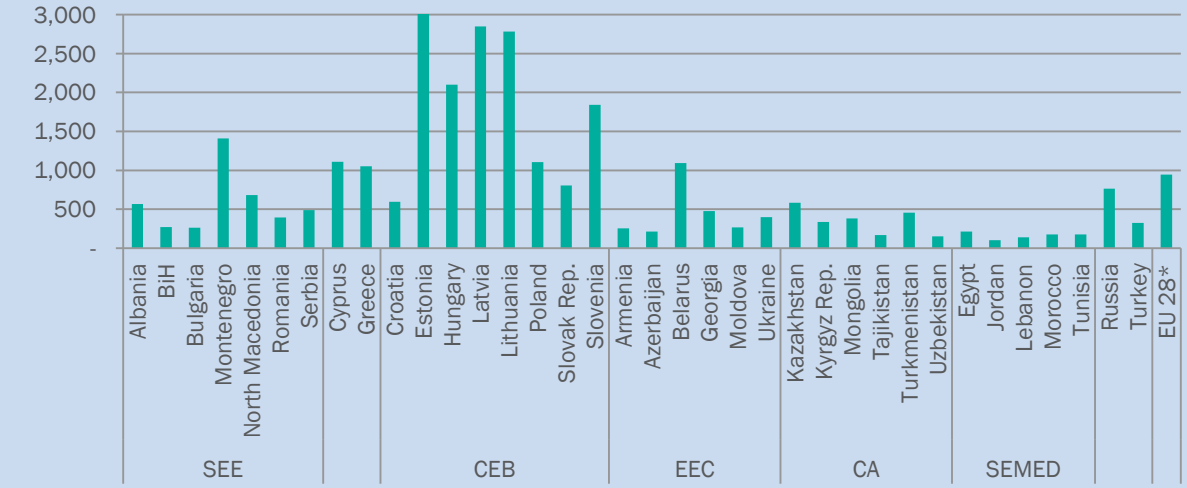


Road Quality

The quality of road infrastructure across many economies where the Bank invests lags behind advanced economies, with the most significant gaps seen in the SEE, CA, EEC and SEMED regions.

Public entities remain as the principal investor in the road sector with some PPP activity in more developed regions such as CEB and Turkey. Governance, safety and maintenance will need to be improved and streamlined to improve road quality. Private sector participation in road activities is seen as one the most effective tools to encourage better performance.

Km road per 100,000 population [2]



Road Connectivity and Integration

With the exception of CEB, the vast majority of the economies where the Bank invests have significant gaps in road connectivity. By connecting areas of economic activity within an economy and those of its neighbours, transport increases access to markets, creates employment and trade opportunities and access to important services, such as health and education.

Cross border and global network connectivity remains a priority with significant investment gaps remaining across major corridors such as TRACECA, CAREC, TEN-T and the WBCN for all transport modes, including roads.

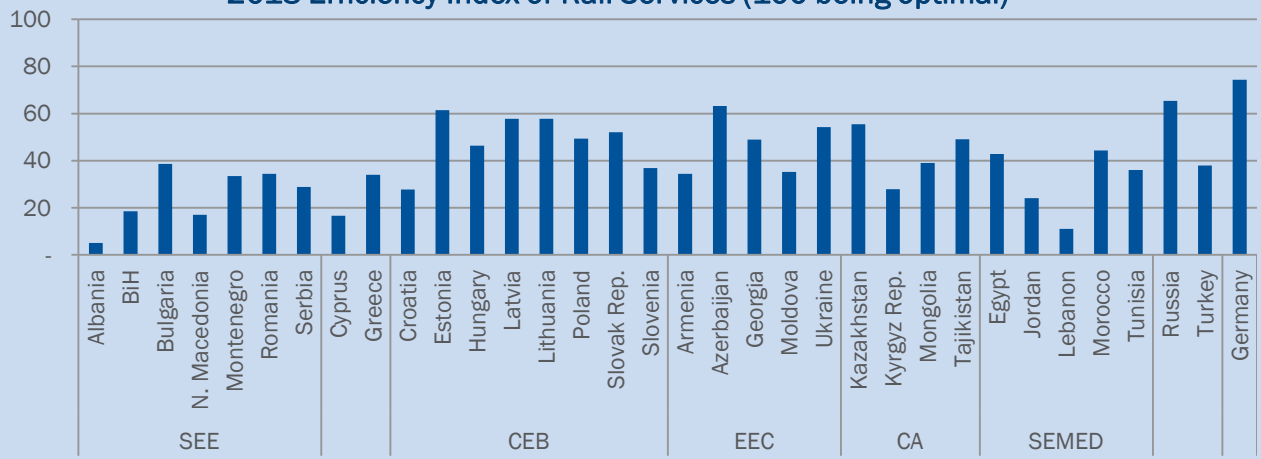
The Bank's unique regional coverage and mandate make it a key partner in converging Euro-Asian routes across the economies where the Bank invests to enable growth in trade and economic prosperity.

1: 2018 Global Competitive Report by the World Economic Forum
2: Eurostat, European Union Road Federation, UNECE, IMF, WTO, Country Statistics. 70 per cent of data is 2017-18 while remaining data is best available year.

Annex D(Cont'd): Infrastructure Gap – Rail

European Bank
for Reconstruction and Development

2018 Efficiency Index of Rail Services (100 being optimal) [1]

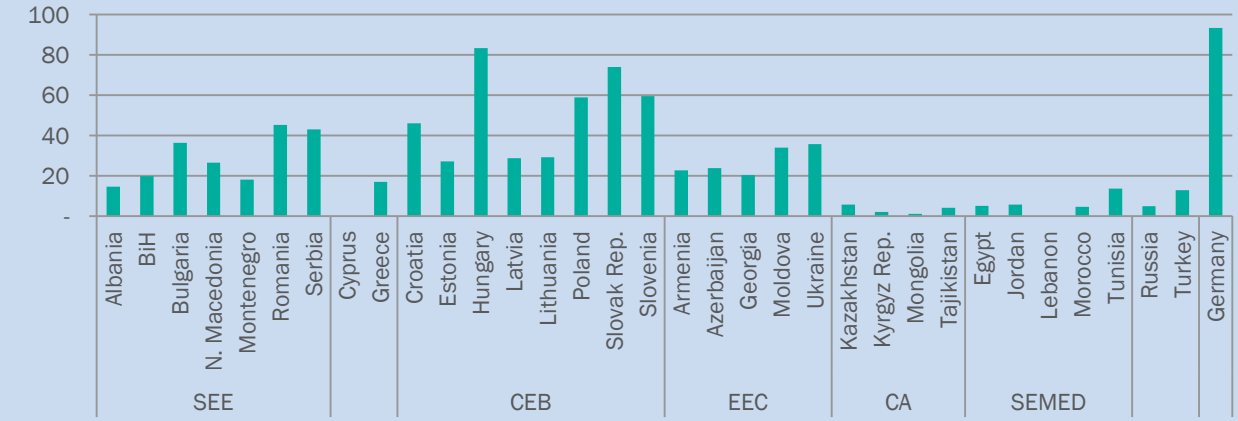


Railway Service Quality

The quality of rail services across the majority of the economies where the Bank invests remains weak, with the most significant gaps seen in the SEE, and some regional disparities in EEC, CA and SEMED. The lack of good quality rolling stock is a key issue in some of these markets and can have adverse impacts on logistics and intermodal services.

