The Development Dimension

Enhancing Connectivity through Transport Infrastructure

THE ROLE OF OFFICIAL DEVELOPMENT FINANCE AND PRIVATE INVESTMENT

OECD

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BETTER POLICIES FOR BETTER LIVES

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Foreword

Development partners carry out development co-operation so that developing countries can eventually drive them out of business. In other words, the objective of development co-operation is to help these countries achieve sustainable development that will no longer require aid. For this to happen though, developing countries need a thriving private sector that invests, trades, creates jobs, produces outputs, generates income, pays taxes, reduces poverty, and enhances the well-being of their citizens.

The 2030 Agenda for Sustainable Development recognises this. It also recognises the role of development partners in mobilising the private sector. In this respect, one of the key contributions that development partners can make is to help connect developing countries to boost investment and trade, particularly by taking advantage of global value chains. Here, transport infrastructure becomes important. This is because sufficient and adequate cross-border or long-distance roads and railways as well as international ports and airports are needed to move products and people around. In addition to the hardware, the accompanying software such as harmonised and efficient regulations, common safety standards, and consideration for climate change is also necessary.

This report therefore tries to capture what bilateral and multilateral development partners are doing to help enhance connectivity of developing countries through transport infrastructure. It also elaborates on the specific challenges - due to the wide geographical coverage that involves multiple countries, many stakeholders and high costs - and what collective action can be taken to address them. As a background, the report takes stock of regional transport plans in Africa, Asia, Latin America and developing countries in Europe to place development co-operation in context. Furthermore, it analyses the allocation of official development finance for transport connectivity, particularly in relation to the distribution of private investment for the same types of infrastructure. Finally, the question of how large the financing gap is for transport connectivity to meet the Sustainable Development Goals and what development partners can do to fill this gap is also discussed.

The world is changing as we speak. Tectonic shifts in technological innovation, patterns of production, modalities of finance, as well as the political agenda of nations and regions that affect investment and trade of developing countries continue to surprise us. But one thing is certain - these countries need to be better connected. As such, we hope that this report provides a comprehensive picture of the current state of play as well as food for thought on what can be done to help enhance connectivity through transport infrastructure so that no one will be left behind.

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Abbreviations and acronyms

AAAA	Addis Ababa Action Agenda
ABC	Brazilian Cooperation Agency *(Agência Brasileira de Cooperação)*
AFD	French Development Agency
AfDB	African Development Bank
AIIB	Asian Infrastructure Investment Bank
ARTIN	African Regional Transport Infrastructure Network
AsDB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
AUC	African Union Commission
BMZ	Federal Ministry for Economic Cooperation and Development *(Bundesministerium für wirtschaftliche Zusammenarbeit)*
BNDE	Brazilian Development Bank *(Banco Nacional de Desarrollo Económic)*
BRI	Belt and Road Initiative
CAREC	Central Asia Regional Economic Co-operation
CBTA	Cross-Border Transport Agreement
CBTI	Cross-Border Transport Infrastructure
CDB	China Development Bank
CEI	Central European Initiative
CEXIM	Export-Import Bank of China
CIDRN	China International Development Research Network
COSIPLAN	South America Council of Infrastructure and Planning *(Consejo Suramericano de Infraestructura y Planeamiento)*
CRS	Creditor Reporting System
DAC	OECD Development Assistance Committee
DFAT	Department of Foreign Affairs and Trade (Australia)
DFI	Development finance institution
DFID	Department of International Development (United Kingdom)
DRC	Democratic Republic of the Congo
DSF	Debt Sustainability Framework
EAC	East African Community
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECLAC	Economic Commission for Latin America and the Caribbean
EDCF	Economic Development Co-operation Fund
EIB	European Investment Bank
EU	European Union

EUR	Euro (currency)
FDI	Foreign direct investment
FiT	Freight in Time
GDP	Gross domestic product
GICA	Global Infrastructure Connectivity Alliance
GIH	Global Infrastructure Hub
GIZ	German Corporation for International Cooperation GmbH *(Deutsche Gesellschaft fur Internationale Zusammenarbeit)*
GMDSS	Global Maritime Distress Safety System
GMS	Greater Mekong Sub-region
GVC	Global Value Chain
IADB	Inter-American Development Bank
IBRD	International Bank for Reconstruction and Development
ICA	Infrastructure Consortium for Africa
ICAO	International Civil Aviation Organisation
ICTSD	International Centre for Trade and Sustainable Development
IFI	International finance institution
IIRSA	Initiative for the Integration of the Regional Infrastructure of South America
IMF	International Monetary Fund
IMO	International Maritime Organization
IMT-GT	Indonesia-Malaysia-Thailand Growth Triangle
ITF	International Transport Forum
JICA	Japan International Cooperation Agency
KEXIM	Export-Import Bank of Korea
KfW	German Development Bank *(Kreditanstalt Fuer Wideraufbau)*
KOICA	Korea International Cooperation Agency
LDC	Least developed country
LIC	Low-income country
LLDC	Landlocked developing country
LMIC	Lower middle-income country
MCC	Millennium Challenge Corporation
MDB	Multilateral Development Bank
MFA	Ministry of Foreign Affairs (People's Republic of China)
MFAT	Ministry of Foreign Affairs and Trade (New Zealand)
MIGA	Multilateral Investment Guarantee Agency
MOC	Ministry of Commerce (People's Republic of China)
MOFA	Ministry of Foreign Affairs (Japan)
NAMA	Nationally Appropriate Mitigation Action
NDRC	National Development and Reform Commission (People's Republic of China)
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental organisation
ODA	Official development assistance
ODF	Official development finance

ODI	Overseas Development Institute
OECD	Organisation for Economic Co-operation and Development
OOF	Other Official Flows
OSBP	One Stop Border Post
OTIF	Organisation for International Carriage by Rail *(Organisation intergouvernementale pour les transports internationaux ferroviaires)*
PIARC	Permanent International Association of Road Congresses
PIC	Pacific island country
PIDA	Programme for Infrastructure Development in Africa
PPI	Private Participation in Infrastructure (Database)
PPIAF	Public-Private Infrastructure Advisory Facility
PPP	Public-private partnership
PRIF	Pacific Region Infrastructure Facility
PSI	Private sector instrument
PwC	PricewaterhouseCoopers
REC	Regional Economic Community
SADC	Southern African Development Community
SASEC	South Asia Sub-Regional Economic Co-operation
SDG	Sustainable Development Goal
SEMED	South Eastern Mediterranean
SEZ	Special economic zone
SSATP	Sub-Saharan African Transport Policy
SuM4All	Sustainable Mobility for All
TAH	Trans-African Highway
TAR	Trans-Asian Railway
TEN-T	Trans-European Transport Networks
TMEA	TradeMark East Africa
TRACECA	Transport Corridor Europe-Caucasus-Asia
UIC	International Union of Railways *(Union internationale des chemins de fer)*
UMIC	Upper Middle-Income Country
UN	United Nations
UNASUR	Union of the South American Nations
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNOSAA	United Nations Office of the Special Adviser on Africa
USAID	United States Agency for International Development
USD	United States dollar (currency)
WBG	World Bank Group
WTO	World Trade Organization
WWF	World Wide Fund for Nature

Executive summary

Transport infrastructure that connects developing countries is crucial for reducing trade costs, boosting economic growth, promoting regional integration, and achieving the Sustainable Development Goals (SDGs). Therefore, this report focuses on "transport connectivity" which includes international airports and ports, as well as railways and roads that are cross-border, part of corridors and networks, or link major cities within a country.

More specifically, Chapter 1 provides an overview, particularly in elaborating the rationale for improving transport connectivity and the inherent challenges. Chapter 2 presents the current state and action plans of transport connectivity in Africa, Asia, Latin America and developing countries of Europe. Chapter 3 summarises the relevant strategies and activities of development partners that are supporting transport connectivity. Chapter 4 analyses the distributions of Official Development Finance (ODF) committed by development partners and the private sector for transport connectivity and discusses the financing gap to meet the SDGs. Chapter 5 consists of profiles of 16 bilateral and multilateral development partners, which include their respective strategies, programmes, and projects for transport connectivity. Finally, Annex A provides the Technical Notes for the report.

Key findings

There are various deficiencies and challenges in transport connectivity of developing country regions, such as: missing highway links in Africa; under-developed inland waterways in Latin America; poor quality roads in Asia; and low transport safety standards in Europe. As these challenges often have a negative impact on trade and economic growth**, numerous regional or sub-regional plans and initiatives for transport connectivity have been developed.** Examples include the Programme for Infrastructure Development in Africa, the Portfolio of Integration Infrastructure Projects in South America, Master Plan on Association of Southeast Asian Nations Connectivity, and the Trans-European Transport Networks.

Development partners therefore help enhance transport connectivity with the aim of increasing jobs, reducing poverty, stimulating economic growth, fostering regional co-operation, and facilitating countries' integration in the global value chain. Some development partners have a geographical focus such as the Greater Mekong Sub-Region or specific considerations such as landlocked developing countries, climate issues or transport safety. **In general, the strategies and activities of development partners are aligned to the regional and sub-regional plans for transport connectivity.** In addition, there are pooled funding facilities for projects that allow them to ensure coherence and co-ordination among themselves and with partner countries. Bilateral development partners beyond the Development Assistance Committee (DAC) - Brazil and People's Republic of China—as well as the newly established Asian Infrastructure Investment Bank also play a significant role in this area.

At the same time, **there are various issues inherent to transport connectivity projects, which generally have wide geographical coverage that involves multiple countries, many stakeholders and high costs.** For example, trade-offs between transport modalities, environmental and social concerns, and geopolitical tensions need to be incorporated into project selection and planning. There are also challenges in co-ordination and harmonisation, i.e. synchronisation of project timing, the free-rider issue, standardisation of both hard and soft aspects, and the capacity of supra-national organisations. Debt sustainability often becomes a concern, given the large size of loans for the projects. In addition, there are broader trade and investment issues that need to be addressed, such as tariff and non-tariff barriers, as well as the productive capacity of developing countries. Moreover, it is also important to bear in mind the potential impact of technological innovation on transport connectivity, such as the development of 3D printing, autonomous cars and drones.

While transport connectivity is mostly financed by developing country governments, the 33 bilateral and multilateral development partners that report to the DAC committed on average USD 15 billion of ODF per year to transport connectivity projects in 2014-2015. In comparison, the private sector committed on average USD 52 billion per year. Here, **development partners and the private sector appear to have different focus in financing transport connectivity** - the former mainly in Asia and Africa or low-income countries (LICs) and lower middle-income countries (LMICs) while the latter in Latin America and Europe or upper middle-income countries (UMICs).

Yet, there is a significant financing gap. Estimates show that current spending on transport connectivity in developing countries need to be more than doubled in order to meet the SDGs. As ODF accounts for a small share of the total spending, development partners are trying to leverage private investment using ODF interventions. However, **the amounts mobilised from the private sector are very small.** Furthermore, they are generally in UMICs where the private sector is likely to continue financing transport connectivity even without these interventions.

Policy recommendations

Development partners could further enhance co-ordination amongst themselves - including bilateral development partners beyond the DAC and new multilateral development banks - to address issues around transport connectivity. These issues involve trade-offs between transport modality, harmonisation, standardisation, capacity building, debt sustainability, broader trade and investment policies, and technological innovation. In practice, they could enhance co-ordination at the partner country level and through collective mechanisms such as the G20, Global Infrastructure Connectivity Alliance, International Transport Forum, and other international organisations for specific transport modes.

To help fill the financing gap for transport connectivity by attracting the private sector, **development partners could explore further how to improve the enabling environment, especially in LMICs and LICs**. Support includes building infrastructure beyond transport, enhancing the investment climate, and boosting the productive capacity. These areas are particularly important since mobilisation using ODF is very small and is carried out mostly in UMICs where the private sector tends to invest by themselves, which raises the question of development additionality.

Overview: Supporting transport connectivity in developing countries

Improving transport connectivity in developing countries is crucial to reduce trade costs, boost economic growth, and promote regional integration. Therefore, to address various deficiencies in transport connectivity, numerous regional or sub-regional plans have been established. These are supported and financed by many development partners, particularly to fill the large financing gap. At the same time, due to the wide geographical coverage, there are specific issues in transport connectivity that need to be addressed, such as environmental and social concerns, co-ordination and harmonisation, debt sustainability, trade and investment policies, and technological innovation. Development partners - including those beyond the Development Assistance Committee - could further enhance co-ordination at the partner country level as well as through collective mechanisms. They could also address ways to help improve the enabling environment in order mobilise private investment for transport connectivity, particularly for the poorer countries.

Introduction

This report focuses on transport connectivity infrastructure in developing countries, which is defined as international airports and ports, as well as railways and roads that are cross-border, part of corridors and networks, or link major cities within a country.[1] Transport connectivity is crucial for reducing trade costs, boosting economic growth and promoting regional integration. In particular, it can help these countries achieve the Sustainable Development Goals (SDGs) - notably Goal 9 on resilient infrastructure and industrialisation, Goal 1 on poverty reduction, and Goal 8 on inclusive growth.

In this context, developing countries need to significantly increase investments for transport connectivity. While governments have the leading role in financing their own development trajectory, bilateral and multilateral development partners also provide official development finance (ODF) to transport connectivity projects. In addition, they try to leverage private investment and help improve the enabling environment, as emphasised in the Addis Ababa Action Agenda (AAAA) (UN, 2015). Therefore, the report discusses how development partners can strengthen their support for transport connectivity by analysing their strategies and activities, summarising challenges, as well as presenting the distribution of current financing and the gap.

Accordingly, this overview chapter introduces the rationale and the investment needs for transport connectivity in developing countries. It then summarises the current state and action plans of transport connectivity in Africa, Latin America, Asia, and Europe, as well as the support provided by development partners. The chapter also elaborates specific issues related to transport connectivity due to its wide geographical coverage. Finally, the chapter provides a summary and conclusion of the whole report.

Background

Rationale for improving transport connectivity

The international community has been increasingly emphasising the need for transport connectivity, owing to its pivotal role in enabling people and firms to reach regional and international markets (WBG, 2017). In other words, better connectivity can increase trade volume and competitiveness of major cities and countries as well as reduce transport costs, thereby promoting economic growth, social integration, and development. Even more so in today's globalised economy, where value chains are spread out all over the world. Concurrently, transport connectivity could also enhance human development within and between countries by allowing people to have better access to jobs, education, and health services (OECD, 2016; UN, 2016).

With respect to boosting trade volume, upgrading the road network to strengthen connectivity between cities in sub-Saharan Africa can catalyse USD 250 billion in trade over 15 years (Buys et al, 2010). In terms of lowering trade costs, transport connectivity in Latin American countries would help reduce their high logistic expenses, which on average take up more than half the price of delivered goods and account for 18% to 40% of gross domestic product (GDP) (WBG/ECLAC/IADB, 2010). This is also the case of least developed countries (LDCs), whose average freight and insurance costs amounted to approximately 14% of their value of imports in 2016, while that of developed countries was approximately 7%[2] (OECD/WTO, 2017) - although this could be due to the relatively lower import value of LDCs.

More specifically, improving transport connectivity infrastructure could increase the productivity of companies, thereby accelerating their integration in global value chains (GVCs). A study based on firm-level panel data in four African countries shows that firms operating across countries have higher productivity and growth with adequate cross-border infrastructure. In fact, inadequate infrastructure is often cited as the most significant trade-related challenge to global value chain participation for firms in developing economies (ODI, 2016). In particular, transport connectivity has been found to have a greater effect on global value chains than on overall trade flows, owing to the higher elasticity in intermediate goods than in final goods (Saslavsky and Shepherd, 2012; OECD, 2016). This is particularly pertinent as developing countries increasingly import raw materials and intermediate goods to produce manufactured products for export.

Moreover, enhancing transport connectivity is crucial in view of the rising freight demand in developing countries, which is forecast to continue growing (ITF, 2017). This is also the case for passenger transportation with increasing population and demand for mobility. Thus, it is important to enhance both quantity and quality of these infrastructure, especially in major corridors and networks to make border-crossing and international transport easier, cheaper and faster. Furthermore, to increase the competitiveness of firms, cities and countries, it is paramount to strengthen the reliability of trans-shipments and predictability of supply chain operations in transport connectivity (OECD, 2016).

In this respect, apart from improvements in the hard aspects, soft transport connectivity projects can also reduce transit costs, increase cross-border trade and enhance productivity of firms. Soft projects include supporting harmonisation of transport procedures and regulations, better management of cross-border infrastructure such as customs clearance, and capacity building of authorities in specific transport sectors. In fact, deficiencies in soft aspects often force firms to adopt inefficient trade routes (ODI, 2016).

For instance, goods between Lagos and Accra are frequently transported by sea - despite the land proximity between the two cities. This is due to the high transit costs for crossing Benin and Togo, which is a result of the complex transit regulations and extensive delays in obtaining documentation at borders (Hoppe and Aidoo, 2012; ODI, 2016). These impediments especially limit trade activities of landlocked developing countries (LLDCs) that depend heavily on transport links with their neighbouring countries, such as Bhutan and Nepal, whose exports and imports mostly transit through Kolkata and Haldia ports in India (ODI, 2015).

Addressing soft aspects becomes all the more important since enhanced movement of goods and people through transport connectivity could potentially increase the levels of CO_2 and greenhouse gas emissions. Therefore, incorporating climate mitigation measures in projects can help countries reduce these negative externalities and meet their targets of the Paris Agreement on climate change. In particular, enhancing soft aspects such as operational efficiency, route optimisation, and technological innovation can curb the trend of growing greenhouse gas emissions from freight transportation.

For example, emissions in ports can be curtailed by improving: transition within maritime logistics; slot booking and ship-tracking technology to reduce vessel queues at anchorage; and shore-side electrical power systems for ships at berth to save fuel consumption. In addition, the adoption of differentiated port fees according to environmental impact can provide incentives for ports to limit greenhouse gas emissions (ICTSD, 2010; OECD/IMO, 2017). Moreover, freight transport companies can minimise road emissions by optimising the design of delivery routes to reduce traffic time and vehicle fuel consumption, as well

as by sharing assets such as warehouses, trucks, and information technology systems among themselves (ITF, 2017).