Public entities are the principal investors in rail infrastructure and fleets. However, the private sector needs to play an increasing role in the modernisation and expansion of fleets, as well as rail operations. Governance, safety and maintenance will also need to be improved and streamlined to improve service quality and speed across the rail networks.

2018 Railway Density (Km / total Sq Km) [2]



Rail Connectivity and Integration

Significant gaps remain in rail connectivity particularly in CA and SEMED. Significant capacity constraints reduce the effectiveness of networks and shift freight and passengers to less effective modes of transport such as trucks and private cars. Further, improvements in border crossings and technology (traction, single window trade facilitation) are also lacking in many economies where the Bank invests.

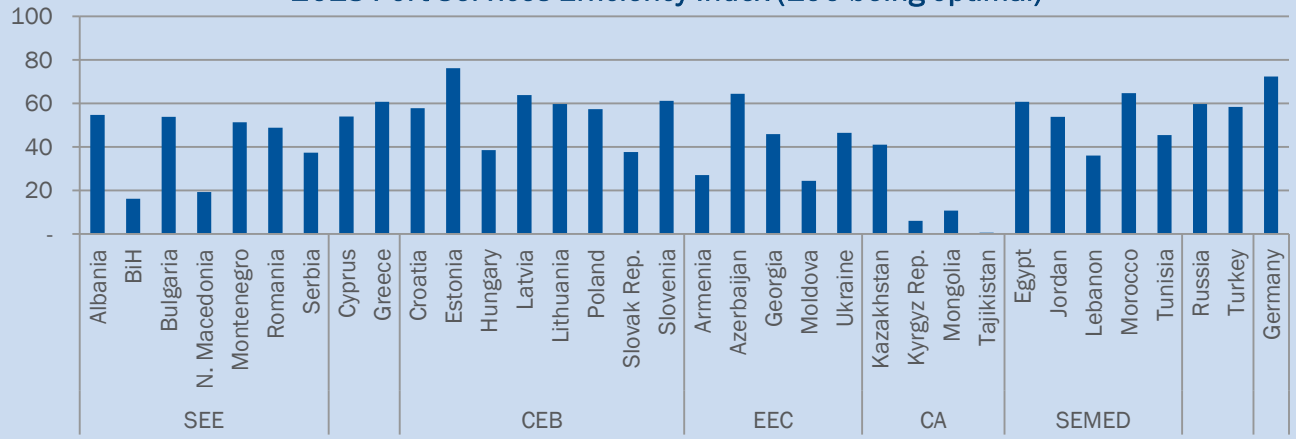
Rail is principally a high capacity and green mode of transportation when compared to other modes. An extensive, electrified rail network can provide a greener alternative and has received increased focus in some economies where the Bank invests.

1,2: 2018 Global Competitive Report by the World Economic Forum

Annex D (Cont'd): Infrastructure Gap – Maritime

European Bank
for Reconstruction and Development

2018 Port Services Efficiency Index (100 being optimal) [1]

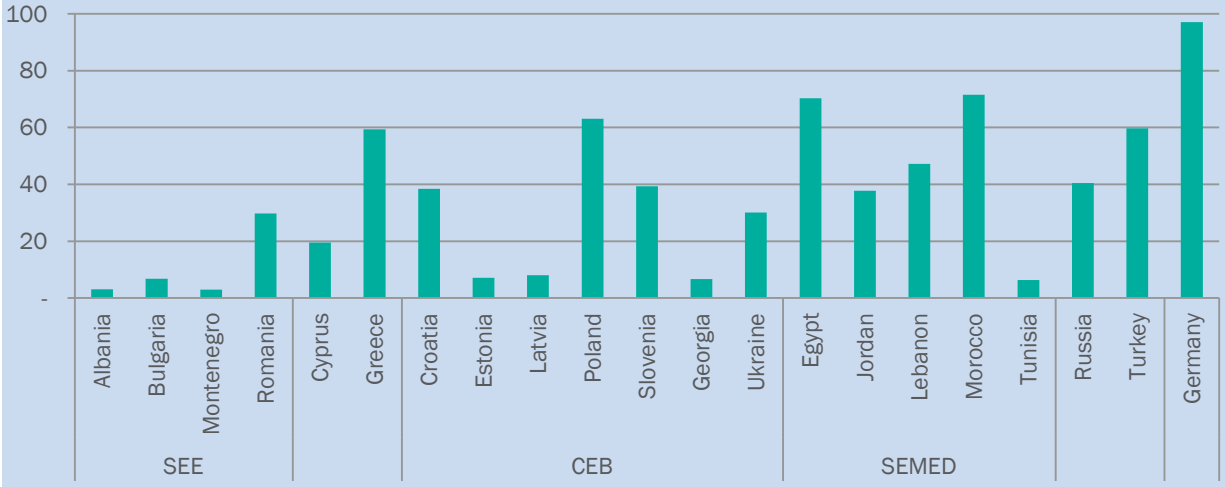


Port Service Quality

The quality of port infrastructure and services requires improvement in many economies where the Bank invests. The most significant gaps can be seen in CA, EEC, and SEE.

Outdated equipment and superstructure which require modernisation can lead to transport bottlenecks which limit modal shift. Additionally, many ports are subject to climate change risks, lack energy efficiency, cause local air/water pollution and suffer safety gaps which are not fully accounted for.

2018 Ship Liner Connectivity Index (100 being optimal) [2]



Maritime Connectivity

Maritime transport carries approximately 90 per cent of global trade volumes in an environment where the global merchant fleet is going through major change.

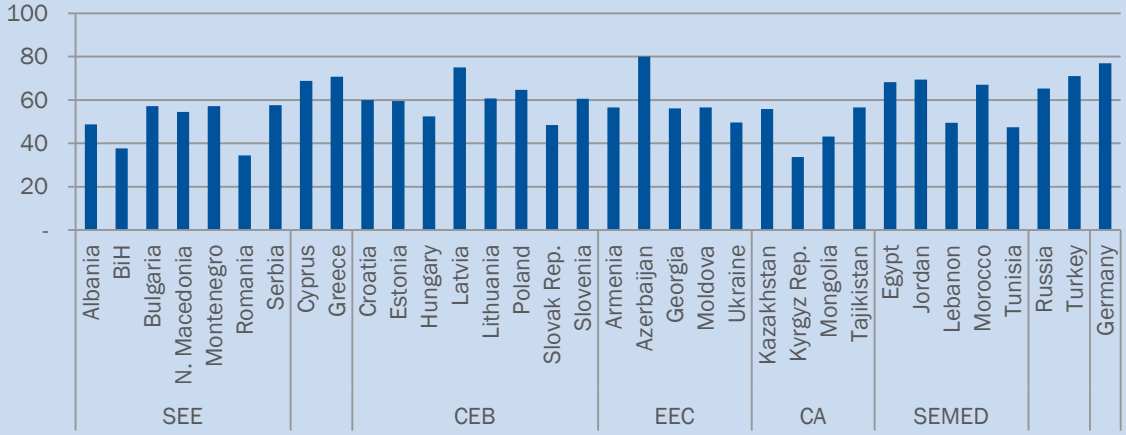
The bulk of the global fleet (94k vessels) is old and in disrepair (50 per cent over 15 years old). Maritime is also a fast increasing source of GHG emissions. New emission standards and the target to reduce C02 emissions by 50 per cent by 2050 driven by bodies such as the IMO will require a large number of vessels to retrofit, replace vessel stock and improve the quality of fuel to reduce air emissions. Further, a number of economies where the Bank invests remain poorly connected to global and local trade routes. The sector will require investment in the coming years in both fleet replacement and expansion in those regions which have shipping fleets.

1: 2018 Global Competitive Report by the World Economic Forum (land locked economies are shown as connectivity to external ports via other modes of transport)
2: 2018 UNCTAD (United Nations Conference on Trade and Development)
3: Maritime transport is a global industry, data on vessel fleets relating directly to regions was not found due to aggregation relating to the fact that the regions where vessels are registered does not mean that they are working in that region as well.

Annex D (Cont'd): Infrastructure Gap – Aviation

European Bank
for Reconstruction and Development

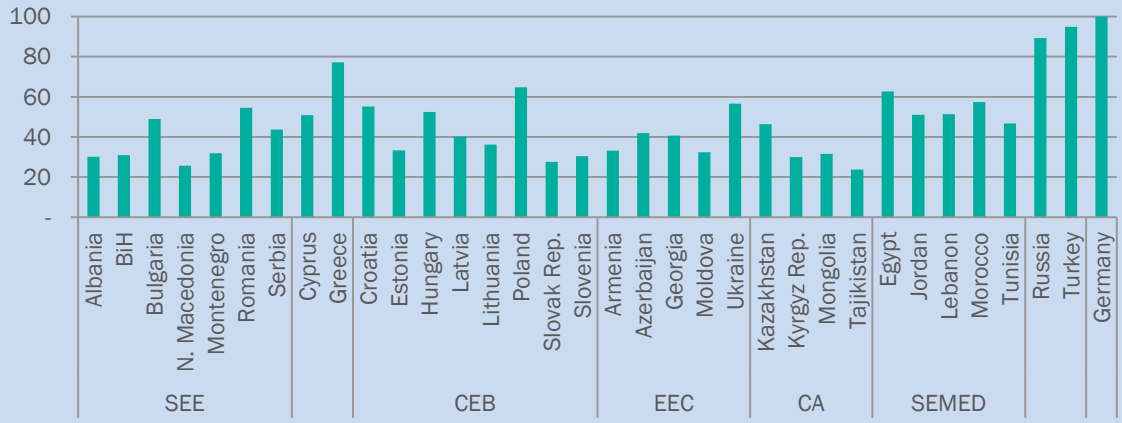
2018 Air transport Services Index (100 being optimal)[2]



Aviation Service Quality

Aviation is one of the more advanced transport modes in terms of private sector participation in the economies where the Bank invests, although opportunities remain to extend the role of private sector to speed up infrastructure modernisation. The region is relatively well served by commercial airlines and privately or commercially run airports, many of which are developed and operated under long term concessions. Air navigations services are well integrated under agencies such as EuroControl. As this is often a cost plus operation, it can lend itself to sub-sovereign, commercial financing. These factors are reflected in the relatively high air transport services indices, with a few exceptions in SEE, CA and SEMED.

2018 Airport Connectivity Index (100 being optimal)[1]



Aviation Connectivity

While airport quality in many economies where the Bank invests is relatively good, there are regional disparities in connectivity with larger economies tending to be better connected. Direct connectivity between some of the economies in the region remains challenging. Regions such as SEE, EEC and CA are less well connected with each other by air transport services and travel between them by air may require travelling via international hubs. Supporting low cost and regional airlines entry and expansion may further improve air connectivity.

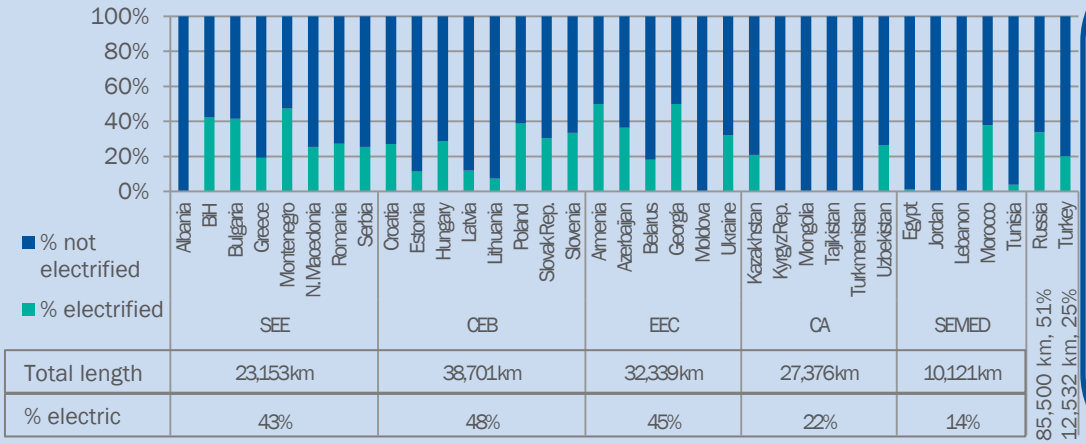
Aviation is also recognised as one of the fastest growing emitters of GHG. The Bank will need to seek to balance connectivity and its responsibility towards supporting innovation and green modes of transportation whilst supporting ICAO's global aspirational environmental goals including through the early participation and implementation of CORSIA by the Governments of the economies where the Bank invests.

1,2: 2018 Global Competitive Report by the World Economic Forum

Annex E: Electrification of Transport

European Bank for Reconstruction and Development

Percentage of Electrification of Railways in Economies where the Bank invests [1]



	SEE	CEB	EEC	CA	SEMED
Total length	23,153km	38,701km	32,339km	27,376km	10,121km
% electric	43%	48%	45%	22%	14%

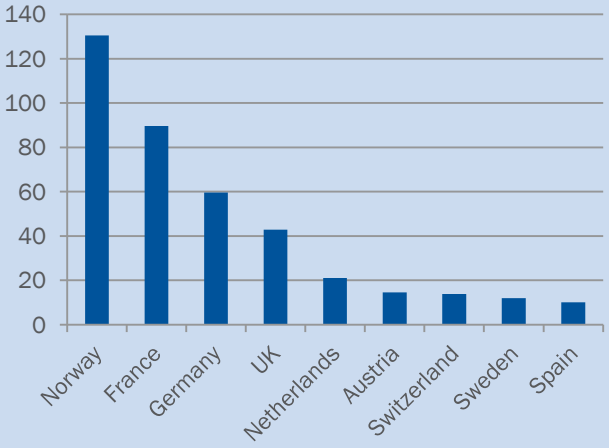
Rail Electrification

The rail sector in the economies where the Bank invests offers the most significant and immediate opportunity for electrification of transport systems, effecting both passenger and freight transport. The most significant gaps can be seen in CA, SEMED and Turkey and some parts of SEE such as Albania, Serbia Macedonia and Romania.

The market share of rail transport when compared to other land transport modes has been relatively stagnant due mainly to underinvestment, inefficient or old rolling stock and lack of down stream connectivity to logistic centres, where modal shift can occur. Backward linkages to fuel sources used for electricity, such as incorporating renewable sources in electrification schemes could offer interesting opportunities.