Enhancing transport connectivity should also incorporate climate adaptation measures to reduce the vulnerability of a region in the event of climate hazards. In other words, better design and maintenance of hard transport connectivity infrastructure could lower the risks posed by the consequences of climate change. For example, incorporating shore protection facilities can help minimise the erosion and other damages in ports caused by sea-level rise. Likewise, increasing the capacity of culverts and compaction as well as building up weirs and spillways can improve the resilience of roads to floods and storms (Transport & ICT, 2015).

Transport connectivity in regions: Current state and action plans

In **Africa**, deficiencies in transport connectivity infrastructure - both in hard and soft aspects - partly lead to its low level of international and intra-regional trade, economic integration, and industrialisation. In 2015, African exports only accounted for 2% of total worldwide merchandise exports, with its intra-regional trade being low at 18% compared to 52% in Asia (UNCTAD, 2017). To address this situation, the Programme for Infrastructure Development in Africa (PIDA) was developed in 2012 by the African Union Commission (AUC) and others in order to promote Africa's regional economic integration by building infrastructure and strengthening trade. Specifically, 24 transport connectivity projects are identified in PIDA's Priority Action Plan for 2012-2020, requiring a total investment of approximately USD 25 billion (PIDA, n.d.a; n.d.b). In this context, the African Development Bank (AfDB), as the executing agency for the management of PIDA, established an infrastructure fund, Africa 50, to leverage private investments for high-impact infrastructure projects (Africa 50, 2018).

In **Latin America**, under-developed transport connectivity infrastructure - especially water transport - is estimated to be the cause of high logistic expenses which amount to more than half the price of delivered goods or 18% to 40% of its GDP (WBG/ECLAC/IADB, 2010). For intra-regional transport, many rivers with navigation potential in Latin America have not been transformed into efficient inland waterways. Moreover, insufficient depth and poor maintenance of seaports hinder the upgrade of port capacity and logistic efficiency. In this context, the Union of the South American Nations (UNASUR) established a Portfolio of Integration Infrastructure Projects (COSIPLAN) in 2013 to increase economic, social and cultural integration. Likewise, the Initiative for the Integration of the Regional Infrastructure of South America (IIRSA) was launched with the aim of linking Latin American economies by integrating highway networks and inland waterways through soft and hard projects.

In contrast with Africa and Latin America, **Asia** has more transport connectivity infrastructure and a higher degree of regional integration. However, the relatively poor quality and insufficient capacity to meet the fast-growing demand remain challenges for this region, especially for LLDCs. Therefore, many sub-regional projects, programmes and strategies have been established, such as projects in Greater Mekong Sub-region (GMS),[3] the Central Asia Regional Economic Co-operation (CAREC) Programme, and the South Asia Sub-regional Economic Co-operation Programmes. Likewise, the Association of Southeast Asian Nations (ASEAN) developed a new Master Plan on ASEAN Connectivity to implement connectivity infrastructure projects up to 2025.

Developing countries in Europe[4] have weak transport connections with Western and Northern Europe. This is due to, first, low density of national highways in these countries

in general owing to underinvestment (Turkey being an exception); and second, the challenges in harmonising their gauges and other technical characteristics in railways. In addition, transport infrastructure in these countries is generally below international standards in terms of safety, efficiency of passenger and freight services, energy performance, and environmental safeguards. Accordingly, the Central European Initiative (CEI) finances the Trans-European Transport Networks, which is a set of planned highways, railways, airports and ports, to enhance territorial co-operation (CEI, 2014). Moreover, since 2000, the European Commission has been funding the Transport Corridor Europe-Caucasus-Asia programme to help develop and implement regional transport policies and projects in the Black Sea Basin and Central Asia region including developing countries.

(More details and maps of the current state and action plans of transport connectivity in regions can be found in Chapter 1.)

The role of development partners in transport connectivity

Strategies and activities of development partners

Development partners help enhance transport connectivity with the aim of increasing jobs, reducing poverty, stimulating economic growth, fostering regional co-operation, and facilitating countries' integration in GVCs. They also uphold social, safety, and environmental standards when supporting transport connectivity projects. Some of them have geographical focus such as GMS, or specific considerations such as LLDCs, climate issues or transport safety.

In general, the strategies and activities of development partners are aligned to the regional and sub-regional plans for transport connectivity. Furthermore, there are pooled funding facilities for projects that allow development partners to ensure coherence and co-ordination among themselves and with partner countries. Similarly, international organisations related to infrastructure or dedicated to specific transport modes also provide platforms for development partners to provide support collaboratively. Using these collective mechanisms, it would be important to enhance co-ordination, including with bilateral development partners beyond the OECD Development Assistance Committee (DAC) - Brazil and People's Republic of China (hereafter China) - as well as the newly established Asian Infrastructure Investment Bank. More details can be found in Chapter 5 on development partner profiles.

Financing transport connectivity

In 2014-15, the 33 development partners that report to the DAC committed a total of USD 15 billion of ODF per year on average to transport connectivity projects. In comparison, the private sector committed on average USD 52 billion per year. By analysing the distribution, it appears that development partners and the private sector have different focus in supporting transport connectivity - the former mainly on Asia and Africa or low-income countries (LICs) and lower middle-income countries (LMICs) while the latter focus on Latin America and Europe or upper middle-income countries (UMICs).

Furthermore, based on estimates by Brookings *et al* (2015), the authors of this report calculated that the current amount of annual spending for transport connectivity totals roughly USD 315 billion. Of this amount, developing country governments financed around 80%, the private sector around 15% and development partners reporting to the DAC around 5% (see Figure 3.12). At the same time, in order to meet the SDGs by 2030, there

remains a significant financing gap for transport connectivity infrastructure, estimated to be approximately USD 440 billion per year.

In this context, much emphasis has been placed on mobilising private finance through risk instruments to fill the financing gap. However, the share of private investment mobilised by development finance institutions and international finance institutions (IFIs) for transport connectivity is relatively small - equivalent to USD 820 million or 2% of the total private investment. In particular, mobilisation is minimal in LICs, owing to higher risks and uncertainties. Accordingly, development partners are also helping the governments improve their enabling environment to attract more private investment to fill the gap. Financing for transport connectivity is further discussed in Chapter 4.

Issues around transport connectivity

There are specific issues related to transport connectivity due to its wide geographical coverage that involves multiple countries, many stakeholders and high costs. These include trade-off between the types of transport modality, environmental and social concerns, and geopolitical tensions in project planning. There are also challenges in co-ordination and harmonisation, such as synchronisation of project timing, the free-rider issue, standardisation of both hard and soft aspects, and the capacity of supra-national organisations. In addition, debt sustainability, broader trade and investment policies, as well as the potential impact of technological innovation also need to be taken into consideration. The following describes these issues and the collective action that can be taken to address them.

Project selection and planning

Development partners and governments need to weigh the costs and benefits of transport connectivity projects to ensure good value for money and the equitable distribution of benefits from the projects. Therefore, **trade-off between different modalities of transport** often poses dilemmas in project planning and financing. For instance, while constructing or upgrading highways requires large upfront investment and maintenance costs, it can significantly reduce trade costs in developing countries, especially in low and middle-income countries where road transportation represents roughly 70% of the total freight bill (PPIAF/GIF, n.d.; IBRD and World Bank, 2009). Conversely, while rail services tend to have low profit margins and rates of return, they can become cost-effective when transporting large amounts of minerals and commodities, notably in Africa (AfDB, 2015). Furthermore, while rail usually costs more than maritime transport, it is generally faster, especially for trade across the Eurasian continent (Galushko, 2016). Such economic factors are all the more important since governments often have to incur debt in order to finance transport connectivity infrastructure. In particular, the demand side - such as the scale of potential beneficiaries, user charges, and affordability by the poor - should be sufficiently addressed in project planning.

These economic considerations also have to be balanced with **environmental and social concerns**, particularly climate change. For example, air freight is considered a highly carbon-intensive mode of transportation (ICTSD, 2011); and road and maritime transport also emit significantly more CO_2 than rail transport which tends to incur lower environmental externalities (OECD/ITF, 2017). However, roads are crucial for development as they provide the "last mile" of any long-distance transportation (AfDB, 2015) and often enable farmers to have easier access to markets and sell their products. Furthermore, emissions in ports can be significantly reduced by the wide adoption of

innovative and effective port-based mechanisms as mentioned above in the Background Section. At the same time, the deployment of these mechanisms requires additional financial and human resources to co-ordinate multiple actors, including ship-owners and port authorities (ICTSD, 2010; OECD/IMO, 2017).

The development of transport connectivity infrastructure could also impact **ecosystems and biodiversity**. For example, a preliminary analysis conducted by the World Wide Fund for Nature (WWF) indicates that the six land-based economic corridors proposed by the Belt and Road Initiative (BRI) overlap with the range of 81 endangered species. Given the significant quantity of planned highways and railways in these corridors, WWF suggests the establishment of unified environmental standards or safeguards for BRI to ensure biodiversity and environmental sustainability as well as to mitigate potential negative impacts (WWF, 2017).

In addition, transport connectivity plans entail the risks of involving **geopolitical tensions** since they often cover multiple communities or countries. For instance, the China-Pakistan Economic Corridor included a plan to connect western China to a port in Gwadar in Pakistan by rehabilitating part of the existing Karakoram Highway. However, India raised objections over the project,[5] which was designed to pass through the disputed territory of Jammu and Kashmir (Ministry of External Affairs of India, 2017; Forbes, 2017). Another example where political and geographical friction acted as a barrier to a cross-border transport project related to a road corridor linking the Brazilian and Chilean borders through Bolivia, planned under IIRSA. The road was planned to traverse a national park, home to four indigenous ethnicities that had ownership of these territories through a constitutional mandate. This led to demonstrations, marches, occupations, and road blocks, subsequently escalating into violent confrontations with the police. As a result, the project was eventually suspended (De la Cuadra, 2015). These two cases show the need for development partners to be mindful of the potential geopolitical tensions at the planning stage for transport connectivity projects.

Co-ordination and harmonisation

Apart from difficulties in project planning, transport connectivity projects often involve co-ordination and harmonisation issues, such as **synchronising the timing** of implementation. If road or rail construction or related regulations in a few countries are ready but not in others in a multi-national plan, then connectivity can be compromised. For example, a section of the Rundu-Elundu Road located at Namibia's border with Anited Nationsla was upgraded in 2015, expecting to facilitate trade in this region. However, since the connecting roads on the Angola side remained unpaved and deteriorated, this project alone was not sufficient to make an impact on trade volume. (JICA, 2015; KfW, 2009). As this case shows, it is important to synchronise projects in different sections, or the effectiveness of these corridors in facilitating trade for the whole region can become suboptimal.

Similarly, transport connectivity projects could be subject to the **free-rider challenge** due to their significant spillover benefits to neighbouring countries, whose incentive to improve their own infrastructure is thereby reduced. In other words, if one country finances transport connectivity infrastructure across or close to a neighbouring country, the latter can free ride at the expense of the former, since such infrastructure can boost trade in both countries. This creates a form of prisoner's dilemma in which the distribution of costs and benefits of improving transport connectivity becomes asymmetric, making both countries reluctant to undertake the operation and maintenance for the transport infrastructure (OECD, 2016). In order to prevent such issues, development partners need to ensure that the responsibility

and finance of connectivity projects is appropriately distributed among concerned countries, in tandem with capacity building on financial and budget management for the central and municipal governments.

Another issue relates to **standardising physical aspects** of transport infrastructure among many countries. In the case of roads, standardising the quality is necessary to ensure the efficiency and effectiveness of transportation. For example, the structural adequacy of different road sections has to be unified to accommodate heavy lorries that cross several countries. The issue of overloading is especially important for trans-border shipments due to the significant differences in the engineered road tolerances by country. Moreover, the variance in levels of surface friction, structural distress, and various other conditions related to culverts, signs, fences, and so on, can affect the smoothness of road transportation, especially for long-distance regional freight (Hass et al., 2009).

In the case of railways, standardising physical aspects of transport infrastructure is particularly a challenge for African countries since there is lack of consistency in their gauges. Specifically, converting or constructing railways to a standard gauge is costly and time consuming. In this context, regional organisations can co-ordinate among stakeholders to enhance harmonisation. For instance, for the construction of the Standard Gauge Railway connecting Uganda, Kenya, Democratic Republic of the Congo, and South Sudan, the New Partnership for Africa's Development - with the assistance from Australia - established the Infrastructure Skills for Development initiative to facilitate stakeholders to work regionally to address inter-operability standards. It also provides capacity building to administrative departments in monitoring deliverables for the relevant projects (Australian Aid, 2015).

In addition, **common standards for soft aspects** of transport connectivity, such as safety and environmental standards, transport regulations and social safeguards, also need to be developed across countries. In this respect, development partners such as Australia and New Zealand are helping harmonise and co-ordinate air traffic safety and control, notably among Pacific Island Countries through staff training, knowledge sharing, and so on (Box 2.1). However, unifying standards at a policy level does not guarantee implementation. In practice, adjusting national systems to harmonise with regional transport standards can take time or face resistance.

For instance, following the signature of the Cross-Border Transport Agreement (CBTA) in the GMS in 2007 - which covers, *inter alia*, border-crossing formalities, transit traffic regimes, and exchange of commercial traffic rights - many development partners, such as the Asian Development Bank (AsDB), Japan, China and Thailand, financed several CBTA-related transport projects. Yet, as domestic laws have not been changed to meet the agreement's stipulations in several countries, there are still many institutional bottlenecks in border crossing. In particular, custom officials reportedly have vested interests in resisting the implementation of the CBTA (JICA, 2007). Therefore, in some transport connectivity projects, it could be more feasible to introduce mutual recognition arrangements than to fully harmonise transport standards across different countries (ODI, 2015).

Moreover, the **lack of co-ordination capacity** of governments and sub-national agencies could hamper the harmonisation of transport standards as well as regional integration. At the national level, the government needs to gain support from and co-ordinate various ministries and authorities in order to prioritise projects in the national agenda. However, some developing country governments lack capacity to engage multiple departments and development partners to co-operate even at the project planning stage. In this respect,

development partners could encourage and facilitate the participation of relevant ministries in dialogue and discussion over key transport connectivity projects.

At the regional level, several development partners point to the lack of capacity and resources of the Regional Economic Communities (RECs) in Africa to co-ordinate multiple stakeholders, particularly in connectivity projects. To address this issue, some development partners are helping build the capacity of RECs. For example, they jointly finance TradeMark East Africa (TMEA) to facilitate the East African Community (EAC) Secretariat in holding regular high-level dialogue with member states and development partners on the regional trade and integration agenda (TMEA, 2018). In addition, multilateral development banks (MDBs) are playing an important role in co-ordination with their extensive field presence. For instance, AsDB is taking the lead in providing guidelines for transport connectivity projects in the Indochina peninsular that involves project design, environmental and social safeguards, and impact evaluation.

Additionally, efforts to enhance transport connectivity have to be complemented by plans to **lower transaction costs and transit time at customs -** otherwise the benefits of cross-border connectivity projects will be suboptimal. For instance, manual processing at borders is still common practice in African countries, coupled with challenges stemming from different regulations and standards. Therefore, data recording, as well as exchange between border and central custom authorities, remains inefficient and time consuming. In this context, development partners are supporting projects to streamline these processes by modernising and automating customs with centralised IT systems (AsDB, 2013).

Debt sustainability

As transport connectivity projects tend to require significant amount of loans, commensurate with their generally wide geographical coverage, debt sustainability needs to be taken into consideration. While this is primarily the responsibility of the borrowing countries, development partners should also work together with them to prevent and resolve unsustainable debt situations, as emphasised in the AAAA (2015). In this respect, DAC members and multilateral development banks generally share information on major infrastructure projects, co-finance, carve out their respective niches, and avoid overlaps through co-ordination platforms led by host governments on a regular basis. However, some other development partners may not participate in these dialogues and share information, partly due to their thin presence on the ground. Still, development partners could support host governments in engaging all relevant stakeholders to co-ordinate on debt sustainability issues in financing transport connectivity projects.

For example, when Lao People's Democratic Republic ("Lao PDR") planned to borrow USD 450 million for the China-Laos Railway project in 2016, the International Monetary Fund (IMF) pointed out that the loan would push the country to exceed its debt sustainability level (IMF, 2013). AsDB also warned that the current account deficit of Lao PDR would widen to 20% due to the expected large imports of construction materials and machinery for this project (AsDB, 2017). Similar concerns were raised for the Nairobi-Mombasa railway construction, with the level of Kenya's debt to China accumulating in a relative short period of time and reaching 6% of its GDP (BBC, 2017).

In this regard, some policies and co-operative mechanisms to ensure debt sustainability of developing countries have been developed, such as the Principles on Responsible Sovereign Lending and Borrowing developed by the United Nations Conference on Trade and Development. In addition, the DAC introduced new safeguards in its statistical system whereby loans whose terms are not consistent with the IMF Debt Limits Policy and the

World Bank's Non-Concessional Borrowing Policy will not be reportable as official development assistance (ODA). Moreover, the G20 countries - including Brazil, China, India and Turkey - have endorsed the G20 Operation Guidelines for Sustainable Financing, which encourage information-sharing and co-operation among borrowers, creditors and IFIs, in order to enhance access to sound financing for development while ensuring debt sustainability (G20, 2017).

In addition, the China International Development Research Network (CIDRN), established by China in 2013 as a platform for sharing and disseminating knowledge on international development, addresses debt issues. CIDRN organises public forums and conferences on China's role in international development, by engaging academia, government departments such as the Ministry of Commerce and the Ministry of Foreign Affairs, development agencies including Department of International Development of the United Kingdom, the German Corporation for International Cooperation GmbH (GIZ), the Japan International Cooperation Agency (JICA) and United Nations Development Programme, as well as non-governmental organisations such as Oxfam. Debt issues in China's international development have been one of the main topics in these forums and conferences (Institute of Development Studies, 2014; Research Center for International Development, 2013).

At the same time, there have been diverging views around the issue of debt sustainability of developing countries in infrastructure investment. On the one hand, the AAAA and the SDGs, the IMF/World Bank (2012) Debt Sustainability Framework (DSF) of 2006, 2009, and 2012, and the G20 Compact with Africa (Compact with Africa, 2017) under the German presidency are more cautious regarding debt sustainability. On the other hand, the G20 High Level Panel on Infrastructure under the French presidency (2011), the G20 Action Plan for MDB Balance Sheet Optimisation under the Chinese presidency (2015), as well as the latest IMF/World Bank DSF of 2017 (IMF, 2017) are more optimistic concerning debt sustainability based on the idea that investments in infrastructure can yield enough economic returns to repay the debts. In this context, developing country governments and development partners should be mindful of debt sustainability within specific country contexts. This is notably the case when developing country governments with weak capacity for co-ordination and fiscal management receive large amounts of external public finance from multiple development partners.