Further to electrification, fleet renewal, investments in expanding infrastructure, improving signalling and digitisation will also benefit modal shift to this greener mode of transportation.

of Battery Electric Vehicles in Thousands[2]



Road Electric Mobility

Electric Mobility in road transport is a trend which has increased in pace over the last few years and offers opportunities to reduce C02 and air pollutants. The sector however remains in its infancy with little to no policy support from the state sector and little interest from the private sector due to lack of charging infrastructure, battery limitations for heavy vehicle transport and constraints on affordability, including grants and concessional funding. Electric vehicles form less than 1 per cent of new vehicles bought in the economies where the Bank invests. Light duty vehicle fleet renewal, charging infrastructure and policy dialogue (strategies, regulation) to develop the sector will be key in the next strategy period.

Other Sectors

Maritime fleets are rarely electrified. Hybrid/fully electric vessels are mostly restricted to ferries operating in the Nordic region. An interesting trend however is that these vessels are being built in some regions, such as Turkey. Supporting the supply chain of these vessel types will increase the market, know how and interest in hybrid vessels in the Bank's regions. For long distances, emission reductions will come from more efficient ship design (such as usage of IMO EEDI Index) and higher quality fuels.

Equipment and buildings offer significant potential for electrification, for example, port cranes. Further, transport buildings, stations, ports and airports can also significantly benefit from energy efficiency measures (BREEAM, LEED certifications) which have already proven to work well in other sectors, but have not been rolled out in the transport sector as best practice.

1:World Bank, International Union of Railways (UIC), European Commission. 70 per cent of data points from the year 2017 with remaining 30 per cent using most recent available year
2: 2017 European Alternative Fuel Observatory

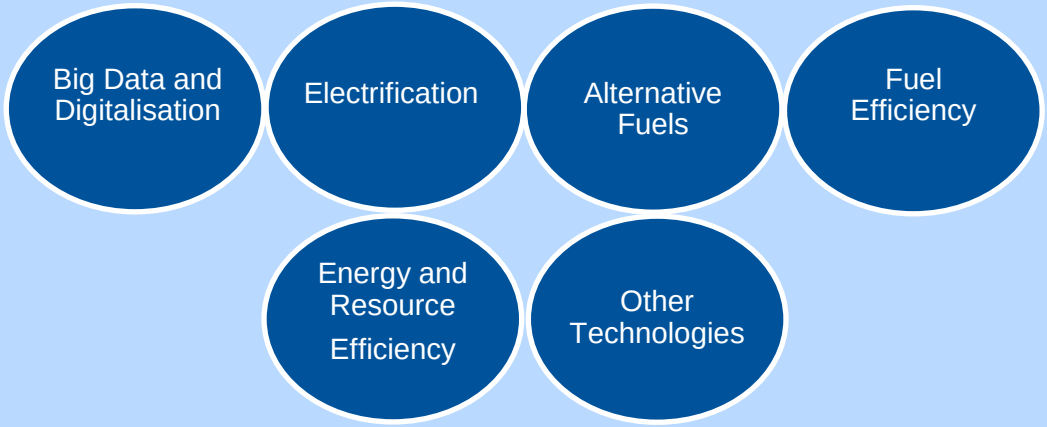
Annex F: Logistics Performance Index (LPI)

European Bank
for Reconstruction and Development

	Country	LPI Score		Customs		Infrastructure		International shipments		Logistics competence		Tracking & tracing		Timeliness	
		2012	2018	2012	2018	2012	2018	2012	2018	2012	2018	2012	2018	2012	2018
SEE	Albania	2.77	2.66	2.43	2.35	2.43	2.29	2.84	2.82	2.65	2.56	2.65	2.67	3.58	3.20
SEE	Bosnia and Herzegovina	2.99	2.81	2.65	2.63	2.86	2.42	3.00	2.84	2.93	2.80	2.81	2.89	3.61	3.21
SEE	Bulgaria	3.21	3.03	2.97	2.94	3.20	2.76	3.25	3.23	3.10	2.88	3.16	3.02	3.56	3.31
SEE	Cyprus	3.24	3.15	3.02	3.05	3.17	2.89	3.21	3.15	3.17	3.00	3.36	3.15	3.54	3.62
SEE	Greece	2.56	2.70	2.24	2.45	2.60	2.47	2.66	2.84	2.66	2.74	2.41	2.64	2.79	3.03
SEE	Montenegro	2.83	3.20	2.38	2.84	2.88	3.17	2.69	3.30	2.76	3.06	2.98	3.18	3.32	3.66
SEE	North Macedonia	2.45	2.75	2.31	2.56	2.30	2.57	2.22	2.68	2.35	2.72	2.62	2.58	2.89	3.33
SEE	Romania	3.00	3.12	2.65	2.58	2.51	2.91	2.99	3.18	2.83	3.07	3.10	3.26	3.82	3.68
SEE	Serbia	2.80	2.84	2.39	2.60	2.62	2.60	2.76	2.97	2.80	2.70	3.07	2.79	3.14	3.33
CEB	Croatia	3.16	3.10	3.06	2.98	3.35	3.01	2.95	2.93	2.92	3.10	3.20	3.01	3.54	3.59
CEB	Estonia	2.86	3.31	2.51	3.32	2.79	3.10	2.82	3.26	2.82	3.15	3.00	3.21	3.23	3.80
CEB	Hungary	3.17	3.42	2.82	3.35	3.14	3.27	2.99	3.22	3.18	3.21	3.52	3.67	3.41	3.79
CEB	Latvia	2.78	2.81	2.71	2.80	2.52	2.98	2.72	2.74	2.64	2.69	2.97	2.79	3.08	2.88
CEB	Lithuania	2.95	3.02	2.73	2.85	2.58	2.73	2.97	2.79	2.91	2.96	2.73	3.12	3.70	3.65
CEB	Poland	3.43	3.54	3.30	3.25	3.10	3.21	3.47	3.68	3.30	3.58	3.32	3.51	4.04	3.95
CEB	Slovak Republic	3.03	3.03	2.88	2.79	2.99	3.00	2.84	3.10	3.07	3.14	2.84	2.99	3.57	3.14
CEB	Slovenia	3.29	3.31	3.05	3.42	3.24	3.26	3.34	3.19	3.25	3.05	3.20	3.27	3.60	3.70
EEC	Armenia	2.56	2.61	2.27	2.57	2.38	2.48	2.65	2.65	2.40	2.50	2.57	2.51	3.07	2.90
EEC	Azerbaijan	2.48		1.92		2.42		2.43		2.14		2.75		3.23	
EEC	Belarus	2.61	2.57	2.24	2.35	2.78	2.44	2.58	2.31	2.65	2.64	2.58	2.54	2.87	3.18
EEC	Georgia	2.77	2.44	2.90	2.42	2.85	2.38	2.68	2.38	2.78	2.26	2.59	2.26	2.86	2.95
EEC	Moldova	2.33	2.46	2.17	2.25	2.44	2.02	2.08	2.69	2.15	2.30	2.44	2.21	2.74	3.17
EEC	Ukraine	2.85	2.83	2.41	2.49	2.69	2.22	2.72	2.83	2.85	2.84	3.15	3.11	3.31	3.42
CA	Kazakhstan	2.69	2.81	2.58	2.66	2.60	2.55	2.67	2.73	2.75	2.58	2.83	2.78	2.73	3.53
CA	Kyrgyz Republic	2.35	2.55	2.45	2.75	2.49	2.38	2.00	2.22	2.25	2.36	2.31	2.64	2.69	2.94
CA	Mongolia	2.25	2.37	1.98	2.22	2.22	2.10	2.13	2.49	1.88	2.21	2.29	2.10	2.99	3.06
CA	Tajikistan	2.28	2.34	2.43	1.92	2.03	2.17	2.33	2.31	2.22	2.33	2.13	2.33	2.51	2.95
CA	Turkmenistan		2.41		2.35		2.23		2.29		2.31		2.56		2.72
CA	Uzbekistan	2.46	2.58	2.25	2.10	2.25	2.57	2.38	2.42	2.39	2.59	2.53	2.71	2.96	3.09
SEMED	Egypt	2.56	2.70	2.24	2.45	2.60	2.47	2.66	2.84	2.66	2.74	2.41	2.64	2.79	3.03
SEMED	Jordan	2.56	2.69	2.27	2.49	2.48	2.72	2.88	2.44	2.17	2.55	2.55	2.77	2.92	3.18
SEMED	Lebanon	2.58	2.72	2.21	2.38	2.41	2.64	2.71	2.80	2.38	2.47	2.61	2.80	3.11	3.18
SEMED	Morocco	3.03	2.54	2.64	2.33	3.14	2.43	3.01	2.58	2.89	2.49	3.01	2.51	3.51	2.88
SEMED	Tunisia	3.17	2.57	3.13	2.38	2.88	2.10	2.88	2.50	3.13	2.30	3.25	2.86	3.75	3.24
	Russia	2.58	2.76	2.04	2.42	2.45	2.78	2.59	2.64	2.65	2.75	2.76	2.65	3.02	3.31
	Turkey	3.51	3.15	3.16	2.71	3.62	3.21	3.38	3.06	3.52	3.05	3.54	3.23	3.87	3.63
	EU-28 average	3.47	3.54	3.25	3.35	3.44	3.48	3.34	3.42	3.45	3.51	3.51	3.58	3.81	3.88
	China	3.52	3.61	3.25	3.29	3.61	3.75	3.46	3.54	3.47	3.59	3.52	3.65	3.80	3.84
	United States	3.93	3.89	3.67	3.78	4.14	4.05	3.56	3.51	3.96	3.87	4.11	4.09	4.21	4.08

1: 2018 World Bank: Logistics Performance Index

Annex G: Transport Sector Innovation and Technologies - Overview



Through financing and policy engagement, the Bank will support the introduction of innovative technologies in it's the economies where the Bank invests.

Examples of types of Bank activities to support innovation and technologies:

- **Financing:** the Bank can provide financing for technologies that have limited adoption in a region - for example, digitalisation and electric vehicles.
- **Policy engagement:** develop regulatory frameworks to facilitate the introduction of new technologies (for example, electrification and charging).
- **Logistics:** supporting green logistics by offering clients assistance and guidance to improve operations from an energy and fuel consumption perspective.
- **Innovation:** promoting innovation and technologies linked to energy efficiency, renewable energy, waste recycling and other environmental benefits where clients can benefit from TC and investment grants to support R&D and the deployment of relevant technologies.
- **Concessional and Grant finance:** Supporting companies to implement advanced climate technologies (primarily those with low market penetration and good replicability potential) by providing incentive grants in the context of a direct EBRD investment.

Annex G (Cont'd) : Transport Sector Innovation and Technologies by Theme

European Bank for Reconstruction and Development

Innovation	Opportunities in the Transport Sector by Theme
Big Data and Digitisation of Transport Systems	• The connected and smart vehicle: e-call technologies, speed control, telematics in logistic operations improving i) road safety 2) fuel efficiency 3) reduction in empty trips. • Improvements in waiting times at boarder crossings via "single national window's" reducing paper work and so on. • Development of virtual arrival networks at ports. • Improved signalling technologies for railways and air navigation systems.
Decarbonisation of Transport Systems	• Investments in charging infrastructure and electric vehicles. • Electrification of road networks via embedded track and overhang wires. • Electrification of railway networks. • Batteries and energy storage (battery sharing/replacement logistics for long haul freight transport. • Electrification of sea faring vessels such as ferries for short commutes (2-3 hours). • Shore side power (cold ironing), electrification of Ports and terminals cargo handling equipment.
Alternative Fuels	• The use of alternative fuels such as sustainable advanced biofuels, e-fuels and Hydrogen in future fleets in addition to supporting infrastructure for its production and storage. • Improved conventional fuels such as low sulphur fuels LNG bunkering for maritime vessels.
Fuel Efficiency	• Vehicles: Adaptive cruise control, downsized engines, tyre pressure monitoring, *anti-idling* systems, aerodynamic design features (for example, mud flaps and tail of 0.5 meters for trailers), electronic cooling systems and battery powered. • Maritime: Hull and superstructure (bow optimisation, appendages and hull openings, hull coating, air lubrication), propeller and rudder optimisation (pre and post swirl devices, ducts, twisted rudders, advanced propeller designs – winglets), improved engine (fuel injection, turbocharger, engine derating, cylinder cut-out, common rail, wind power, cold ironing), supporting systems (waste heat recovery).
Energy and resource Efficiency	• Improvements in ports, logistics and transport support buildings such as solar panels, heat recovery, electric equipment. Refurbishments and international certification such as BREEAM and LEED. • Renewable energy investments to support activities at infrastructures such as ports and logistics centres. • Reducing waste, Incorporating pillars of "circular economy" to construction activities and incorporating used materials in said activities where possible.
Other Technologies	• Use of drones for construction, surveying and maintenance identification (road, rail and vessels).

Annex G (Cont'd) : Transport Sector Innovation and Technologies by Mode

European Bank for Reconstruction and Development

Innovation	Opportunities in the Transport Sector by Subsector
Logistic Terminal Centres	• Infrastructure Improvement: Advanced heating control systems, electrical and hybrid handling equipment (including LPG), advanced BMS and EMS, introduction of advanced specifications at building design (insulation, glazing, and so on), building certifications schemes (for example, BREEAM), electrified charging points, rehabilitation of heat and power supply and distribution systems, water recovery management systems, on site co- and tri generation systems, Integrated logistics such as addition of railway sidings. • Energy: Renewable energy (solar panels, wind, and so on), energy efficient lighting, thermal insulation of the building envelope (external walls, roofs, basements), energy efficiency management plans. • Digital: Logistics software, management and planning systems which support intermodal chains.
Road Fleet Modernisation	• Technology: Implementation of ITS technology for routing, drive assistance, and so on, anti-idling technologies, low rolling resistance tires and aerodynamic technologies. • Fuels and electrification: Introduction of fuel injection systems, alternative fuels (biofuel, CNG, LPG, and so on), electrification and battery power. • R&D and capacity building: Utilization of light-weight materials (for example, Aluminium), Eco driving and energy management systems, platooning technologies. • Equipment: External lifting equipment (double-deck trailers), EURO VI compliant fleets, other modern auxiliary equipment (for refrigerated fleets, and so on).
Rail Rolling Stock	• Technology: Regenerative braking technology, new generation rail cars (with higher payload and lighter materials. • Electrification of railways and improved signalling systems.
Water Transport	• Maritime: Hull and superstructure (bow optimisation, appendages and hull openings, hull coating, air lubrication), propeller and rudder optimisation (pre and post swirl devices, ducts, twisted rudders, advanced propeller designs – winglets), improved engine (fuel injection, turbocharger, engine derating, cylinder cut-out, common rail, wind power, cold ironing), supporting systems (waste heat recovery), ballast water management (and alternatives such as fixed ballast).
Port Development	• Innovation: Intelligent gates system (automated systems), advanced handling equipment and vehicles with electric and hybrid traction, Introduction of advanced control systems for RTGs with regenerative braking, rehabilitation and reconstruction of power supply and distribution systems (boilers, transformers, and so on), energy efficient lighting (i.e. LED lamps), cold ironing. • Energy: Energy Management Systems, Investment in renewable energy (solar panels, wind, and so on), Power generation through renewable energy sources (solar, wind and ocean energy).
Roads	• Climate resilience and improved design standards, monitoring technologies for road safety.