Trade and investment policies

More generally, transport connectivity would need to be in tandem with **broader policies that affect trade and investment**, such as reducing tariff and non-tariff barriers as well as harmonising standards. To address **tariff barriers**, for example, the Southern African Development Community (SADC) has been planning to establish a customs union to enhance regional economic integration and increase trade volume. As such, the establishment of the customs union could complement the 72 transport infrastructure projects that have been planned in this region. However, the plan has been delayed mainly due to the complex negotiation process of converging 11 tariff regimes into one common external tariff policy.

Similarly, addressing **non-tariff issues,** such as technical barriers, lack of competition, market rigidity, as well as harmonisation and mutual recognition of standards, is crucial to enhance intra-regional or international trade and private sector development in developing countries. Therefore, EAC established the Single Customs Territory to harmonise quality standards for goods, labelling and certification requirements, as well as business registration and licensing procedures among member countries. Another example is the

technical assistance by the SADC Secretariat to its members - with help from development partners - in dealing with non-tariff barriers such as adherence to international guidelines for sanitary and phytosanitary measures, which particularly cover food safety and pesticides (SADC, 2012; CUTS Geneva Resource Centre, 2010).

Likewise, transport connectivity often needs to be complemented by other interventions aimed at improving the enabling environment, including supporting liberalisation. Specifically, the lack of competition in trade logistics and transport services in developing countries provides a ground for rent-seeking activities, which in turn can cause high transport prices for end users. Furthermore, even good transport connectivity infrastructure could become under-utilised or economically unsustainable if the users do not have much to produce and sell. From this perspective, in conjunction with support to transport connectivity, development partners would have to consider addressing impediments to trade and investment, as well as the productive capacity of countries to produce value added goods to export.

The future of transport connectivity

In the future, transportation in developing countries could be altered by technological innovation such as the large-scale adoption of **3D printing**. At present, although 3D printers generally produce parts of objects, they have the potential to produce whole products. In this respect, on the one hand, manufacturing using 3D printing technology could be more centralised in factories, which could reduce the need for transportation. On the other hand, manufacturing could become globally spread out, which may increase the need for transportation (OECD, 2017).

Moreover, with the advent of new vehicles such as **autonomous cars and drones,** the demand for and the design of transport infrastructure - especially roads - could change. One possibility is that the wide adoption of autonomous cars would increase mobility and traffic flows, thereby requiring more roads and innovative intelligent traffic management systems. In addition, with increasing electricity and solar cars, roads might need to be equipped with charging stations. Meanwhile, the burden of building transport infrastructure could be reduced by using drones to deliver goods. For example, Swiss WorldCargo is currently exploring the role of aerial vehicles to meet cargo transportation needs in Africa (Air Cargo World, 2014). Likewise, Zipline is running a project to develop drone delivery services in Rwanda by increasing the speed of deliveries, especially for health-related equipment for hospitals (BBC, 2016). In this context, there are predictions that drones could account for 10% to 15% of Africa's transport sector in the next decade. However, many have pointed out that the current limited lifting capability of drones and the absence of regulatory frameworks are restricting the development of this new mode of transport (BBC, 2015).

In addition, developments in **biofuel and nanotechnology** could also have impact on transport infrastructure. For instance, as bio-aviation fuel is becoming more popular, airports are increasingly encouraged to incorporate biofuel into their refuelling process, which has been implemented in Los Angeles and Oslo airports. In the meantime, through nanomaterial-based catalysts and additives, fuel efficiency and environmental performance of cars have been significantly improved, thereby making this mode of transport more environmentally friendly. In this context, there is also a growing impetus to ban petrol and diesel vehicles, for instance, with the French Minister for Ecological and Solidary Transition recently introducing a plan to stop the sales of petrol and diesel cars in France by 2040 (Le Monde, 2017). As such, while road and air transportation may currently be less environmentally friendly than other modes of transport, their negative impact may be

minimised in the future (OECD, 2017). Accordingly, development partners would have to bear in mind such technological and public policy developments when considering the trade-off between different transport modes.

Summary and conclusion

Many development partners regard transport connectivity as key to economic growth of developing countries and their integration in global trade. Therefore, they support regional or sub-regional transport connectivity plans based on their respective geographical focus or specific considerations such as landlocked developing countries, climate issues and transport safety. Furthermore, there are global and regional initiatives, including pooled funding facilities, which allow development partners to ensure coherence and co-ordination on transport connectivity projects among themselves and with partner countries.

However, there are issues specific to transport connectivity that development partners need to pay attention to. These include: trade-off between transport modalities; environmental and social concerns; geopolitical tensions; debt sustainability; broader trade and investment policies; and technological innovation for transport connectivity. To address these issues, development partners could support host governments in engaging all relevant stakeholders to co-operate better, including bilateral development partners beyond the DAC and new MDBs. Furthermore, they could enhance co-ordination through collective mechanisms such as the G20, the Global Infrastructure Connectivity Alliance, the International Transport Forum, and other international organisations for specific transport modes.

With respect to financing, developing countries themselves are the largest financiers of transport connectivity. Development partners contribute a small proportion of the overall spending, with different preferences from the private sector in terms of modes of transport, regions and income level groups. In particular, development partners tend to finance transport connectivity projects in countries that receive relatively small private investment due to higher risks. Nevertheless, there remains a significant investment gap in transport connectivity to meet the SDGs. Therefore, development partners are trying to mobilise investment from the private sector by ODF interventions, although the amounts are small. Furthermore, mobilisation generally takes place in higher income countries where the private sector tends to invest on its own. As such, development partners could consider how to better mobilise private investment and ensure development additionality to fill the financing gap, particularly in LMICs and LICs.

Moreover, development partners allocate significant amounts of ODF to help improve the enabling environment for businesses, such as building infrastructure beyond transport, enhancing the investment climate, and boosting the productive capacity for trade. In particular, the investment climate addresses areas such as dispute resolution, anti-corruption, taxation, land rights, labour rights, and so on. In this context, it is important to identify what kind of reforms work best in improving the enabling environment to attract private investment for transport connectivity. Here, one needs to bear in mind that effective reforms and capacity building to enhance private investment require a long-term perspective and strong collaboration among development partners, developing country governments, the private sector, and other stakeholders.

Notes

[1] Urban and small-scale transport projects are not covered in this study. In addition, transport connectivity here also includes trade facilitation projects that are aimed at removing impediments to international trade at the location of transport infrastructure, such as One Stop Border Posts (i.e. one stop customs inspection) projects, streamlining customs clearance and supporting customs union agreements.

[2] The figures are for all modes of transport, representing the cost of international transport and insurance as a percentage of the cost, insurance, and freight value of the imported goods.

[3] The Greater Mekong Sub-region includes Cambodia, Lao People's Democratic Republic, Myanmar, Thailand, Viet Nam, and Yunnan Province and Guangxi Zhuang Autonomous Region of the People's Republic of China.

[4] These include Albania, Belarus, Bosnia and Herzegovina, Former Yugoslav Republic of Macedonia, Kosovo, Moldova, Montenegro, Serbia, Turkey, and Ukraine.

[5] The Ministry of External Affairs of India stated that "Regarding the so-called 'China-Pakistan Economic Corridor'….. No country can accept a project that ignores its core concerns on sovereignty and territorial integrity." in May 2017.

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Chapter 1. The current state of transport infrastructure per developing country region[1]

There are various challenges and deficiencies related to transport connectivity in each developing country region, such as: missing highway links in Africa; under-developed inland waterways and poor maintenance of ports in Latin America; inadequate quality and capacity of road and ports in Asia; and low transport safety standards in Europe. In this context, there are numerous ongoing action plans and initiatives at the regional and sub-regional level to address these issues. A table that summarises the current state of transport connectivity by subsector and action plans per region can be found at the end of this chapter.

[1] This document, as well as any data and any map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Africa

In Africa, deficiencies in transport connectivity infrastructure partly led to the low trade levels of the continent. In 2015, African exports only accounted for 2% of total worldwide merchandise exports. Likewise, intra-regional trade was also notably low at 18% compared to 52% in Asia (UNCTAD, 2017). Therefore, one of the priorities for Africa is to increase international and intra-regional trade to promote economic growth, development, and industrialisation through value chains.

Accordingly, many African countries have invested in transport infrastructure as a way to increase regional integration and intra-regional trade (AUC, 2015). According to the Infrastructure Consortium for Africa (ICA), African country governments allocated more resources to transport compared to other infrastructure sectors - on average USD 16 billion in 2014-2015 - although this includes urban and small-scale transport projects. However, the transport cost is still generally high, partly due to deficiencies in both hard and soft aspects in transport connectivity (PIDA, n.d.; ICA, 2017).

Concerning roads, the network across Africa, including long-distance and regional, is low density and poor quality, although the situation varies considerably across countries. While road is the main mode of transport, carrying 90% of passengers and 80% of goods, 53% of roads are unpaved. Furthermore, less than half the population has access to all-season roads, which includes urban and small-scale roads. This issue is exacerbated by vehicle overloading and inefficient road maintenance, particularly in least developed countries (LDCs), thereby causing road surfaces to degrade quickly and resulting in severe traffic congestions (AfDB, 2014).

Specifically, 25% of the Trans-African Highway (TAH) Network which was designed in the early 1970s to connect capitals with ten planned corridors (Figure 1.1) is yet to be completed. This is mainly due to the lack of funding for the central and southern sections of the network, owing to political instability and difficult climatic conditions. For example, roughly 3 000 km of roads in the TAH 08 in the Democratic Republic of the Congo and 1 300 km of roads in the TAH 06 (N'Djamena-Djibouti) passing through Darfur in western Sudan still remain to be built or rehabilitated due to the civil war and political turmoil. In addition, some governments do not prioritise the construction, maintenance, or rehabilitation of certain roads. For example, TAH 05 is incomplete mainly due to the low priority accorded to the rehabilitation of the Cameroon section by its national road authority, since the route is mostly used by vehicles merely passing through the country between Nigeria and Chad (AfDB/UNECA, 2003).

Figure 1.1. Trans-African Highways

Source: AfDB (2010), *Infrastructure Deficit and Opportunities in Africa*, ,https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/ECON%20Brief_Infrastructure%20Deficit%20and%20Opportunities%20in%20Africa_Vol%201%20Issue%202.pdf.

Furthermore, there are only few railways in Africa while existing ones are characterised by outdated infrastructure and limited maintenance. To illustrate, there are on average only 2.8 km of railway tracks per 1 000 km^2 of land, compared to an average of 50 km in Europe, 6.5 km in Asia, and 5.7 km in Latin America. In particular, 13 sub-Saharan African countries have no functional domestic rail networks, let alone cross-border ones.

With respect to water transport, African ports have inadequate capacity, especially in terminal storage, and are uneconomically operated. They also face significant delays caused by poor shipment procedures, high handling costs, and long processing time. These issues are exacerbated by the lack of efficient linkages between land transportation and ports (AfDB, 2014).

Moreover, air transport in Africa remains under-developed in terms of number and capacity of airports as well as the level of safety standards. In 2013, there were on average only 0.3 airports per million inhabitants, compared to 0.98 in Europe and 0.81 in Latin America. Meanwhile, the average capacity of airports, including the international ones, was only 250 000 passengers, compared with 1.7 million in Asia, 1 million in Europe, and 450 000 in Latin America (PwC, 2014). In addition, African airports are characterised by the lowest safety standards among all regions of the world, with one accident for 270 000 flights, compared to a global average of 1 accident in every 5 million flights. The development of air transport in Africa is also hindered by the limited liberalisation of air space across countries. In this context, African countries, particularly least developed countries, could

significantly benefit from improvements in the quantity, quality and safety of international airport services (AfDB, 2014).

In light of these issues, the African Union Commission (AUC), the New Partnership for Africa's Development (NEPAD), the African Development Bank (AfDB), United Nations Economic Commission for Africa (UNECA) and Regional Economic Communities (RECs) established the Programme for Infrastructure Development in Africa (PIDA) with the objective of promoting Africa's regional economic integration by building infrastructure and strengthening competitiveness in trade. Specifically, 24 transport projects are included in PIDA's Priority Action Plan for 2012-2020 - all of which are transport connectivity - requiring a total investment of approximately USD 25 billion (PIDA, n.d.; PIDA, n.d.). Of this amount, USD 9 billion will be allocated to the completion of the TAH missing links as well as projects related to the African Regional Transport Infrastructure Network (ARTIN) corridors by enhancing gateways ports and air transport service. In this context, the AfDB, as the executing agency for the management of PIDA, established an infrastructure fund called Africa 50, in order to leverage private investments for high-impact infrastructure projects (Africa 50, 2018).

To be specific, completing the TAH missing links includes the upgrading of 1 500 km of earth track between Chad and Sudan and the construction and rehabilitation of 2 000 km of paved roads in Algeria and Niger. In phase I of the programme, the TAH 02 (Algiers-Lagos) and TAH 06 (Ndjamena-Djibouti) are expected to be completed. Once the latter is finished, coupled with the existing TAH 05, the highway will connect six capital cities from Dakar to Djibouti, thereby allowing better access to Central African capitals (PIDA, 2017). In fact, filling the missing links of the TAH 06 is one of the nine key infrastructure projects in Africa under the Presidential Infrastructure Champion Initiative, to be implemented within five years (AUC/NEPAD, n.d.).

Furthermore, the eight RECs in Africa are dedicated to co-ordinate connectivity projects within their respective sub-regions. The Economic Community of West African States and EAC, for instance, develop common policies to harmonise transport standards and regulations among the member countries in order to provide security in transportation and to ensure smooth movement of goods and people. In general, RECs have been central to the co-ordination and implementation of major projects and programmes in the sub-regions and continent - including the African Union's Agenda 2063 (EAC/NEPAD, 2008; UNOSAA, 2017).

Finally, the need for better transport connectivity is also featured prominently in the AfDB's "Feed Africa: An Action Plan for African Agricultural Transformation", which is a development strategy focused on diversifying African economies and unlocking its agricultural potential. More specifically, the Feed Africa strategy emphasises the need to increase investment in hard and soft transport infrastructure and to alleviate logistical constraints in agro-processing zones and corridors. Likewise, it stresses the importance of African governments to pursue transport policies aimed at fostering Africa's insertion into global value chains, while emphasising the requirement to add value to exports through agricultural industrialisation (AfDB, 2016; NEPAD, 2017).

Asia

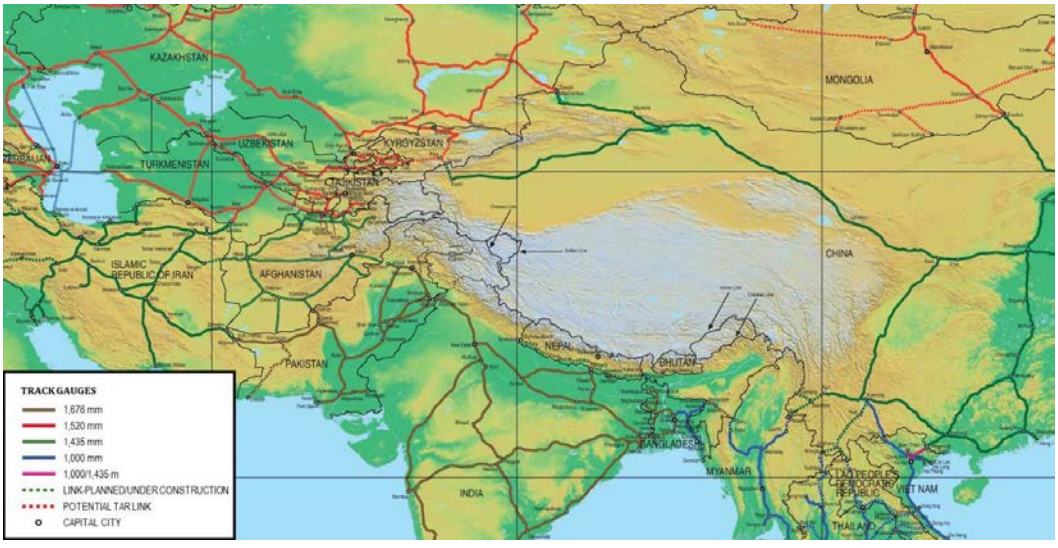
In contrast with Africa and Latin America, intra-regional trade among developing economies in Asia is relatively high - accounting for 53% of total merchandise exports in 2015. Developing Asian countries also accounted for 37% of worldwide merchandise

exports. The significant share of trade is partly due to more transport infrastructure and the higher degree of regional integration in Asia, which makes border crossing easier and logistics costs lower (AsDB, 2015; UNCTAD, 2017). Nevertheless, the relatively low quality of connectivity infrastructure and its insufficient capacity to meet the fast-growing demand remain challenges for the region, especially for landlocked developing countries, which are unable to diversify their economies due to high transportation costs (UNESCAP, 2015). According to Asian Development Bank (AsDB), developing countries in Asia will need an annual investment of USD 560 billion for transport in general from 2016 to 2030 to maintain its growth, reduce poverty, and respond to climate change (AsDB, 2017). In particular, Bhattacharyay *et al* (2012) estimated that approximately USD 13 billion *per annum* would be required for regional or sub-regional transport projects between 2010 and 2020.

More specifically, many road links and corridors in Asia need to be upgraded and better maintained. For instance, while the Trans-Asian Highway Network comprises 143 000 km of roads across 32 countries, the share of Primary and Class I roads was only 32% in 2012, while more than two thirds were Class II roads or below[1] (UNESCAP, 2014). In this context, the low quality of roads is a major cause of crash incidences and road fatalities in Asia.

Furthermore, rail links are often missing in Asia due to difficulties in harmonising gauges and rolling stocks across several countries. In this context, although the region comprises some of the longest railway networks in the world, notably in China, Russia, and India, railway density was at roughly 6.5 km per 1 000 km^2 in 2011, compared to roughly 50 km for Europe (UNESCAP, 2014). As such, several plans to build cross-border rail to fill the missing links, particularly in the region of the Association of Southeast Asian Nations (ASEAN) and in landlocked developing countries, have been developed under the TAR Network (Figure 1.2), which currently comprises 118 000 km of railway lines (AsDB, 2015; ASEAN, 2016).