Annex H: Cross-Sector Linkages to the Municipal Sector

Sector	Approach
Urban Transport	• Urban transport is covered under the MEI Sector Strategy. This sets out the following strategic directions of the Bank in urban transport (MEI Sector Strategy, Strategic Directions, Section 3.3): o Fleet electrification: integrated vehicle and charging infrastructure, integrated energy supply using local renewables o Urban streetscape: urban enhancement through improved streetscape, soft modes of transport (cycling, walking) o 'Smart' solutions': street lighting, traffic and safety control systems o Fleet leasing: supply of single operator markets through fleet lease companies driven by mobility application technology and electric-vehicle adoption. • In accordance with the Municipal Sector Strategy, the Bank will promote fleet electrification for urban transport and the usage of renewable energy sources, taking into consideration affordability and accessibility. Inter-/Non-Urban Electrification • To support the anticipated expansion of charging infrastructure outwards from cities, and the Bank will consider approaches to promote this, taking into account potential impacts of urban transport electrification under Green City Action Plans for electrification of regional and intercity transport, where relevant. The greatest potential cross-linkage to fleet electrification under the Transport Sector Strategy is in the road sector, where electric vehicles are being introduced for short distance travel, for example, logistics which can potentially use own or urban public charging infrastructure. • Extending this technology to long distance transport, particularly to decarbonise heavy vehicle transport, or for long distance coach travel will be the next step. However, this will require improvements in technology to increase the distance which electric vehicles can travel/reduced charging times. The Bank will promote electrification of long distance fleets, where feasible, and will support governments to install the charging infrastructure to support this, for example, at motorway service stations or more advanced options such as electric corridors using overhead wires for trucks. • Electric vehicles/vessels may also be used for off-road short distance or specific tasks use, for example, airside in airports. Integration and Cross-Linkages • Integrating urban and national transport, such as tram to rail, dedicated connectivity to transport hubs, such as airports and ports. • Coordination of charging infrastructure investments in new/expanded road capacity and power network infrastructure. • Increased urbanisation will require greater capacity of non-urban networks to transport goods from trade hubs like ports. • Integration of road safety data collection and safety measures across urban and national networks. • City-based transport also promotes integrated ticketing systems between urban, regional and national transport systems, based on affordability and accessibility issues.

Annex I: Cross-Sector Linkages to Other Sectors

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Sector	Approach
1. Energy	• Development of sustainable transport systems will involve lower carbon technologies and alternative fuels for transport operations. This extends to infrastructure to support electrification and decarbonisation of transport, industry and heat (where feasible) – for example, grid expansions to support charging infrastructure. In addition, transport clients may be generators of electricity for own-use or to feed into the grid, for example, PVs on buildings. • Port terminals principally dedicated to thermal coal and transport links principally dedicated to the carrying of thermal coal (for example, a rail line transporting coal from a mine or port terminal to a power generation plant) will not be supported in line with the Energy Sector Strategy.
2. Agribusiness	• The agribusiness supply chain needs adequate transport and logistics infrastructure to support trade and realise comparative advantages to export value-added products.
3. Extractive Mining Industries	• Mining operations are most prevalent in remote areas. Supply and labour relations can help integrate these mining areas with the national economy through transport infrastructure projects.
4. Information and Communication Technologies	• ICTs are key enablers of "green growth" in all sectors of the economy, ranging from process improvements (industrial automation), product specific improvements (embedded ICTs for energy-efficient vehicles), entire systems (ICTs for smarter transport management) and company improvement (ecommerce).
5. Manufacturing and Service s	• Linkages to transport may arise through fleet management and leases services as well as manufacturing of fleet/vehicles.
6. Property and Tourism	• Warehousing leased to multiple tenants may create linkages to transport logistics activities.

Annex J: Linkages to Sustainable Development Goals

Sustainable, Safe and Inclusive Transport Systems contribute to achievement of Sustainable Development Goals

European Bank for Reconstruction and Development

Core Transport SDGs: 3, 8, 9, 13, 14 and 15

Other relevant SDGs: 5,10,12,16 and 17

3 GOOD HEALTH AND WELL-BEING

"Ensure healthy lives and promote well-being for all at all ages"

Road Safety: Reduction in the number of road accidents and capacity building at the national and corporate levels (occupational road safety) to mitigate the loss of life on roads. Promote inclusion of best practice laws, regulation and enforcement methodologies for substance abuse while driving. Improve the collection and reporting of road safety.

5 GENDER EQUALITY

"Achieve gender equality and empower all women and girls"

Security and access: Improving security and access for women across transport modes.

Equal Opportunities: Improve governance related objectives to ensure women's full and effective participation and equal opportunities for employment and leadership. Ensuring that capacity building programs and training are as inclusive as possible when technical assistance is deployed to both the public and private sector.

8 DECENT WORK AND ECONOMIC GROWTH

"Promote inclusive and sustainable economic growth, full and productive employment and decent work for all"

Growth and Inclusion: Transport is a labour intensive sector and a catalyst for economic growth and access to jobs and economic opportunities across age groups including youth. Improvements in the quality of transport networks increases productivity and thus competitive aspects of economies which allow for increased growth.

Innovation and private sector: will forge diversification, technological upgrading and modernisation, including focus on high-value added and labour-intensity

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

"Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation"

Sustainable Infrastructure: Develop quality, reliable, sustainable, resilient infrastructure, including regional and trans-border, to support economic development and well-being, via affordable and equitable access for all.

Energy Efficiency: Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes.

10 REDUCED INEQUALITIES

"Reduce inequality within and among countries"

Inclusive practices: Identify and promote social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

"Ensure sustainable consumption and production patterns"

Monitoring, Reporting, Verification: Encouraging companies and governments to adopt sustainable practices and integrate related KPI's into their reporting cycles.

Procurement practices: Improve public procurement practices and capacity and seek to incorporate elements of sustainability

Innovation in construction and circular economy: Support innovative production and construction practices that use recycled materials and reduce waste.

13 CLIMATE ACTION

"Take urgent action to combat climate change and its impacts"

Capacity Building: Integrate climate change measures into national and corporate policies, strategies and planning in addition to raising the level of education and awareness on climate related issues

Climate Resilience: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Climate Mitigation: Reduce emissions from existing transport activities through energy and fuel efficiency.

14 LIFE BELOW WATER

"Conserve and sustainably use the oceans, seas and marine resources for sustainable development"

15 LIFE ON LAND

"Protect, restore and promote sustainable use of terrestrial ecosystems"

Incorporating safeguards: Incorporate safeguards across projects via ESAP's to protect and manage ecosystems to avoid significant adverse impacts.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

"Promote peaceful, inclusive&sustainable societies. Provide access to justice for all and build effective, accountable and inclusive institutions

Improve Governance: Improve the rule of law and governance and substantially reduce corruption and bribery in all their forms. Develop effective, accountable and transparent institutions at all levels. Ensure responsive, inclusive, participatory and representative decision-making at all levels. Promote and enforce non-discriminatory laws and policies for sustainable development

17 PARTNERSHIPS FOR THE GOALS

"Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development Finance"

Resource Mobilisation: Bank to act as a catalyst for mobilising foreign investment , support access to capital markets, and incorporate partner finance such as climate finds, EU.