Figure 1.2. Part of the Trans-Asian Railway (TAR) Network



Source: UNESCAP (2016), *Trans-Asian Railway Network Map*, http://www.unescap.org/resources/trans-asian-railway-network-map.

In particular, rail links in Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan, and Tajikistan were generally constructed in the north-south direction during the Soviet Union era, in order to deliver raw materials from this region to Russia for processing and then to markets in Moscow. However, the freight and passenger patterns have changed - there is growing demand for east-west lines to connect these countries with each other and to China, Middle East and Europe (Otsuka, 2001).

As far as water transportation is concerned, trade through ports in Asia accounted for a large proportion of the international volume, particularly in South and Southeast Asia. However, insufficient capacity, operational deficiencies, and shallow depth are becoming growing issues for Asian ports, which face increasing demand (South China Morning Post, 2015). In addition, one of the main priorities for Asia lies in connecting sea ports to land transport corridors in order to stimulate trade across the continent, including landlocked countries (AsDB, 2015).

On air transport, traffic in most airports currently exceeds planned capacity both in terms of people and goods, despite having the capacity to accommodate on average 1.7 million passengers. This is exacerbated by the low number of airport per million inhabitants of 0.22, which is even lower than the rate for Africa (0.3) and Latin America (0.8), as mentioned above. As such, there are significant congestion-related delays with only 57% of departures from developing country Asian airports leaving on time. Thus, building more airports across the continent is one of the priorities for Asia (PwC, 2014).

In this context, many sub-regional projects, programmes and strategies have been established to tackle the various issues of transport connectivity, such as projects in the Greater Mekong Sub-region (GMS) corridors, the South Asia Sub-Regional Economic Co-operation (SASEC) programme, and the Central Asia Regional Economic Co-operation (CAREC) Programme - which proposed six multi-modal corridors comprising 47 100 km of roads. In particular, it is estimated that approximately USD 13 billion *per annum* would be needed for these projects between 2010 and 2020 (Bhattacharyay *et al*, 2012). Likewise, the South Asian Association for Regional Co-operation has established its Multimodal Strategy and ASEAN has developed a new Master Plan on ASEAN Connectivity for projects up to 2025 which also require significant amounts of funding (AsDB, 2015).

Latin America

Latin America accounts for a higher proportion of worldwide merchandise exports than Africa; however, it has low intra-regional trade of approximately 18% (UNCTAD, 2017). This is partly due to the deficiencies in its transport connectivity infrastructure, especially inland waterways and ports. Furthermore, Latin American countries have high logistics expenses, on average taking up more than half the price of delivered goods and accounting for 18% to 40% of GDP (WBG/ECLAC/IADB, 2010).

With respect to inland waterways, even though there is a high number of rivers with navigation potential (Figure 1.3), this transport mode remains relatively unexplored due to lack of political interest and financial resources (Santiago, 2011). For instance, while project “Hidrovia”—a plan by Argentina, Bolivia, Brazil, Paraguay, and Uruguay to convert the Paraguay and Paraná inland waterway into an industrial shipping channel -was developed in 1997 with support from the IADB, numerous obstacles make its navigability sub-optimal. This is mainly because the agreed-upon Hidrovía Paraguay-Paraná regulations have not been incorporated into legal frameworks in many of the countries (ECLAC, 2009). Furthermore, there is sufficient scope for Latin American countries to

enhance intermodal connections between waterways with other means of transport, particularly with railways (Santiago, 2011).

Figure 1.3. Rail network and main navigable rivers in South America (2005)

Source: Wilmsmeier (2007), *Infraestructura y servicios de transporte ferroviario vinculados a las vías de navegación fluvial en América del Sur*, https://repositorio.cepal.org/bitstream/handle/11362/6325/1/S0700313_es.pdf.

Seaports, on the other hand, have been improved in Latin America after private companies started to operate them through concessions. However, there are still bottlenecks hindering their efficiency, mainly due to poor maintenance, insufficient depth of ports, and congestion. Likewise, evidence suggests that a significant proportion of ports in Latin America are reaching the limits of their capacity, particularly in Brazil and Columbia. These congestion and capacity issues are worsened by the lack of intermodal infrastructure to link ports to land transportation. Moreover, since the demand for port capacity is estimated to double every five to six years in this region, it is important to address these bottlenecks efficiently in order to respond to the fast-growing needs (WBG/ECLAC/IADB, 2010; Santiago, 2011).

In the case of roads, trade and mobility is hindered by limited regional and cross-border transport links, physical deficiencies at border crossing, and chronic congestion. This is exacerbated by lack of investment in maintenance and the absence of efficient road management systems (Jirón, 2013). In this context, road transportation costs account for approximately 40% of the goods in value terms within intra-regional trade. Similarly, the spatial coverage of road transportation in Latin America is 156 km per 1 000 km^2, well below the world average of 241 km^2. In terms of quality, the road network, including regional and cross-border roads, is also underdeveloped with an average percentage of paved roads of 16%, compared to a world average of 57% (ECLAC/UNASUR, 2012).

Furthermore, despite a renewed interest in railways, they also remain deficient in quantity and quality, with notable issues relating to lack of maintenance and gauge incompatibility, which hinders the integration of rail networks across countries. In terms of quantity, railway density remains at a low level of 5.7 km per 1 000 km^2 for Latin America - compared to a European average of roughly 50 km and a worldwide average of 9.5 km (UNESCAP, 2015). With respect to quality, long-distance railway lines in Latin America are unable to handle trains operating at full capacity, let alone larger and faster trains. In this context, rail freight accounts for less than 1% of South America's international trade volume (ECLAC/UNASUR, 2012).

Regarding airports, the insufficient regulatory framework and lack of liberalised air transport services in the region limit the efficiency and scale of this mode of transport. Particularly, first, multilateral agreements facilitating cross-border air transport, such as Open Skies agreements, are still absent in Latin America; and second, market entry into the aviation industry is often limited. In this context, the average capacity is only 450 000 passengers per airport compared with 1.7 million for Asia and 1 million for Europe (PwC, 2014; WBG/ECLAC/IADB, 2010).

Accordingly, cross-border initiatives and plans have been launched in Latin America to address these deficiencies in transport connectivity. For instance, UNASUR established a Portfolio of Integration Infrastructure Projects (COSIPLAN) in 2013, with the objective of increasing economic, social and cultural integration by connecting and improving, *inter alia*, transport networks in South America. Of the 581 transport projects in this portfolio, 83% are national, 16% are bi-national and 1% is multinational (UNASUR-COSIPLAN, 2016). Likewise, the Initiative for the Integration of the Regional Infrastructure of South America (IIRSA) was launched with the aim of linking Latin American economies by integrating highway networks and inland waterways through soft and hard projects, such as the planned road links between Venezuela, Guyana, Suriname, and Brazil (IIRSA, 2008; WBG/ECLAC/IADB, 2010).

Europe

Intra-regional trade in Europe is relatively high, representing 67% of its total merchandise exports, with the total trade volume of this continent taking up 38% of international trade in 2015 (UNCTAD, 2017). However, this significant trade volume is mostly attributed to the developed economies in Western Europe, which stand in stark contrast with the 10 ODA-recipient countries in Central and Eastern Europe. The relatively low trade of the latter is partly due to their deficiencies in transport connectivity infrastructure.

Concerning roads, the density of national highways in the 10 countries is low - with the exception of Turkey, which has a high road density of 50 km/100 km^2, excluding urban roads. The total length of roads in these countries is 760 000 km, while that in France alone is more than 1 million km. Furthermore, only around 35 000 kilometres or 5% are national roads, highways or expressways (Central Intelligence Agency, 2017). For example, the total length of express roads in Ukraine is 280 km, compared to 11 000 km in Germany and 7 000 km in France. In fact, only 88% of roads in the 10 countries are paved, while all roads are paved in most of Western Europe. This situation is partly due to insufficient funding and high per capita maintenance costs, owing to the relatively low population density compared to the Western European countries (Chernyavskaya, 2010).

Similarly, there has been underinvestment in cross-border railways (European Parliament, 2016), with different gauges and other technical characteristics among the countries yet to

be harmonised. There are three different types of gauges across Europe - even within Central and Eastern Europe, countries like Belarus, Moldova, and Ukraine still adopt broad gauges while most of the other countries use standard gauges. Furthermore, the obsolete technical characteristics in rail infrastructure in some countries compromise the efficiency of their railway networks. For instance, only half the railways in the Former Yugoslav Republic of Macedonia ("FYROM") have been electrified, with even lower proportion in Serbia at 34% (Central Intelligence Agency, 2017).

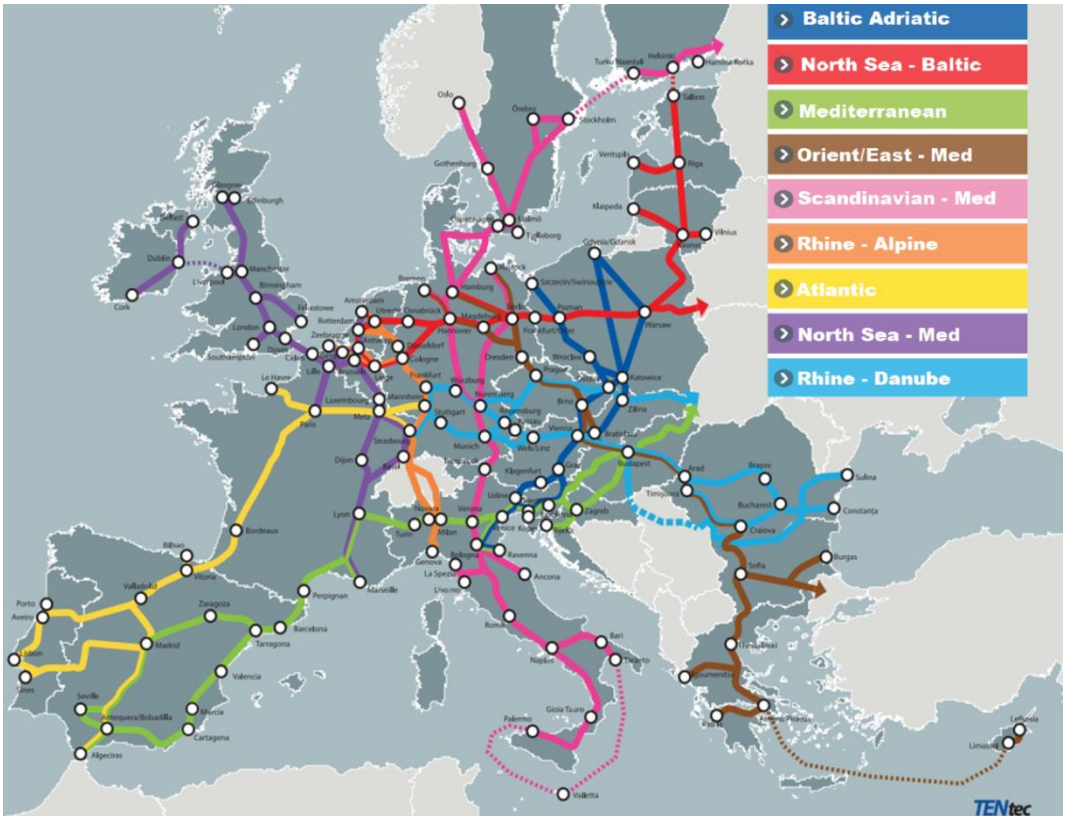
Meanwhile, modernisation of port and airport infrastructure is still lagging, although the challenges and underlying reasons vary among countries. In the case of Bosnia and Herzegovina, the potential transit capacity of its three airports has been constrained by the lack of air navigation equipment (WBG, 2017). However, Istanbul Ataturk airport in Turkey ranks the eleventh busiest airport in the world with its rapid expansion of passenger volumes (Bloomberg, 2016). Concerning ports, the quality in Ukraine, for example, remains at the level of late 1980s in terms of their depth, handling and storage facilities, conditions of berths and equipment, as well as automation and computerisation (Chernyavskaya, 2010).

In this context, initiatives and programmes have been launched in order to enhance the transport connectivity between these developing countries and the rest of Europe as well as Asia. For example, CEI, an intergovernmental initiative comprising seven developing countries in Europe and developed economies such as Austria and Italy, assists its members in national and regional transport and logistics projects. It also promotes the alignment of CEI member states to EU standards in different sectors. It particularly supports the TEN-T (Figure 1.4), which is a set of planned highways, railways, airports and ports, by promoting specific action plans to harmonise transport policies in CEI member countries (CEI, 2014).

Similarly, the TRACECA programme - funded by European Commission since 2000 - also provides support to Trans-European Transport Networks (TEN-T). Its main objective is to enhance transport connection and strengthen trade between the EU and the Black Sea Basin and Central Asia region[2], mainly by assisting in the implementation of regional transport policies and projects (TRACECA, 2017). In addition, there are projects that could further link Europe and Asia with a railway tunnel under the Bosporus in Turkey (International Institute for Applied System Analysis, 2016).

In addition to hard infrastructure, developing countries in Europe also need to improve the soft aspects of transport connectivity. For example, the level of safety, efficiency of passenger and freight services, energy performance, and environmental safeguards are yet to meet international standards. Specifically, the safety level of airports, which is much lower than average global indices according to International Civil Aviation Organisation, is a major concern for Ukraine (Chernyavskaya, 2010). Accordingly, it is important to upgrade and modernise transport connectivity in both hard and soft aspects in order to connect these countries with other parts of Europe, thereby boosting trade and economic growth.

Figure 1.4. Core corridors of TEN-T



Source: European Commission (2018), *Infrastructure - TEN-T - Connecting Europe*, https://ec.europa.eu/transport/themes/infrastructure_en.

Table 1.1. Summary of current state of transport infrastructure per region

		Africa	Latin America	Developing Asia	Developing Europe
Share of population		39%	7%	44%	10%
Trade	Intra-regional trade	18%	18%	53%	\
	International trade	2%	2%	37%	\
Road	Quality (% of unpaved road)	53%	84%	21%	12%
	Challenge	Low quality Political instability Difficult climatic conditions	Limited regional roads Congestion Inefficient management	Low quality Insufficient to meet fast-growing demand	Low density High maintenance cost
Railway	Density (km/1 000 km²)	2.8	5.7	6.5 (whole Asia)	50 (whole Europe)
	Challenge	Low quantity Outdated and low capacity	Lack of maintenance Gauge incompatibility	Missing links in TAR Gauge incompatibility	Underinvestment in cross-border links Obsolete technical characteristics
Port	Challenge	Inadequate storage capacity Uneconomically operated	Unexplored waterways Poor maintenance	Insufficient capacity to meet growing demand	Poor conditions of depth and facilities Low level of automation and computerisation

		Significant delays	Insufficient depth Congestion	Weak linkages with land transport to connect LLDCs	
Airport	Density (airports / million inhabitants)	0.3	0.81	0.22 (whole Asia)	0.98 (whole Europe)
	Average capacity	250 000	450 000	1 700 000 (whole Asia)	1 000 000
	Challenge	Low capacity Low safety standards	Insufficient regulation Lack of liberalised air transport services	Exceeding capacity Congestion-related delays	Low safety standards Lack of navigation equipment

Note: Data are compiled from different sources, with various years ranging from 2010 to 2014.
Source: See References below.

Notes

[1] Primary class highways are access-controlled motorways used exclusively by automobiles. Class I refers to asphalt, cement, or concrete roads with four or more lanes. Class II refers to double bituminous treated roads with two lanes. Class III is regarded as the minimum desirable standards, usually described as a two-lane (narrow) road. Below Class III refers to road sections below the minimum desirable standard.

[2] Countries include Armenia, Azerbaijan, Bulgaria, Georgia, Kyrgyzstan, Kazakhstan, Moldova, Romania, Tajikistan, Turkmenistan, Turkey, Ukraine and Uzbekistan.

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Chapter 2. Strategies and activities of development partners for transport connectivity

In order to help developing countries improve transport connectivity and meet the SDGs, development partners have established strategies and programmes that provide frameworks for their projects. The following summarises the main features of some major partners. In general, by enhancing transport connectivity in developing countries, development partners aim at increasing jobs, reducing poverty, stimulating economic growth, fostering regional co-operation, and facilitating countries integration in global value chains. Moreover, they support regional or sub-regional transport connectivity plans based on their respective geographical focus or specific considerations. In addition, there are global and regional initiatives, including pooled funding facilities, which allow development partners to ensure coherence and co-ordination among themselves and with partner countries in carrying out projects. Besides financing hard transport infrastructure, development partners spend about 13% of official development finance on soft aspects to help develop relevant master plans, legislation, and policies; improve customs clearance at borders, facilitate knowledge sharing and project information to mobilise private investment; and promote public-private partnerships.

Strategies for transport connectivity

Individual strategies

As part of their transport strategies, Development Assistance Committee (DAC) members and multilateral development banks (MDBs) emphasise the importance of promoting connectivity in developing countries in order to increase jobs, reduce poverty, stimulate economic growth, foster regional economic co-operation and facilitate their integration in global trade. For instance, the strategy on transportation in the white papers on Development Co-operation by Japan's Ministry of Foreign Affairs (MOFA, 2015) and Korea's Economic Development Co-operation Fund (EDCF)—managed by the Export-Import Bank of Korea (KEXIM)—both highlight the instrumental role of transport connectivity in boosting economic growth and eradicating poverty. Similarly, France considers transport connectivity infrastructure a pillar of economic development and regional integration (AFD, 2009).

Likewise, the Asian Development Bank (AsDB)'s Regional Co-operation and Integration Strategy aims to increase trade and investment by enhancing regional connectivity, while its Sustainable Transport Initiative emphasises the importance of investing in cross-border transport (AsDB, 2017). In addition, some development partners such as the German Development Bank (KfW) consider effective transport connectivity as a pre-condition to the movement of people and exchange of knowledge, which are cornerstones for innovation and progress (KfW, 2017).

Bilateral and multilateral development partners also uphold social, safety, and environmental standards when supporting transport connectivity projects. Specifically, development partners try to ensure that transport infrastructure and services - including for connectivity - are distributed equitably and operate at minimum costs for society with limited energy usage. They also aim to minimise the risk of unsafe mobility and adhering to various international standards in transport connectivity projects (SuM4All, 2017). For instance, Australia and New Zealand's co-operation focuses on harmonising and strengthening safety and security standards in maritime and airport transport infrastructure and services (DFAT, 2014; MFAT, 2016).