National and International corporation: Promote implementing effective and targeted capacity-building to support national plans to implement Sustainable Development Goals.

Annex J (Cont'd): Linkages to Sustainable Development Goals

European Bank for Reconstruction and Development

- Performance Monitoring of Strategic Directions based on Compendium of Indicators
- Strategic Directions can be mapped to align with SDGs

TSS - Strategic Direction	Core SDGs	Other Relevant SDGs
Connectivity		
Private Sector Participation		
Environmentally and Socially Responsive Transport		
Low Carbon and Innovative Solutions		

Annex K: Project Example of Connectivity supported by the Bank in Western Balkans - Corridor Vc

Key Facts on Connectivity

- Main international transport corridor in BiH, linking Budapest with the port of Ploce in Croatia through Bosnia and Herzegovina.
- Part of the Western Balkans Core Network, its development is strongly supported by the EU through the WBIF.
- More than 50 per cent of the population of BiH lives in the area around the Corridor and over 60 per cent of the country's GDP is generated within 30 km of the Corridor.
- The most important infrastructure project in the country.
- The IMF strongly supports the project which they see as key for the future growth of the private sector.

Annex K (Cont'd): Project Example of Connectivity supported by the Bank in Western Balkans - Corridor Vc

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Key Facts on Financing

- EBRD reform focus was instrumental in establishing the Federation of BiH and Republika Srpska motorway companies.
- EBRD supported the design and introduction of a fuel excise levy as a direct revenue stream to the motorway companies. It is collected at state level, bypassing the Entity budgets, and can only be used, by law, for financing motorway construction.
- EBRD covenanted the introduction of tolls to cover operation and maintenance costs.
- The borrowing capacity of both motorway companies was fully utilised under the then existing fuel levy by 2015.
- EBRD, together with the IMF and EU, successfully lobbied for an increase of the fuel levy, which finally passed in late 2017. This doubled the borrowing capacity of the companies.
- EBRD supported EIB financing of the Corridor by providing the co-financing needed to achieve EIB's 50 per cent financing limit.

Annex K (Cont'd): Project Example of Connectivity supported by the Bank in Western Balkans - Corridor Vc

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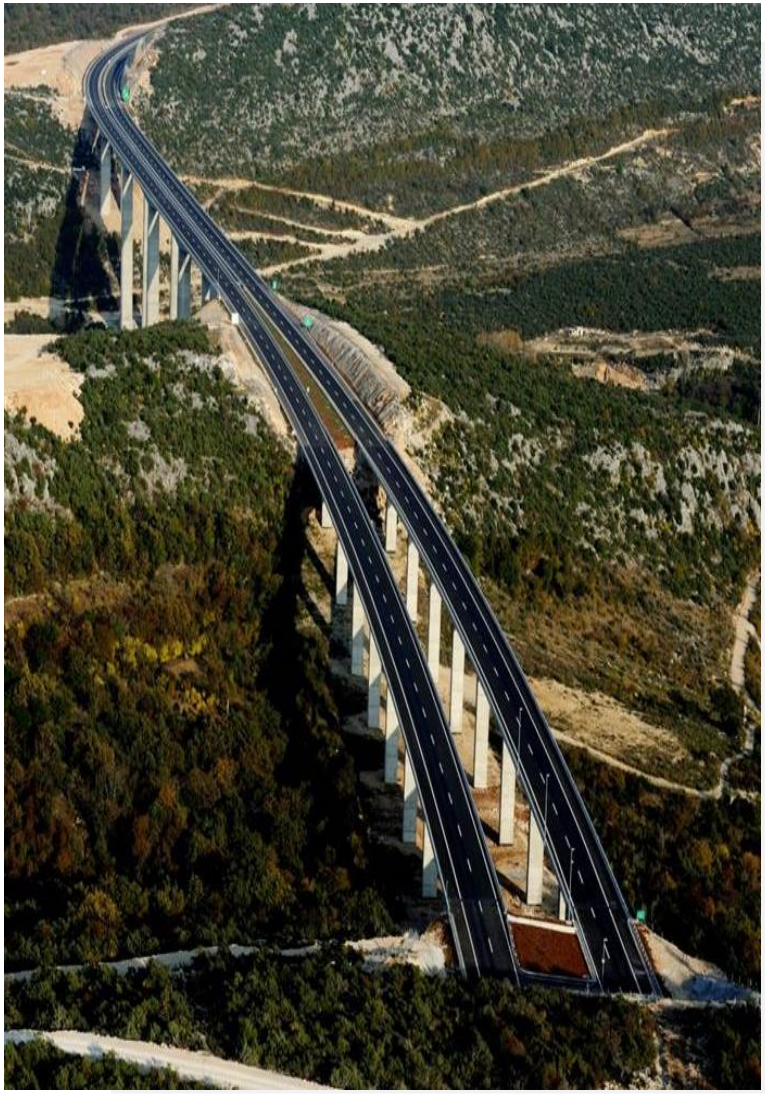

Key Facts on Financing

- The Corridor is 322 km long in BiH and passes through some very challenging terrain, resulting in a total cost running close to €4 billion for full completion (in Bosnia and Herzegovina).
- This cannot be financed by 1-2 IFIs, it requires all available resources, including the private sector financing in time.
- The Bank continues to explore PPP and electronic tolling options as part of its sovereign engagement
- The Bank signed an MOU at the Western Balkans Summit in February 2018 to provide a further €700 million for the Corridor from 2018-20 based on the financing from the fuel levy increase.
- The Bank complements and does not crowd out other sources of finance.

Annex K (Cont'd): Project Example of Connectivity supported by the Bank in Western Balkans - Corridor Vc

European Bank for Reconstruction and Development

Amounts in mil €	Length (km)	EIB	EBRD	OFID	KFAED	PPP	WBIF	Commercial banks	Own funds	TOTAL
Completed sections	100	382	225	15	-	-	-	-	257	879
Under construction	76	430	338	109	36	-	105	-	-	1,018
TOTAL	**176**	**812**	**563**	**124**	**36**	**-**	**105**	**-**	**257**	**1,897**

- As of January 2019, 100 km (out of 322 in total) have been completed and are open to traffic (all 100 km are in the Federation of BiH).
- A further 76 km are under construction and all are expected to be completed by 2023 (including the first section in Republika Srpska, all sovereign or sovereign guaranteed debt.
- **EBRD** financed 26 per cent of the completed sections and is financing 33 per cent of the sections now under construction.
- **EIB** has been the dominant financing source, financing 43 per cent of the already built sections and 42 per cent of sections under construction (OFID and the Kuwait Fund have also participated).