Furthermore, since the transport sector currently causes 23% of global energy-related greenhouse gas emissions, development partners are also mindful of climate mitigation and adaptation targets (SuM4All, 2017). In this context, many engage in helping recipient countries transit to a sustainable economy through greener transport connectivity. For instance, 7 out of the 16 development partners reviewed in this study (see Chapter 5) emphasise support to improve the environmental sustainability of transport networks, particularly by mitigating the impact of climate change.

In particular, German Corporation for International Cooperation GmbH (GIZ) and the Federal Ministry for Economic Co-operation and Development (BMZ) launched the Cities, Environment and Transport Programme in the region of the Association of Southeast Asian Nations (ASEAN), which targets climate mitigation in the context of increased mobility in member countries by enhancing energy efficiency of land transport. Within this programme, transport connectivity projects focus on fostering knowledge-sharing and greater co-ordination in offsetting fuel consumption and emission standards, Nationally Appropriate Mitigation Action (NAMA) in transport, and green freight transport (GIZ, n.d.). In addition, KfW prioritises the promotion of environmental and climate protection that cuts across all areas including transport by ensuring that their projects do not negatively impact the environmental and society (KfW, 2015). Similarly, France emphasises

environmental sustainability in all of its connectivity projects, in addition to affordability (AFD, 2009). In general, these approaches could help developing countries achieve their Intended Nationally Determined Contributions for greenhouse gas emission reduction of the Paris Agreement.

In terms of geography, most development partners focus on specific regions or countries for transport connectivity in accordance with their overall priorities for development co-operation. Particularly, many of them support connectivity programmes and projects in the Mekong and ASEAN regions, possibly due to the current dynamism and the need for improved transport infrastructure vis-à-vis the regions' economic potential. In addition to the Southeast Asia region, Australia and New Zealand also target their neighbourhood countries in the Pacific (Box 2.1). Others focus on countries with certain conditions: for instance, the European Union (EU) and the African Development Bank (AfDB) give particular attention to landlocked developing countries, while the United States focuses significantly on conflict and disaster-affected countries. In addition, historical and political ties, such as colonial past and political alliances play a major role in determining the geographic priorities of transport connectivity projects (Alesina and Dollar, 2000). For instance, France focuses particularly on enhancing connectivity through airport and port projects mostly in its former African colonies (AFD, 2015).

Box 2.1. Australia and New Zealand's focus on Pacific island countries and Southeast Asia for transport connectivity

The Australian Department of Foreign Affairs & Trade (DFAT) and the New Zealand Ministry of Foreign Affairs & Trade (MFAT) see that scarce resources in the Pacific Island Countries (PICs) and their isolation from major markets pose challenges to their economic and human development. Therefore, they both emphasise the importance of enhancing transport connectivity networks in the Pacific region to help these islands link with international markets as well as improve their productivity and competitiveness. DFAT and MFAT therefore fund hard and soft transport connectivity projects mostly in the maritime and aviation sectors.

By the same token, Australia and New Zealand also focus on Southeast Asian countries, such as Indonesia and Vietnam, due to the region's deficiencies in trade-enabling environment and transport connectivity. Akin to their efforts in PICs, they support mainly air and maritime projects in this region in order to increase trade, deepen the level of regional economic integration, and promote stability and security.

Source: DFAT (2014), *Australian aid: promoting prosperity, reducing poverty, enhancing stability*, Commonwealth of Australia, Department of Foreign Affairs and Trade, http://dfat.gov.au/about-us/publications/Documents/australian-aid-development-policy.pdf; DFAT (2015), *Strategy for Australia's Aid Investments in Economic Infrastructure*, Commonwealth of Australia, Department of Foreign Affairs and Trade, https://dfat.gov.au/about-us/publications/Documents/economic-infrastructure-development-strategy.pdf; MFAT (2016), *Development that Delivers: Results Achieved*, New Zealand Ministry of Foreign Affairs and Trade, https://www.mfat.govt.nz/assets/Aid-Prog-docs/Annual-reports/Aid-Programme-2012-15-Triennium-Report.pdf.

Overall, in line with the aid effectiveness principles, the support by development partners in this area appears to be generally aligned to regional, sub-regional, or national plans for transport connectivity established by supranational institutions. For example, many development partners are helping countries establish One Stop Border Post (OSBP) under

PIDA, notably Japan (see Japan's profile in Chapter 5). United Kingdom also supported the Beit Bridge Border Post which was prioritised by the Government of South Africa as part of the North-South Corridor. Likewise, Australia, France, Japan, and AsDB, are supporting various transport connectivity projects aimed at enhancing regional integration among countries of the Mekong region under the Greater Mekong Sub-Region programme. In addition, Germany, Japan, United States, and AsDB are trying to close major missing links in Southeast Asia under the ASEAN Master Plan on Connectivity.

In order to better align with these frameworks and plans, development partners tend to co-operate and harmonise among each other using various arrangements in order to ensure the smooth preparation and implementation of transport connectivity projects. For instance, the Six Banks Initiative in Viet Nam - comprising the AsDB, the French Development Agency (AFD), KfW, the Japan International Cooperation Agency (JICA), KEXIM and the World Bank Group (WBG) - serves as a platform for development partners to jointly support projects of the Mekong Delta region according to Vietnam's transportation development plan. Furthermore, MDBs often lead the co-ordination in projects supported by multiple development partners. For example, AsDB standards in project design, impact evaluation, environmental and social safeguards, as well as several implementation guidelines, have been adopted by others that are active in the Indochina peninsular.

Collective mechanisms for transport connectivity

To facilitate better co-ordination and harmonisation among themselves, development partners have established numerous funds and facilities to co-finance transport connectivity projects. For instance, Australia, the European Commission, JICA, New Zealand, AsDB, the European Investment Bank, and WBG, all contributed to the Pacific Region Infrastructure Facility (PRIF), which supports infrastructure development and maintenance in PICs, including for transport connectivity. The PRIF notably co-financed the rehabilitation of several roads and bridges in Vanuatu, Samoa, and Solomon Islands, following the 2009 earthquake and tsunami.

In addition, Belgium, Canada, Denmark, Finland, Netherlands, United Kingdom, and United States jointly finance TradeMark East Africa (TMEA) to support regional and international trade in East Africa by, *inter alia*, expanding port capacity, helping countries remove cabotage restrictions and improve co-ordination of logistics stakeholders (TMEA, 2018). Likewise, the Asia Pacific Project Preparation Facility established by AsDB aims to support project preparation, monitoring, and restructuring, as well as capacity building and policy reforms linked to projects that include transport connectivity. By pooling funds, this facility ensured that support by development partners for long-term transport infrastructure was coherent and co-ordinated (PRIF, 2017).

There are also global initiatives and organisations supporting transport connectivity, some of which address the needs of developing countries. For example, the International Transport Forum (ITF) carries out research on all transport modes through case studies and policy reviews as well as generates transport performance indicators that could be useful for developing countries. In addition, ITF's Annual Summit, which gathers transport ministers from around 60 countries from all regions, also enhances communication and knowledge sharing on transport policies (OECD/ITF, 2017).

Likewise, the World Bank and other MDBs, United Nation (UN) agencies, bilateral development partners, non-governmental organisations (NGOs) and academic institutions have developed a specific strategy for transport called Sustainable Mobility for All (SuM4All) to promote equitable, efficient, safe and green mobility around the world.

SuM4All aims at, for example, increasing access to jobs and services as well as reducing cost and time of transport. Specifically, this is carried out by helping improve the soft aspects such as coherence in international and local transport policy and leverage the necessary financing to implement sustainable mobility policies (WBG, 2017a).

Moreover, there are several organisations supporting transport connectivity, which focus on a particular transport mode. In air transport, the International Civil Aviation Organisation (ICAO) has launched a No Country Left Behind initiative to assist states - especially landlocked developing countries and small island developing states - in implementing ICAO Standards and Recommend Practices. This initiative provides capacity building to government agencies and air operators on safety and security oversight systems, optimisation of airport usage and air space, and so on (ICAO, n.d.).

With respect to road, the Permanent International Association of Road Congresses (PIARC, or World Road Association) organises international forums and various seminars on the full spectrum of road transport issues, with a particular focus on the needs of developing and transition countries. In particular, topics include co-ordination between national and sub-national authorities on road management and finance, rules for pavement design, as well as geometric and structural standards for the African Highway Network (PIARC, n.d.).

As for railways, 50 countries co-operate under a framework of the Intergovernmental Organisation for International Carriage by Rail (OTIF), with the objective of unifying railway laws to connect Europe, Asia and Africa, as well as to eliminate border-crossing barriers in international rail traffic. Within the framework, OTIF standardises the contracts of carriages and the rules for transporting dangerous goods such as explosive substances, gases, and flammable liquids. It also provides inter-operability standards and technical assistance to its member states (OTIF, 2018). Similarly, the International Union of Railways also serves as a standard-setting organisation in railway sector. It has established the classification of locomotives and their axle arrangements, coaches, and goods wagons, as well as standardised international railway terminologies in English, French and German. In addition, it holds regular conferences on improving rail operation technologies, such as paperless documentation of freight, railway signalling, and greenhouse gas emission management (UIC, 2014).

With regards to maritime transport, the International Maritime Organisation (IMO) develops and adopts international regulations and treaties, particularly for maritime safety and security as well as the prevention of marine pollution. IMO also reviews and updates international codes on dangerous goods, cargoes and containers in maritime shipment, ensuring the alignment with other regulations in the maritime industry. For example, IMO developed the International Convention for the Control and Management of Ships' Ballast Water and Sediments which entered into force in September 2017, to require ships in international trade to manage and control their ballast water and sediments so as to avoid the introduction of alien species into coastal areas (IMO, 2004; 2017). In addition, the International Association of Ports and Harbours aims to strengthen co-operation and knowledge sharing among the world's ports. By leveraging member expertise and facilitating dialogue, the Association helps resolve complex issues and concerns in ports and the maritime industry.

At a higher inter-governmental level, the G20, for instance, has been encouraging multilateral development banks and other development partners to increase investment in infrastructure and connectivity. In this context, the Global Infrastructure Hub (GIH) was established in Sydney in 2014 under the Australian presidency. The rationale to build this global information platform was to increase the flow and quality of infrastructure

investment by helping match investors and projects. In addition, the Global Infrastructure Connectivity Alliance (GICA) launched in 2016 under the Chinese presidency promotes co-operation, knowledge exchange and dissemination of global inter-connectivity among MDBs, GIH, OECD, UN agencies and others. The aim of GICA is to develop solutions to optimise financing for global infrastructure connectivity. This involves, *inter alia*, facilitating interaction among experts, identifying relevant trends that impact connectivity, and providing relevant performance measurement tools (GIH, 2016; WBG, 2017b).

In addition, the G20 launched the "Compact with Africa" initiative under the German presidency in 2017, with an objective of enhancing infrastructure and boosting private investment in African countries. Under this initiative, African countries will first provide a report listing out their actions and targets for reforms in their macroeconomic, business and financing environment. The initiative will then engage development partners and international organisations, including the International Monetary Fund (IMF) and OECD, to provide technical assistance and policy recommendations pertinent to each item in the countries' lists, in order to help them tackle the impediments in attracting private investment for infrastructure projects, including transport connectivity (Compact with Africa, 2017).

Furthermore, the G7 adopted the Ise-Shima Principles on Quality Infrastructure under the Japanese presidency in 2016. These principles emphasise the need to develop sustainable infrastructure with low life-cycle costs by, *inter alia*, ensuring job creation, capacity building, transfer of expertise, and resilience to natural disasters. They also underline the importance of addressing social and environmental impact and aligning with economic and development strategies in infrastructure investment (Box 2.2). While the principles cover infrastructure in general, it is of particular relevance to transport connectivity projects in developing countries. Apart from the G7, the UN 2030 Agenda for SDGs and the G20 Leaders' Summit in Hangzhou also highlighted the importance of quality infrastructure. Furthermore, the OECD Ministerial Council Meeting in 2017 encouraged the organisation to elaborate guidelines and good practises in this area.

Box 2.2. Quality infrastructure

At the 2016 G7 Ise-Shima Summit hosted by Japan, leaders encouraged governments, development banks, international organisations, and the private sector, to follow the Ise-Shima Principles for Promoting Quality Infrastructure Investments, which uphold sound safety and quality standards, resilience against natural disasters, and job creation, while addressing social and environmental impact. The rationale is that, while quality infrastructure can be expensive in the short term, it incurs lower life-cycle costs than low quality infrastructure, which often impose long-term costs. The principles of quality infrastructure investment are:

- Ensuring effective governance, reliable operation and economic efficiency in view of life-cycle cost as well as safety and resilience against natural disaster, terrorism and cyber-attack risks.
- Ensuring job creation, capacity building and transfer of expertise and know-how for local communities.
- Addressing social and environmental impacts.
- Ensuring alignment with economic and development strategies including aspect of climate change and environment at the national and regional levels.
- Enhancing effective resource mobilisation including through public-private partnership (PPP).

Furthermore, Japan announced the "Expanded Partnership for Quality Infrastructure" in 2016 to bring together JICA, Japan Bank for International Cooperation, Japan Overseas Infrastructure Investment Corporation, MDBs and other stakeholders to provide approximately USD 200 billion in the next five years to finance infrastructure projects in the world.

Source: JICA (n.d.a), *Transportation - JICA Activities*, https://www.jica.go.jp/english/our_work/thematic_issues/transportation/activity.html; MOFA (2016), *White Paper on Development Cooperation 2016 - Japan's International Cooperation*, http://www.mofa.go.jp/policy/oda/page22e_000815.html.

Apart from the organisations and initiatives mentioned above, forums and conferences have been organised to facilitate discussions on development co-operation issues relevant to transport connectivity, such as the African Union – European Union Summit, the Tokyo International Conference on African Development, and the Forum on China-Africa Co-operation. These events engage high-level officials and private sector representatives to share their knowledge, experiences and opinions on topics such as mobility, quality infrastructure, economic diversification and industrialisation in Africa (China-Africa Cooperation, 2017; UNOSAA, 2017; African Union - European Union Summit, 2017; Africa-EU Partnership, 2017).

In sum, these collective mechanisms, such as the G20, GICA, ITF and other international organisations for specific transport mode, can be opportunities and platforms for development partners to further enhance co-ordination amongst each other, including bilateral development partners beyond the DAC and new multilateral development banks such as the Asian Infrastructure Investment Bank (AIIB). Through these mechanisms, they could also better co-ordinate at the partner country level, in order to address various issues around transport connectivity mentioned in Chapter 1.

Activities in transport connectivity

Based on strategies and collective mechanisms described above, development partners support both hard and soft transport connectivity projects. Hard projects generally involve building or rehabilitating physical infrastructure of international ports and airports as well as roads and railways that are cross-border or connect national networks. This often involves modernising railways between important regions, constructing new roads and bridges as part of economic corridors—especially in Africa and the Mekong Region—and expanding the capacity of ports and airports to handle increasing freight and passenger flows.

Aside from hard projects, many development partners support soft projects, which address regulatory mechanisms, institutional frameworks, and policies that facilitate the efficient operation and functioning of the hard components. These projects can significantly contribute to enhancing connectivity at a relatively low cost compared to hard projects—roughly 13% of the amount of Official Development Finance and 33% of the number of projects for transport connectivity was allocated to soft infrastructure in 2014-2015[1]. In general, soft projects often involve technical assistance and training by conducting regional workshops, sending experts, and providing hardware such as computers. In this context, the EU particularly emphasises the need for institutional capacity building for connectivity projects (European Commission, 2017).

Specifically, development partners help formulate transport connectivity master plans, such as Japan's support in Africa (see Japan's profile in Chapter 5). This includes financing feasibility studies and helping draft transport-related legislation and project documents. Other soft projects include improving transport procedures and regulations, notably by adapting safety and management rules to international standards.

Similarly, development partners support the management of cross-border transport infrastructure such as customs clearance and the capacity building of relevant transport authorities. In this respect, EU, Japan, and United Kingdom recently supported the establishment of OSBP to improve cross-border procedures. For example, the support in Malaba, located between Kenya and Uganda, which consolidated customs clearance between the two countries, have been estimated to help reduce the clearing time from 24 hours to four hours and adding an additional USD 70 million per year to the regional economy (JICA, n.d.b).

Development partners also help fill the data and knowledge gap in transport in order to improve the investment climate. For example, Korea and AsDB provided capacity building for the Better Transport Data for Sustainable Transport Policies and Investment Planning project in 2015 for Indonesia, Mongolia and Sri Lanka based on Korea's knowledge and experience. By strengthening data collection and analysis in transport, it is expected to help establish sustainable transportation policies and investment plans in these three countries (Korea Knowledge Sharing Programe, 2015). Furthermore, MDBs and governments are using Source - a digital platform - designed to help public sector agencies prepare, manage, and publish their infrastructure projects to attract private sector investment, including transport connectivity. This cloud-based system presents standardised project information in a transparent manner. By providing better sectoral data and project information, these types of support could potentially help governments improve transport management and policies as well as facilitate in creating pipelines of bankable projects that could mobilise private investment for transport connectivity infrastructure.

Moreover, development partners also help crowd in private investment and improve efficiency in transport connectivity projects by promoting PPPs where natural state monopolies tend to prevail in transport infrastructure (ITF, 2017). In this context, they provide capacity building for PPP project implementation, such as on procurement and bidding processes, dispute resolution mechanisms, and by establishing independent PPP units. For example, the AsDB enhanced the capacity of PPP units in ministries in India and supported the passage of the PPP law in Bangladesh. These activities are particularly important when governments adopt PPPs for transport connectivity projects, which often entail high volumes of investment and complex contract arrangements.

Finally, there have been significant efforts to standardise PPPs by international organisations and governments. For instance, the WBG and the OECD have developed a checklist for PPPs covering different project phases, from concept to completion of contract term (WBG/OECD, 2015). Another example is the establishment of the PPP Centre in the Philippines as a co-ordinating and monitoring agency for all PPP projects in this country. This Centre also facilitates the implementation of the country's PPP projects by providing technical assistance to government agencies and private sector entities. Furthermore, it advocates policy reforms to improve the PPP regulatory framework (Philippines PPP Center, 2017).

Notes

[1] Only projects over USD 10 000 are included in the calculation. If all official development finance projects are included, soft projects will be three times more than hard projects in total.

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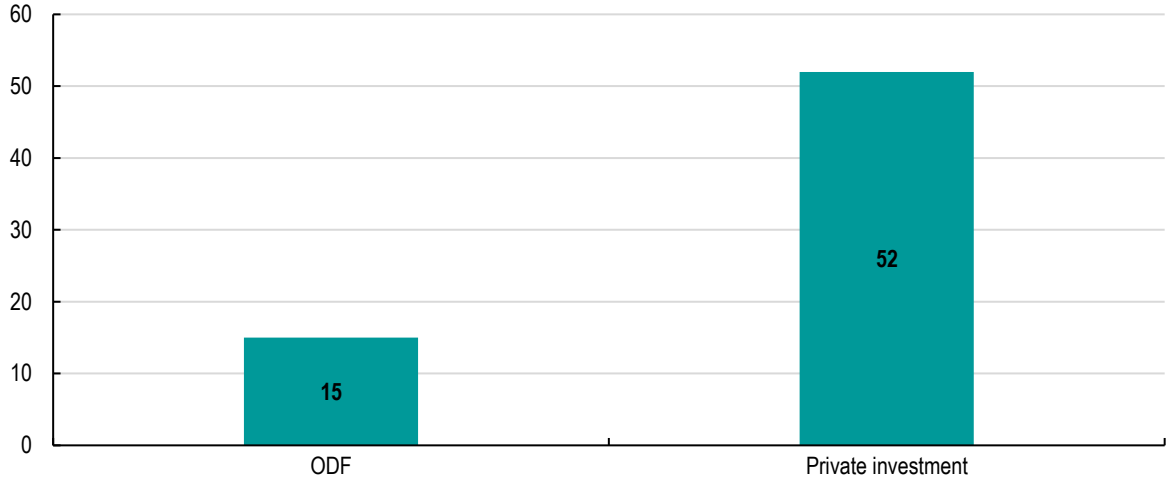
Chapter 3. Finance for transport connectivity

This chapter describes the general picture and distribution of financing for transport connectivity. It covers modes of transport, development partners, regions, income level groups, and recipient countries, by comparing official development finance and private investment. Specifically, while developing countries finance the majority of their transport connectivity, the private sector committed on average USD 52 billion per annum in 2014-2015. In comparison, development partners reporting to the Development Assistance Committee committed USD 15 billion. In general, development partners and the private sector appear to have different focus - the former are mainly Asia and Africa or low-income countries and lower middle-income countries while the latter are Latin America and Europe or upper middle-income countries. However, the amounts of private investment mobilised by development finance institutions and international finance institutions are relatively small and usually in countries that tend to have high private investment in transport connectivity, which raises the question of development additionality. As such, development partners could explore effective ways to help improve the enabling environment to attract private investment to fill the large financing gap for transport connectivity, particularly in low-income countries and lower middle-income countries.

The total amounts of ODF and private investment for transport connectivity

In 2014-2015, development partners reporting to the Development Assistance Committee (DAC)'s Creditor Reporting System (CRS) committed on average USD 15 billion per annum for transport connectivity projects in developing countries. This was equivalent to approximately 54% of official development finance (ODF) for transport in general.[1] In comparison, the private sector invested on average USD 52 billion per annum, which includes domestic and foreign investment (See Annex A. Technical notes). In other words, the private sector spent more than triple the amount of development partners on transport connectivity (Figure 3.1).

Figure 3.1. Total ODF commitment and private investment for transport connectivity



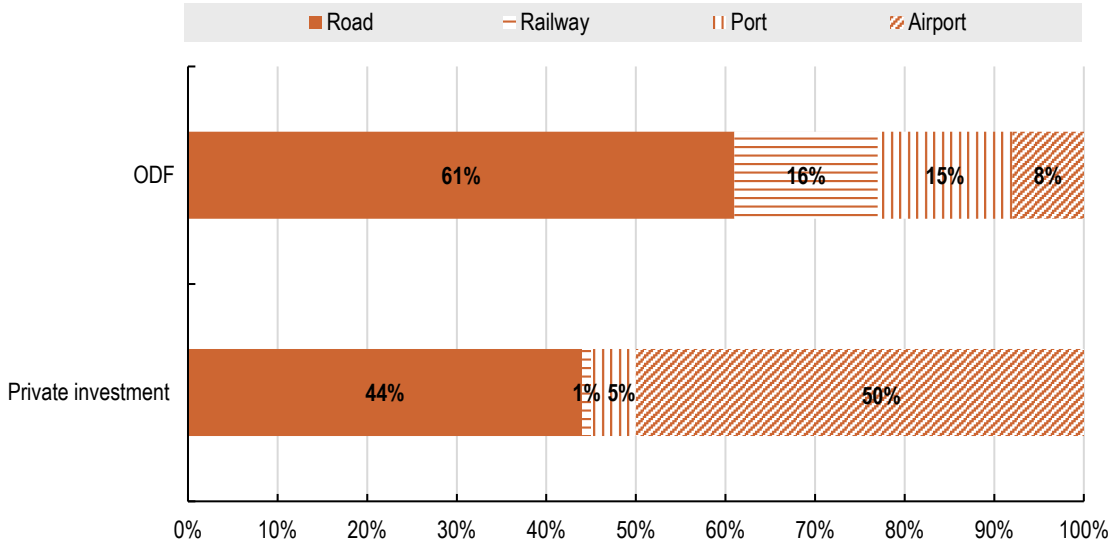
Note: 2014-2015 annual average, USD billions in current prices.
Source: WBG (2017a), Private Participation in Infrastructure (PPI) database, https://ppi.worldbank.org/; Dealogic Projectware database; OECD (2017), Aid Activities - Creditor Reporting System, http://stats.oecd.org/BrandedView.aspx?oecd_bv_id=dev-data-en&doi=data-00061-en.

StatLink http://dx.doi.org/10.1787/888933816136

Distribution by transport mode

With respect to modes of transport connectivity (i.e. road, railway, airport, and port), both ODF and private investment was directed significantly towards roads (see Figure 3.2), probably since there are more roads than other modes of transport in general, which offers abundant opportunities for spending and investment. In particular, as far as the private sector is concerned, roads can generate revenues through collecting toll fees, notably under public-private partnerships (PPPs), even though they require significant upfront investments and maintenance. This may at first appear as if development partners would crowd out the private sector in roads; however, by examining the recipient countries, it becomes clear that they financed mostly low-income countries (LICs) and lower middle-income countries (LMICs) in Africa and Asia, while the private sector invested in roads mostly in upper middle-income countries (UMICs) and Latin America.

Figure 3.2. ODF commitment and private investment for transport connectivity by transport mode



Note: 2014-2015 annual average; current prices.
Source: See Figure 3.1.

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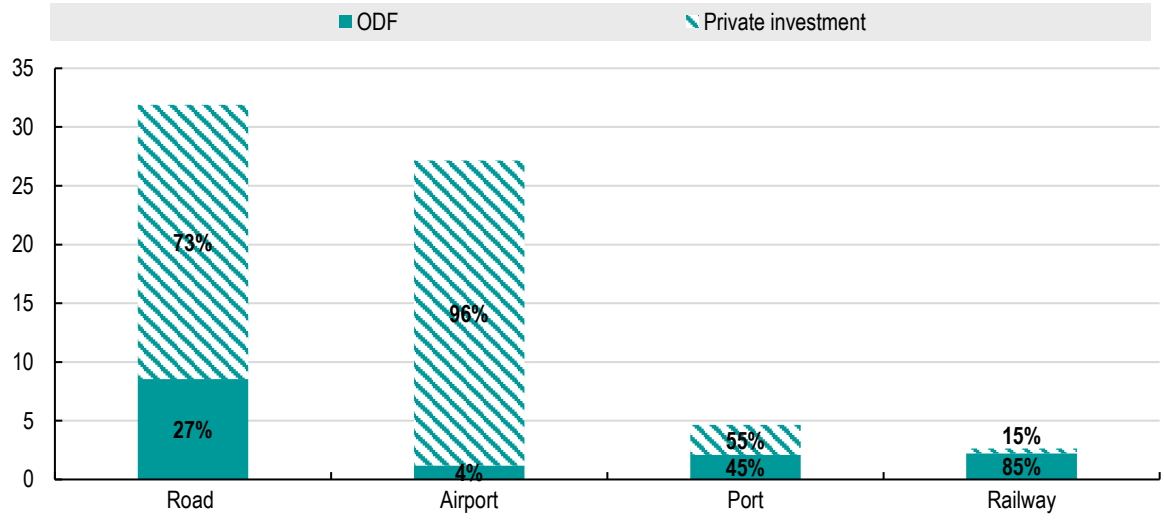
For the other modes of transport, development partners focused more on ports and railways - where private investment was small - and less on airports. In particular, they allocated a higher proportion of ODF to railway than the private sector, which made very little investment due to its low profit margins and large operating costs (AfDB, 2015). On the contrary, the private sector invested heavily in airports in 2014-15. This could be due to the relatively high profitability of airports with passenger and landing charges as well as non-aeronautical sources such as retail and rental car concessions, car parking, and real estate income (ACI, 2015).

The different preferences of ODF and private investment with respect to transport mode is further shown in Figure 3.3, as i.e., the vast majority of financing to airport was private investment, while most of the financing for railway in 2014-2015 was ODF. However, only a few bilateral development partners among the DAC financed long-distance railways, while the World Bank Group (WBG) and the Asian Development Bank (AsDB) notably accounted for roughly 85% of all railway projects.

Figure 3.3. The share of ODF commitment and private investment in each transport mode



Note: 2014-2015 annual average, USD billions in current prices.
Source: See Figure 3.1.

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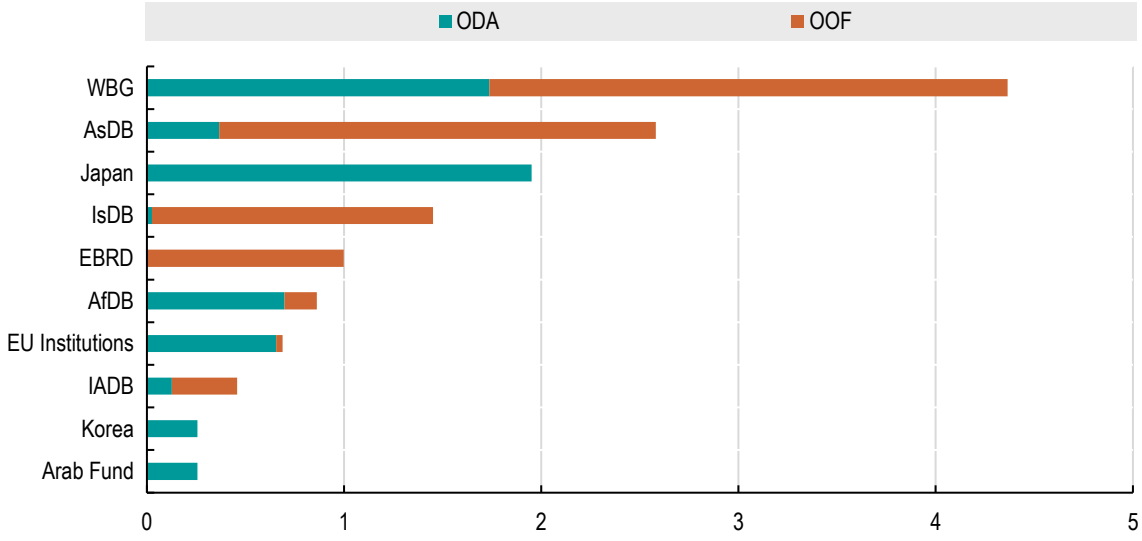
At the same time, media and other sources report that numerous Chinese state-owned enterprises are taking the lead in financing major railway projects, particularly in Africa, as part of the Belt and Road Initiative (BRI) launched in 2013. For example, China, together with other development partners such as the African Development Bank (AfDB), supports the modernisation of railways in Nigeria and Lagos, the construction of the Mombasa–Nairobi Standard Gauge Railway, and establishment of a new rail line in Tanzania (Brookings, 2017; New York Times, 2017; Reuters, 2017). Although data and official information on China's finance to other developing countries is difficult to obtain, it appears that China generally funds long distance railway projects where traditional bilateral development partners and the private sector do not invest in heavily.

Top development partners

As mentioned above, ODF for transport connectivity amounted to an annual average of USD 15 billion in 2014-2015 by 33 development partners reporting to the DAC. Of this amount, 75% was financed by multilateral development banks and other international organisations,[2] while 25% was by bilaterals. As transport connectivity projects often involve large scale construction across long distances, multilateral development banks tend to be better placed than bilaterals to finance and co-ordinate these projects, owing to their sizable loans and multi-country presence. As such, the top development partners were mostly multilateral development banks except for Japan and Korea, as shown in Figure 3.4. The WBG was the largest, with commitments amounting to USD 4.5 billion. In fact, WBG and AsDB together financed almost half of all transport connectivity projects. In terms of flow type, 48% of the total amount was concessional (i.e. official development assistance, ODA) and 52% non-concessional (i.e. other official flows, OOF), with some development partners committing exclusively the former or the latter and others financing a mixture of the two.

Figure 3.4. Top 10 development partners of ODF commitment for transport connectivity



Note: 2014-2015 annual average, USD billions in current prices.
Source: OECD (2017), Aid Activities - Creditor Reporting System, http://stats.oecd.org/BrandedView.aspx?oecd_bv_id=dev-data-en&doi=data-00061-en.

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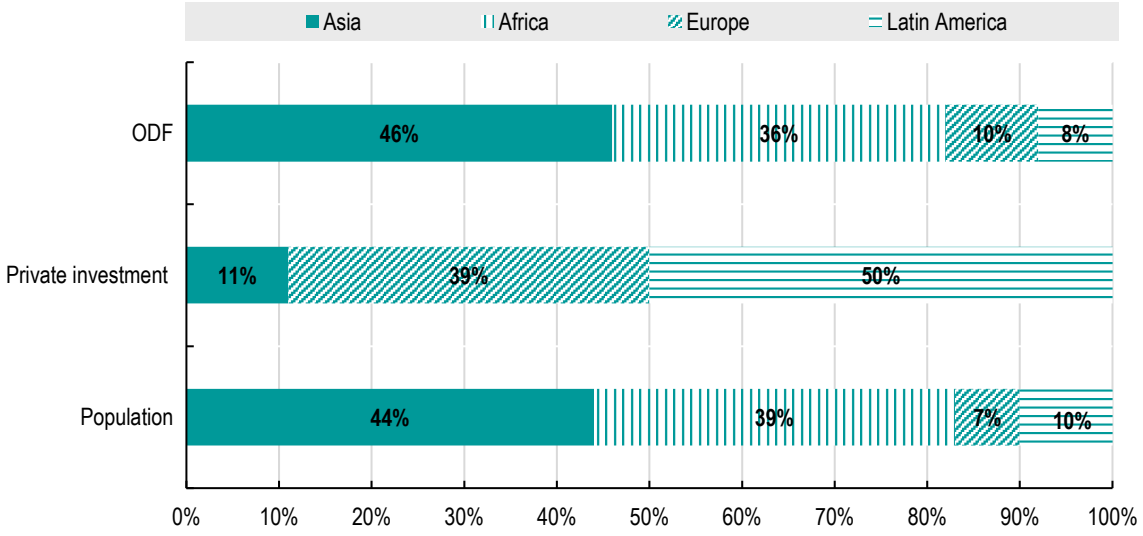
In addition to the development partners that report to the DAC, it is estimated that China committed approximately USD 8 billion a year on average to transport connectivity projects in 2014-2015 (see China's profile in Chapter 4). However, most of these financing could be preferential export buyer's credits, even though some recipient countries treat them as ODA (JICA-Research Institute, 2017). Thus, it is not appropriate to compare this amount with the ODF by other development partners, which excludes officially supported export credits.

Recipients: Regions, income level and countries

With respect to the regional distribution of transport connectivity, Figure 3.5 shows that development partners committed ODF mostly in Asia and Africa and much less in Latin America and Europe in 2014-15. However, the proportions of ODF allocated were more or less similar to the shares of developing country population. On the contrary, the private sector invested mostly in Latin America and Europe while almost none in Africa. This may appear as if development partners were compensating for the relatively small private investments in Asia and Africa. Conversely, others view that it could actually be the result of development partners having crowded out private investments in the poorer regions.

Figure 3.5. ODF commitment and private investment for transport connectivity by region



Note: 2014-2015 annual average; current prices. Population only includes data of ODA recipient countries. Data for projects in Oceania and Caribbean are included in Asia and Latin America respectively.
Source: See Figure 3.1; UN (2017), World Population Prospects – The 2017 Revision: Key findings & advance tables, United Nations, New York, https://esa.un.org/unpd/wpp/publications/Files/WPP2017_KeyFindings.pdf.

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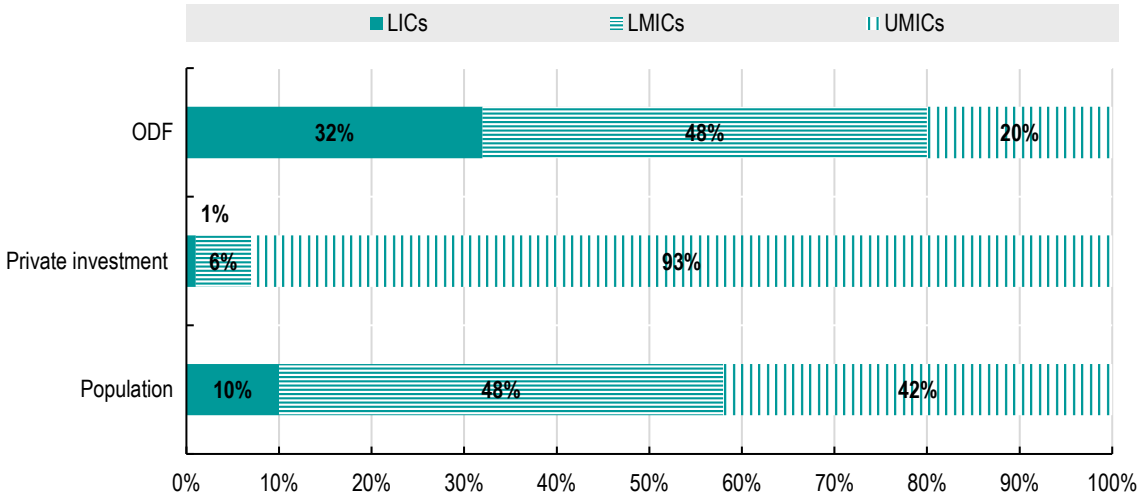
Disaggregating by income level of recipient countries, Figure 3.6 shows that development partners allocated higher shares of ODF to LICs and LMICs than the private sector. On the other hand, the vast majority of private investments for transport connectivity were made in UMICs and very little in LMICs and LICs. This is also consistent with Figure 3.5 which showed that most private investments were directed to the Americas and Europe and none to Africa. In fact, the share of development partner allocation towards LICs - a third of ODF - is higher than its share of population among developing countries which is 10%. In this respect, development partners may be compensating for the lack of private investment in LICs by financing transport connectivity projects in countries that are perceived as too risky by the private sector, although some may argue that ODF could also be crowding out private investment in LMICs and LICs.