Annex L: Road Safety – Overview of the Bank's Approach

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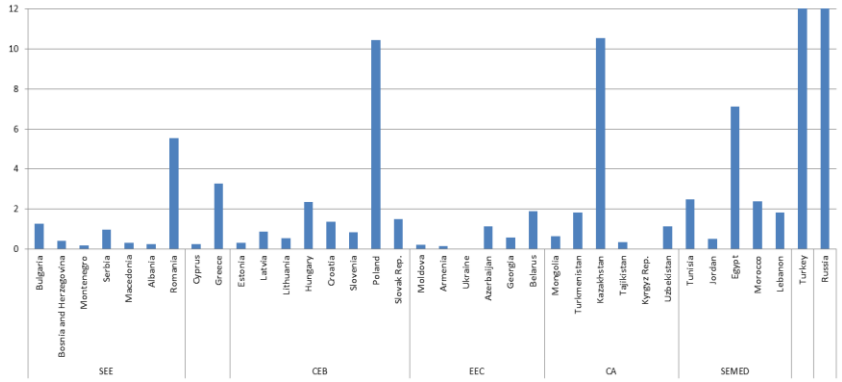
The Bank's overarching goal will be to continue to improving road safety during the design and implementation of road projects where possible. Road Safety Audits and roads safety experts will remain as the main tools to promote road safety in the Bank's projects. For road construction the operational approach will include the assessment of these risks at different levels of project preparation, design, construction and completion.

The Bank will on a best effort basis work with the Authority to implement as many road safety recommendations as possible. However the Bank will retain flexibility in circumstances with regards to 1) local laws and regulation; 2) constraints relating to alignment and land acquisition; 3) upgrade programmes including a large amount of separate sections where a road safety audit is not feasible; 4) Road PPP's (where the design has been agreed). In all cases the Bank will work closely with the authority and subject all its projects to its performance requirements.

GDP Lost per year USD Bn Nominal[1]

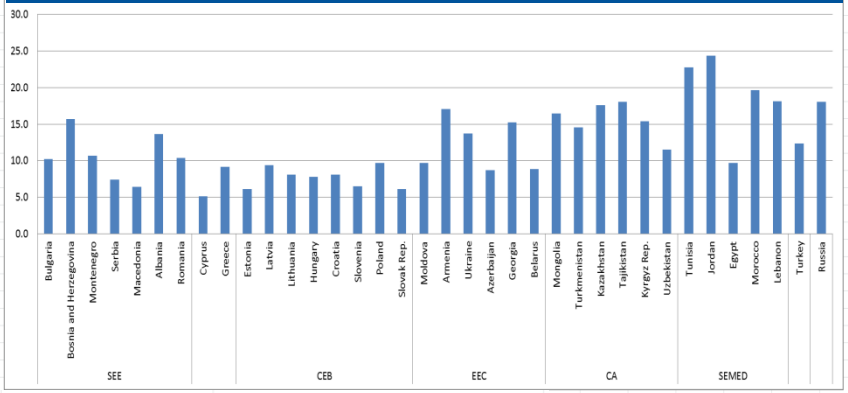


Region	Nominal USD Bn GDP lost per year
SEE	8.8
CEB	18.1
EEC	3.9
CA	14.5
SEMED	14.3
Cyprus and Greece	3.5
Total exc Below	**63.2**
Turkey	15.4
Russia	34.7
Total COO	**113.3**

EBRD Regions: The total amount of GDP lost per year is a staggering USD 113 Billion (11x the amount EBRD ABI) per year.

If these loses were to be reduced to the German Baseline (1.2 per cent), savings of approximately USD 54 billion could be realised.

Fatalities Per 100k Population [1]



Region	Nominal Road fatalities per year
SEE	4,575
CEB	5,756
EEC	9,267
CA	10,590
SEMED	22,195
Cyprus and Greece	1,086
Total exc Below	**53,469**
Turkey	9,782
Russia	25,969
Total COO	**89,220**

EBRD Regions: There are approximately 89'000 deaths per year and countless injuries.

If fatality numbers were to be reduced to the German baseline (4.3 f/100k), 62k lives could be saved in EBRD regions.

1: 2018 World Health Organisation fatality data and 2015 World Health Organisation GDP losses data

Annex M: Project Example of the Gender focus supported by the Bank in Egypt with the National Railways

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Safe transport and women's economic inclusion

Freedom of mobility – both the act of moving around and the ability to do so – is a fundamental right and a critical element of women's economic empowerment. Yet mobility is often determined and restricted by existing social norms as well as practical considerations. In Egypt, many women report facing harassment in public spaces, including when using public transport, an important mobility constraint. Egypt has large gender gaps, notably in employment, due to low participation of women in the workforce. Safe transport services can play a key role in leveraging women's economic and social opportunities.

EBRD's engagement with Egyptian National Railways

EBRD has been working with ENR since 2014 to identify ways to make its services safer for all rail users. To date, the technical assistance has consisted of:

- Assessment of passenger services to identify ways to make them safer for everyone.
- Recommendations to enhance the quality, safety and security of ENR passenger services.
- Design and implementation of a campaign combatting sexual harassment together with associated measures (i.e. hotline, training for security personnel, and so on.) to be launched in 2019.
- Capacity building of ENR staff to prevent and manage incidences of sexual harassment.
- Policy Dialogue to promote good practices on safe and gender responsive transport.

Expected outcomes

- Safer commute for ENR users.
- Greater gender equality for women and men, regardless of socio-economic status.
- Increase in women's ridership with improved access to education and economic opportunities.
- Long lasting social benefits and shared value through engagement on Policy Dialogue and replication throughout the country and in the region.

Annex M (Cont'd): Project Example of the Equal Opportunities focus supported by the Bank in Kosovo with the National Railways

European Bank
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Gender Equality and the Transport Sector in Kosovo

Kosovo has one of the lowest women's labour force participation rates in the world at around 18 per cent, well below other economies in the Western Balkans. The unemployment rates are also higher than those of men. Whilst the transport sector can be a source of secure and rewarding career opportunities for women and men alike, in Kosovo – as in many other regions across the world, women continue to be underrepresented in this sector. Key challenges impeding women's participation in transport include rigid labour laws, gender norms, the impact of night and shift work and the lack of skilled applicants in general (men and women) due to gaps in education

EBRD's Engagement with Infrakos - Kosovo Railways

In 2016, the EBRD started a Women in Transport Programme to promote gender equality and equal opportunities in the workforce of Kosovo Railways JSC Infrakos, the state-owned railway company. The Programme enabled Infrakos to review its internal policies and practices, including HR, CSR, health and safety, to further equality of opportunity across its operations.

EBRD provided a comprehensive technical support through the preparation and implementation of a Gender Action Plan, with the following results:

- Attendance of a roundtable by 13 key national stakeholders to discuss gender issues in the transport sector in Kosovo and actionable items;
- Approval of the revised and strengthened Equal Opportunity commitment and anti-harassment policy;
- Finalisation of a draft grievance policy and procedure (and accompanying terms of reference for a grievance committee);
- Finalisation of a staff satisfaction survey questionnaire and provision of detailed guidance on a communications plan around the survey;
- Revision and strengthening of the Company's performance evaluation framework and recruitment procedure.

Annex N: New Strategy - Key Changes and Developments

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Key Changes in the New Strategy

- Focus on greener technologies and blended financing solutions, where appropriate: electric vehicles, green logistics
- Growing climate risks requiring more rigorous analysis and support: attention to SDGs and Paris Alignment
- Greater awareness of gender and youth employment issues

Mega- Trends

- Electrification, biofuels, other alternative fuels
- Automation of vehicles and activities, for example, logistics centres
- Digital solutions - single window, paperless corridors; smart motorways
- Sustainable landscapes and integrated climate resilience solutions

Speed of adoption in economies where the Bank invests will depend on technological advances, client/readiness and cost considerations