Figure 3.6. ODF commitment and private investment for transport connectivity by income level



Note: 2014-2015 annual average; current prices. Only allocable ODF is included (i.e. excluding ODF for regions instead of a specific country).
Source: See Figure 3.5.

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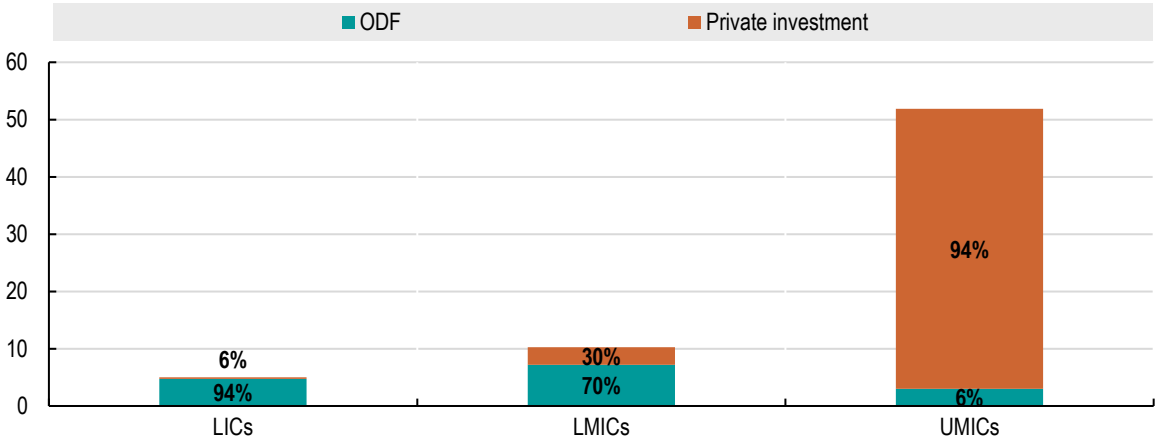
The difference in the focus between ODF and private investment is further evidenced in Figure 3.7, which shows that ODF was significant in LICs, but private investment accounted for only 6%; conversely, in UMICs, ODF accounted for only 6% while the majority was private investment. However, the total amount of ODF and private investment to UMICs for transport connectivity dwarfed that of other income groups, as it was equivalent to 5 and 10 times the total financing to LMICs and LICs respectively.

Figure 3.7. The share of ODF commitment and private investment in each income group

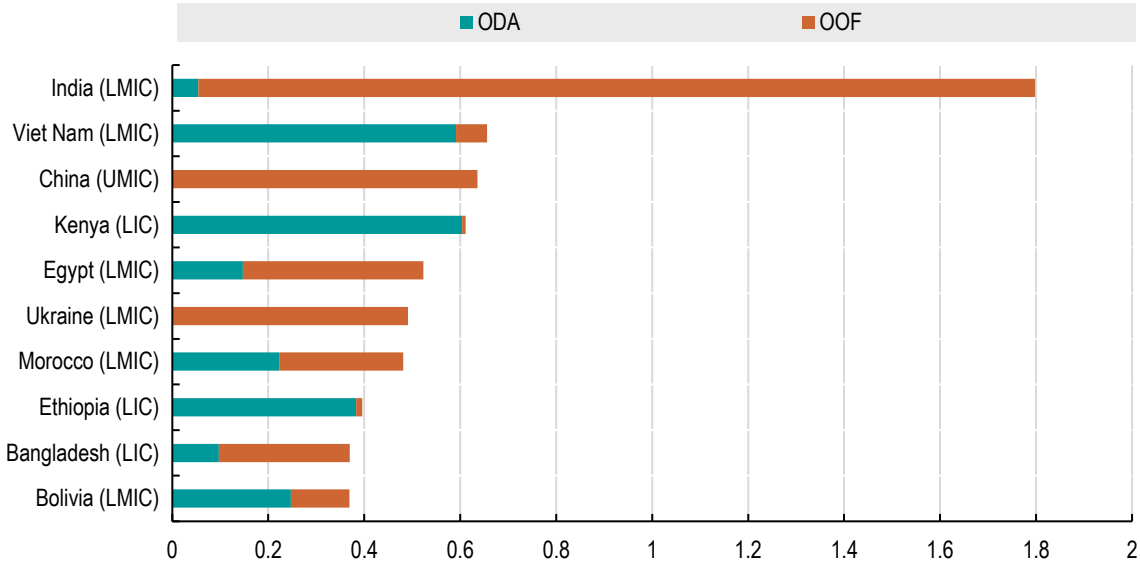


Note: 2014-2015 annual average, USD billions in current prices.
Source: See Figure 3.1.

StatLink http://dx.doi.org/10.1787/888933816250

The top countries with the highest amounts of ODF and private investment for transport connectivity (Figure 3.8 and Figure 3.9) broadly corroborates the distribution by income group mentioned above. For example, for ODF, three were LICs and six were LMICs, all in Africa and Asia, except Ukraine and Bolivia. Here, India was by far the largest ODF recipient. In general, ODF to LMICs and UMICs such as India, China, Egypt, Ukraine, and Morocco was mostly non-concessional, while for LICs such as Kenya and Ethiopia, it was mostly concessional. On the other hand, for private investment, eight were UMICs and two were LMICs, mostly in the Americas. In particular, Turkey received the highest amount of private investment of more than USD 20 billion a year.

Figure 3.8. Top 10 recipients of ODF commitment for transport connectivity



Note: 2014-2015 annual average, USD billions in current prices.
Source: See Figure 3.4.

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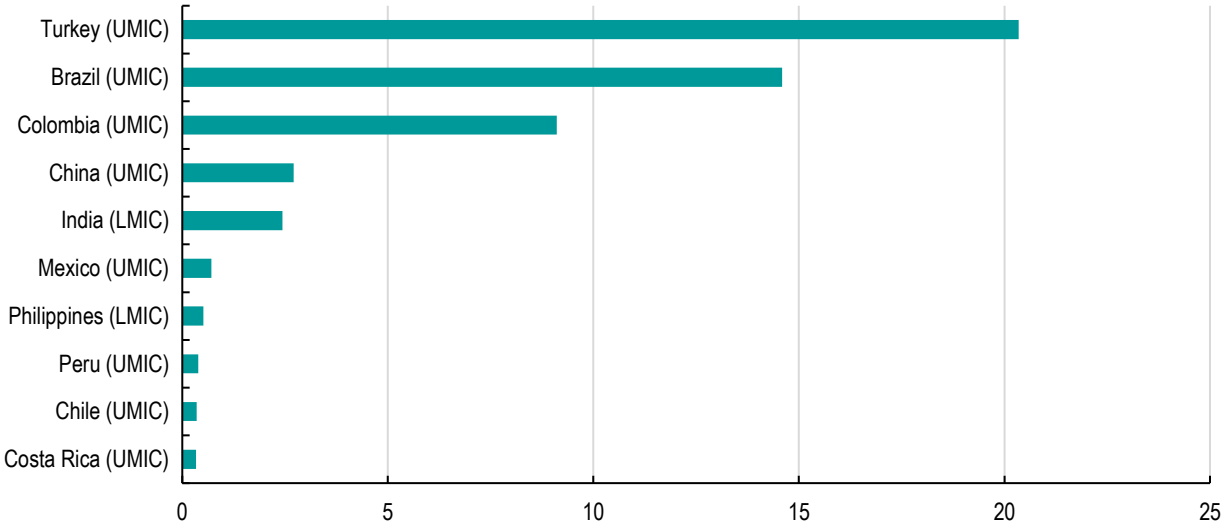
Figure 3.9. Top 10 countries with the most private investment for transport connectivity



Note: 2014-2015 annual average, USD billions in current prices.
Source: WBG (2017), Private Participation in Infrastructure (PPI) database, https://ppi.worldbank.org/; Dealogic Projectware database.

StatLink http://dx.doi.org/10.1787/888933816288

In sum, development partners and the private sector generally have different preferences in financing transport connectivity projects. While development partners finance railways and ports, especially in LMICs and LICs in Asia and Africa, the private sector invest mostly in airports and roads in UMICs in the Americas and Europe where the investment climates are perceived as less risky. Development partners also provide significant support to roads, but mostly in countries with little private investment in that subsector.

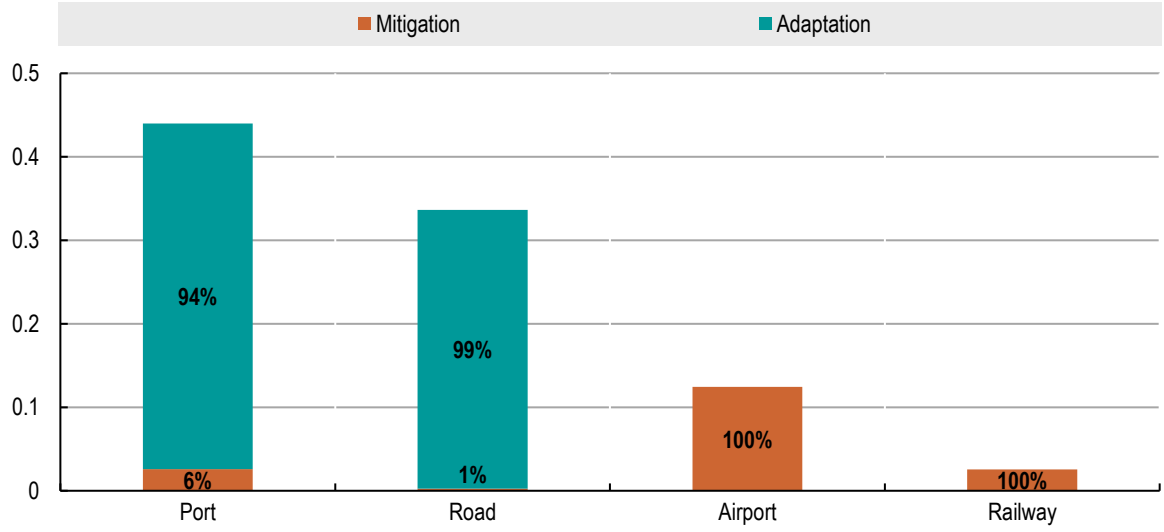
Rio-marked ODF projects for transport connectivity for climate mitigation and adaptation

Of the transport connectivity projects in 2014-2015, only a third of the USD 15 billion for transport connectivity or half the projects were Rio-marked for climate objectives, which points to issues of imperfect reporting. Among the Rio-marked projects, only 21% of the amount or USD 1 billion was marked as targeting climate change, with the remaining 79% marked as not incorporating any climate objectives. Of the amount that was Rio-marked as climate mitigation or adaptation, 59% was financed by Japan and 28% by the European Bank for Reconstruction and Development (EBRD). As these two are not the largest development partners in transport connectivity, this may further indicate the incomplete reporting of the Rio Markers by some development partners.

Of the Rio-marked projects, 16% was for adaptation and 5% for mitigation—unlike the energy sector, which is mostly marked for mitigation. However, there are differences according to the transport mode, as adaptation is mostly carried out in port and road while mitigation is in airport and railway (see Figure 3.10). The projects that were marked for adaptation is generally aimed at strengthening the resilience against the effects of climate change, including natural disasters, notably in the Pacific Island Countries. For instance, New Zealand and AsDB supported the construction of a new inter-island shipping terminal

in Vanuatu, which was resilient to cyclones and earthquakes (AsDB, 2015). The United Kingdom and the AsDB, on the other hand, committed to finance the construction and upgrading of motorways in Pakistan to minimise erosion and planting shrubs to stabilise the soil (DFID, 2017). Other projects by various development partners involved improving soft aspects, such as operating practices and standards relating to climate adaptation.

Figure 3.10. ODF commitment for transport connectivity projects targeting climate mitigation or adaptation



Note: 2014-2015 annual average, USD billions in current prices.
Source: See Figure 3.4.

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In contrast, most climate mitigation projects were in airport and railway projects. An example of the former is JICA's introduction of energy-saving air conditioning and water systems in the construction of a new terminal in Nadzab Airport of Papua New Guinea (JICA, 2015). Similarly, Germany supported ASEAN member states to establish measurement, indicators, as well as reporting and verification systems to monitor greenhouse gas emissions in land transport sectors, especially for regional and national road freight transportation and logistics (GIZ, 2018).

ODF using private sector instruments and mobilisation

Aside from providing sovereign loans, development partners - mainly development finance institutions (DFIs) and international finance institutions (IFIs) - use private sector instruments (PSI) such as loans, equity, and guarantees to de-risk private investments for transport connectivity. The objective is to mobilise financial resources from the private sector to fill the gap in financing for development. In 2014-2015, annual average ODF through PSI for transport connectivity by DFIs and IFIs that reported to the DAC amounted to USD 770 million[3], which was equivalent to 5% of total ODF for this area.

As an example of loans, the OPEC Fund for International Development provided USD 6 billion to the Pakistan International Bulk Terminal Limited to support the design,

construction and management of a multi-purpose terminal for bulk cargo handling and storage at Port Qasim (OECD, 2017). As for equity, Norfund provided USD 8 million to a multinational supply chain logistics company based in East Africa (see Box 3.1). Norfund priorities equity investment as the agency considers it the scarcest type of capital in most developing countries, especially for local small and medium sized enterprises.

Box 3.1. Norfund's Investment in Freight in Time Co., Ltd. in Kenya

Freight in Time (FiT) is a family-run supply chain logistics company, founded in 1998, that provides distribution and services in sea and air transport, import brokerage, project cargo, express and courier, and warehousing. Headquartered in Nairobi, it has established presence in eight East African countries. In this context, Norfund provided FiT with approximately USD 8 million of equity and loans to facilitate the expansion of the company's supply chain logistics and distribution. In particular, Norfund will support the company in building new warehousing facilities to meet increased demand from new major clients, such as the American logistics giant, United Parcel Service. In particular, FiT's plan on increasing the availability and capacity of temperature-controlled warehousing facilities responds to one of Norfund's objectives of investing in the region's agribusiness value chains through efficient logistic solutions in the agriculture sector.

Beyond financial support, Norfund also provides guidance for the long-term as a board member with a significant minority stake through the equity investment. In particular, it will help promote good corporate governance standards to this family business, transforming it into a professionally run enterprise.

Source: Norfund (2017), *Investment details: Freight in Tim,* https://www.norfund.no/investment etails/freight-in-time-article10638-1042.html.

In terms of guarantees, many DFIs and IFIs provide credit guarantees that cover project investments regardless of the reasons for the borrowers' default. In particular, MDBs are able to offer long-term guarantees, which is especially important for complex projects that may not generate returns for several years. For example, AsDB, alongside the state-run company India Infrastructure Finance, guaranteed the repayment of 24% of a 12-year bond of US 59 million from a toll-road project in Andhra Pradesh (IFRAsia, 2013). Some other guarantees are provided to cover project investments against political risks, typically by the Multilateral Investment Guarantee Agency (MIGA). For instance, it covered USD 145 million for the PPP construction project of the 1.5 km Henri Konan Bedié toll bridge in Côte d'Ivoire for a period of 15 years. In general, MIGA covers investments against political risks of transfer restriction, expropriation, war and conflict disturbances, and so on (WBG, 2015).

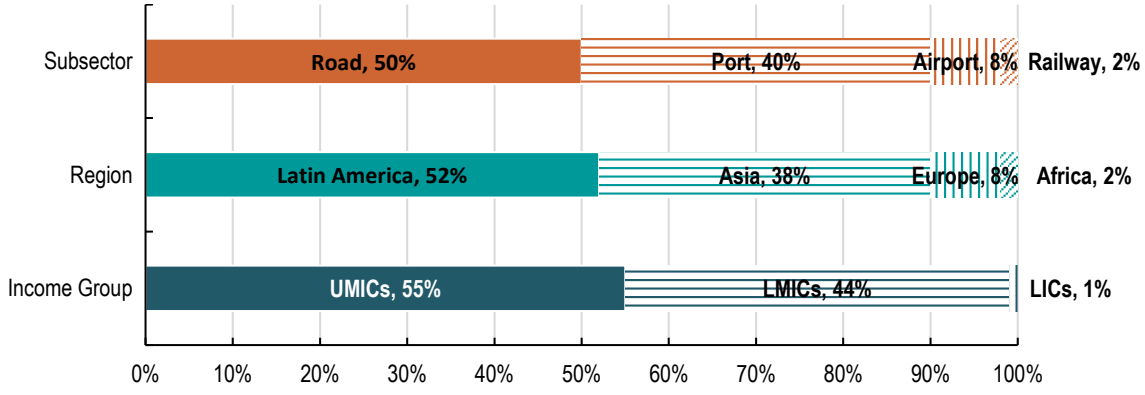
In addition to the above PSIs, MDBs try to mobilise private sector resources through innovative financing mechanisms, such as Islamic finance, debt conversion, lines of credits and so on (World Bank et al, 2015). For instance, according to AsDB, its financial intermediary lending modality for infrastructure investments - a type of blended finance mechanism—has helped catalyse substantial private sector investments in PPP projects. Specifically, its support of USD 2 billion to the India Infrastructure Finance Company Limited has funded over 60 PPP interventions and mobilised over USD 24 billion from the private sector, notably involving projects in Delhi and Mumbai Airports. Furthermore, DFIs and IFIs support green bonds in the transport sector; however, they are often issued

for urban transport, which is less risky compared to large-scale regional transport projects and easier to measure the environmental impact.

In this context, several surveys and studies have been conducted to better capture the amounts of private investment mobilised by development partners. For example, a joint report by MDBs (World Bank et al., 2017) showed that USD 7 billion was directly mobilised for infrastructure projects in general in 2016. More specifically, calculation from a DAC survey[4] (Benn *et al*, 2017) on mobilisation estimates that on average approximately USD 820 million *per annum* was mobilised from the private sector in 2014 and 2015 for transport connectivity. Of this amount, the majority was mobilised through syndicated loans and guarantees—roughly half each. Specifically, most of the mobilisation through guarantees was by MIGA, while most through syndicated loans was by Overseas Private Investment Corporation of the United States, EBRD and Inter-American Development Bank (IADB).

In terms of distribution in modes of transport, a high share of mobilisation took place in roads, similar to the distribution of ODF and overall private investment (Figure 3.11). On the other hand, a significant proportion was mobilised for ports, where overall private investment was relatively low. As for regions and income level, mobilisation was highest in the Americas and in UMICs, akin to the distribution of private investment. Further breakdown shows that Mexico, Turkey, Colombia and Peru were among the top 10 countries of mobilisation while also being the top 10 recipient countries of private investment for transport connectivity. However, the amounts mobilised from the private sector to transport connectivity by DFIs or IFIs are generally small—specifically, in Turkey, Colombia and Peru, they were equivalent to 0.3%, 0.4% and 5% of the total private investment for transport connectivity, respectively.

Figure 3.11. Private investment mobilised through PSI by transport mode, region, and income level



Note: 2014-2015 annual average; current prices.
Source: Benn et al, (2017), "Amounts Mobilised from the Private Sector by Official Development Finance Interventions: Guarantees, syndicated loans, shares in collective investment vehicles, direct investment in companies, credit lines", OECD Development Co-operation Working Papers, No. 36, OECD Publishing, Paris, http://dx.doi.org/10.1787/8135abde-en.n

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The above implies that, firstly, DFIs/IFIs mobilise finance from the private sector for transport connectivity in countries that tend to have relatively high private investment in this area, namely UMICs and in the Americas. Secondly, the mobilised amounts are

generally a fraction of the amount of private investment for transport connectivity. However, it is possible that, within the same countries, the institutions could be mobilising private investment in the poorer geographical areas where the private sector will not invest without the intervention. Nevertheless, it raises the question of how to mobilise private investment in LMICs or LICs where there could be foregone opportunities for profit. This issue of development additionally and effectiveness deserves further examination.

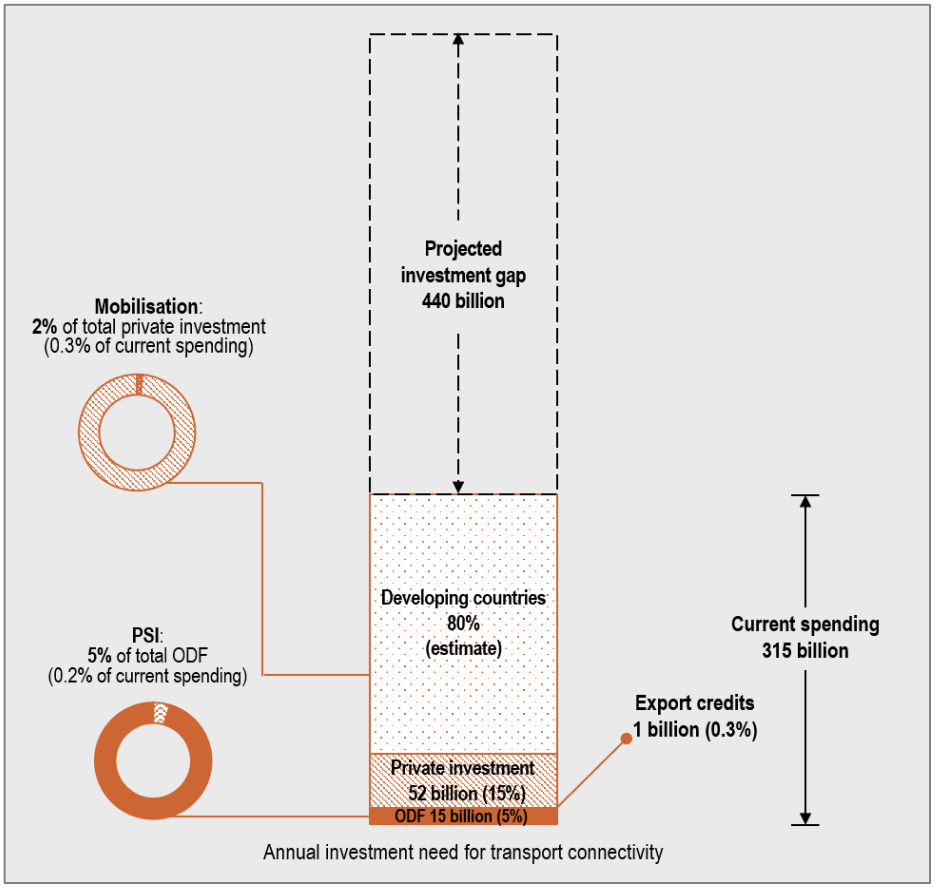
As mentioned above, the estimated amount of PSI committed by development partners totalled USD 770 million per year for transport connectivity projects in 2014-2015. Although the amount does not include guarantees as they are not flows and the data sources are different, if one compares this amount with the approximately USD 820 million mobilised from the private sector for transport connectivity by ODF interventions, leveraging may not be very high. Assuming that this is the case, it would be necessary to explore ways to enhance the effectiveness of mobilisation as a more general issue of development finance. In this context, the current effort to modernise the DAC's statistical collection by, *inter alia,* better capturing PSI and mobilised flows from the private sector would be an essential basis for further analysis and discussion.

Filling the financing gap for transport connectivity

Based on estimates by Brookings *et al* (2015), the authors of this report calculated the current amount of annual spending for transport connectivity, which totalled roughly USD 315 billion. Of this amount, developing country governments financed around 80%, the private sector around 15% and development partners reporting to the DAC around 5% through ODF (see Figure 3.12). If the repayments of ODF loans for transport connectivity projects are subtracted from the commitments by these development partners, their share would be reduced to 3%.

Furthermore, members of the OECD Export Credit Group also financed on average USD 940 million per year for transport connectivity in developing countries, in the form of direct credit, guarantee or insurance. Of this amount, around 70% was allocated to railway projects in LICs and UMICs, followed by ports at 18% in UMICs and LMICs, and airports at 13% mostly in LICs. Although export credits may indirectly contribute to development, they are provided for commercial purposes in order to promote national exports. As such, export credits are not part of ODF.

Figure 3.12. Estimates on current annual spending for transport connectivity by different financiers and the annual investment gap



Note: In USD. See further details on calculation and estimates in Annex A Technical Notes.
Source: Estimates based on Brookings et al (2015), Driving Sustainable Development through Better Infrastructure: Key Elements of a Transformation Program, The Brookings Institution, the Global Commission on the Economy and Climate, the New Climate Economy and the Grantham Research Institute, https://www.brookings.edu/wp-content/uploads/2016/07/07-sustainable-development-infrastructure-v2.pdf.

In addition to those that report to the DAC, it is estimated that China committed on average approximately USD 8 billion a year to transport connectivity projects in 2014-2015, which included preferential export buyer's credits, loans and grants (See Chapter 4 on China's profile). However, this amount should be interpreted with caution since it is constrained by data-related gaps and challenges. More in general, further work to verify and collect financial statistics by other development partners, private investors, and developing country governments for transport connectivity infrastructure would be necessary for more accuracy.

Within these limitations, the authors estimate that there remains an annual financing gap of approximately USD 440 billion for transport connectivity infrastructure to meet the Sustainable Development Goals by 2030 (Figure 3.12). Here, as stipulated in the Addis Ababa Action Agenda (AAAA), developing country governments bear the primary responsibility for their own economic and social development. Therefore, in order to fill this gap, developing country governments can first and foremost strengthen their tax system and financial management capacity to mobilise more domestic resources. This endeavour

is especially important for African countries since they generally receive relatively low external private finance such as foreign direct investment (FDI)—the continent received around only 5% of total annual FDI in the world in the past five years (UNCTAD, 2017). In this respect, development partners could provide capacity building for developing countries in revenue collection and public financial management in general.

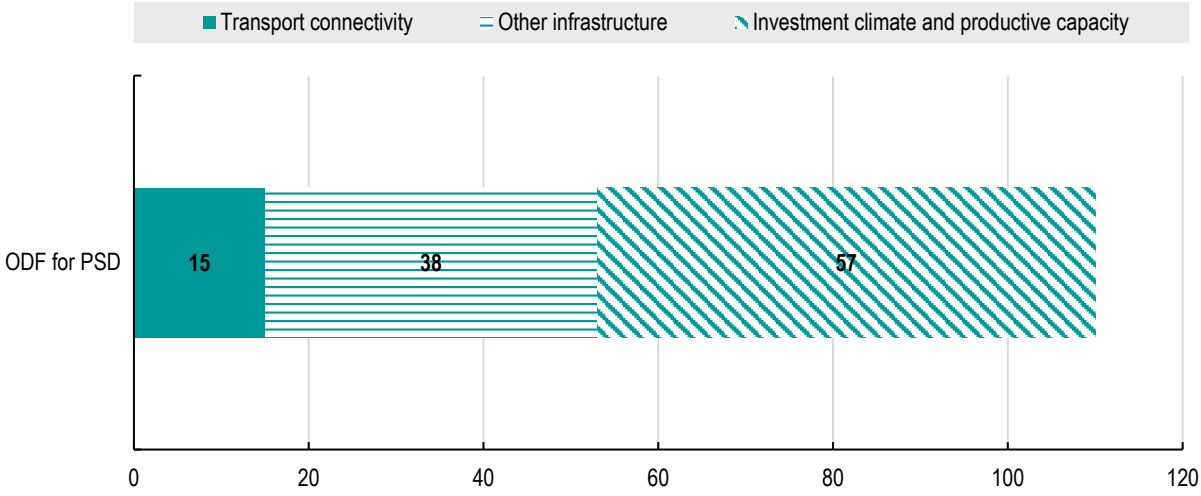
In addition, development partners could assist developing countries in managing resources specifically in the transport sector or maximise value for money. For example, they could encourage adequate maintenance of the existing infrastructure, so as to ensure the efficiency of operations and to minimise the need to replace it with new construction, especially in African LDCs. This is because regular maintenance is crucial for service delivery in the short term and for cost reduction in the long run. In this respect, United States Agency for International Development (USAID) has helped the Afghan Ministry of Public Works establish a governmental road authority and a fund by implementing road-user fees to fund operations and maintenance (USAID, 2016).

Moreover, development partners can increase the financing for transport connectivity through helping improve the enabling environment for private investment more generally. While much emphasis has been placed in the AAAA on mobilising private finance, the amount and share that has actually been mobilised by DFIs/IFIs for transport connectivity remains relatively small - equivalent to 2% of the total private investment, as shown above. In particular, mobilisation is minimal in LICs, owing to higher risks and uncertainties.

In fact, the WBG's Cascade Approach, which is a systematic method to leverage private finance in a cost-effective manner, indicates that, when there is inadequate commercial finance, the priority for support should be in helping improve the enabling environment by enacting upstream reforms and tackling market failures. However, if this support is not effective, with risks remaining high, guarantees and risk-sharing instruments should be deployed. Finally, in the case when market solutions are not possible through sector reforms and risk-mitigation, official and public resources should be provided (WBG, 2017b).

In this context, development partners committed on average USD 95 billion in 2014-2015 to help enhance private investment and private sector development, on top of transport connectivity (see Figure 3.13). Of this amount, USD 38 billion was allocated to other infrastructure areas such as urban transport, communication, energy and water supply. The remaining USD 57 billion funded general policy areas related to the enabling environment or investment climate, such as dispute resolution, anti-corruption, taxation, land rights and labour rights, as well as productive capacity building in agriculture, fisheries and manufacturing. The support also targeted financial and business intermediary services which are necessary for companies to boost production and distribution of goods and services. For instance, AsDB has been focusing on the development of the financial sector - especially debt and equity capital markets - by leveraging the substantial savings in Asia.

Figure 3.13. ODF commitment for private sector development



Note: 2014-2015 annual average, USD billions in current prices.
Source: See Figure 3.4.

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Finally, it is important to determine what kind of reforms and projects work best in addressing the enabling environment to attract private investment in different situations. For example, for airport and port sectors, regulatory reforms and appropriate price setting that would provide greater certainty for costs could help increase private participation since their end-users are mainly corporates or commercial clients (OECD, 2016). In addition, when there is strong commitment by the host government to attract private investment or to a particular transport connectivity project, providing capacity building to meet the government's specific needs could be effective. Therefore, development co-operation in helping improve the enabling environment to enhance private participation for transport connectivity projects should be tailored to specific contexts. Nevertheless, assisting in reforms and building capacities is a long-term endeavour that requires strong collaboration and patience on the part of development partners, developing country governments, the private sector, civil society, and other stakeholders.

Notes

[1] The remaining 46% was allocated to urban and rural projects that are not considered as transport connectivity in this study.

[2] Multilateral development partners include the EU, a DAC member with its own sources of financing and budgetary authority, although it has a sui generis legal nature.

[3] This amount does not include guarantees as they are not flows and are thus not captured in the CRS.

[4] This survey captured the amounts mobilised through guarantees, syndicated loans, shares in Collective Investment Vehicles, direct investment in companies and credit lines. Ninety percent of the 80 DFIs and IFIs responded. See Annex A Technical Notes.

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Chapter 4. Development partner profiles[2]

The chapter presents profiles of 16 development partners that are active in supporting transport connectivity. This includes several members of the Development Assistance Committee - Australia, European Union, France, Germany, Japan, Korea, New Zealand, and the United States - as well as bilateral partners beyond the Committee, such as Brazil and China. It also includes multilateral development banks such as the African Development Bank, the Asian Infrastructure Investment Bank the Asian Development Bank, the European Bank for Reconstruction and Development, the Inter-American Development Bank, and the World Bank Group. Each section presents the strategies, programmes, and sample projects of the respective partner.

[2] This document, as well as any data and any map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Members of the OECD Development Assistance Committee

Australia

Strategies

Australian aid: Foster connectivity and facilitate trade

Australian aid aims to complement diplomatic and security efforts and protect Australia's national interests by promoting stability as well as facilitating sustainable economic growth and poverty reduction mainly in its immediate neighbours of the Indo-Pacific region. In this context, it supports several transport infrastructure projects to facilitate cross-border trade and foster connectivity (DFAT, 2014a).

Strategy for Australia's Investments in Economic Infrastructure

The aim of Australia's Strategy for Investments in Economic Infrastructure is to address infrastructure gaps in developing countries to create an environment that is conducive to sustainable economic growth, trade, and investment. A key priority within this strategy is to enhance connectivity and facilitate the movement of people, goods, services, and knowledge across borders. This is achieved by helping partner countries develop safe, sustainable, and reliable road and rail infrastructure, which link resources to industry and people to jobs, thereby stimulating productivity and ultimately encouraging private investment.

In this context, Australia supports hard projects aimed at improving physical connectivity of regions as well as soft projects for policy development and preparation of transport connectivity projects. While significant official development finance (ODF) is directed to roads, a key feature of this strategy is to help develop "trade enabling" infrastructure, especially in airports and ports, most notably in the poorest Asian and Pacific sub-regions of Indonesia, Papua New Guinea, and the GMS (DFAT, 2015).

Plans and examples of projects

Connectivity in the Greater Mekong sub-region (GMS)

Australia is committed to helping the countries in the GMS improve their connectivity. Two examples are shown below:

Cao Lanh Bridge in Viet Nam (2012-2018)

To enhance the opportunities of the 18 million people living in the Mekong Delta, Australia is providing a USD 127 million grant over six years to support the construction of a new bridge on the Mekong River in Cao Lanh. This project is expected to promote private sector investment, link isolated areas to major economic centres, provide better transport facilities to 170 000 daily road users, and ultimately enhance connectivity in the Mekong Delta (DFAT, 2015).

Addressing policy and regulatory barriers to connectivity in the Mekong

Australia supports soft projects in Cambodia, Lao PDR, Myanmar, and Viet Nam by addressing policy and regulatory barriers to connectivity and trade. This includes assistance

to improve cross-border management, streamline transit procedures, and ensure that transport operators across the region can travel easily across the sub-region (DFAT, 2015).

Transport sector support programme in Papua New Guinea (2007-2020)

Australia finances the Transport Sector Support Programme in Papua New Guinea to develop a safe, reliable, and efficient transport network. The programme provides technical assistance to strengthen safety and security standards of civil aviation as well as land and maritime transportation. It also assists in the transport sector reform and helps build the capacity of the relevant authorities. The commitment for the second phase of this five-year programme is estimated at USD 400 million (Transport Sector Support Program, 2017). The following are example projects.

Air Services Limited – Capacity building for air navigation services in Port Moresby City (2013 - 2018)

With approximately USD 20 million, this project aims to build the capacity of Air Services Limited, a state-owned enterprise that provides air navigation services to all airline operators using the country's air space. In this context, the Australian government funded the improvement of coverage by the Very High Frequency communication systems as well as training courses in air navigation (Transport Sector Support Program, 2017).

Global Maritime Distress Safety Systems (GMDSS) in Papua New Guinea (2012 - 2016)

This project of approximately USD 3 million financed the installation of the Global Maritime Distress Safety Systems Coastal Radio Station, thereby enabling Papua New Guinea to meet its international maritime safety obligations and to improve the safety of seafarers in its waters. In addition, this project upgraded the Maritime Radio Communications Centre in Port Moresby City, supplied the National Maritime College with modern communication equipment, and provided training on the GMDSS Coastal Radio system to private and public operators (Transport Sector Support Program, 2017).

The Indonesia Transport Safety Assistance Package (2014 – 2015)

With approximately USD 3.5 million, the Indonesia Transport Safety Assistance Package supported the improvement of transport safety management in Indonesia. Specifically, Australian transport agencies, such as the Australian Maritime Safety Authority, the Air Services Australia, and the Australian Transport Safety Bureau, assisted in building the capacity of their Indonesian counterparts to meet international aviation, maritime, and land safety standards. In total, 97 activities were carried out within this broad framework, with over 10 000 Indonesian transport officers trained via officer exchange programmes, workshops, and formal mentoring (DFAT, 2014b).

European Union

Strategies

The European Commission (EC) has a number of strategies aiming to increase trade through boosting connectivity. Some examples are given below.

Regional integration strategies

The Africa-EU Strategy, which aims to increase trade within the continent, prioritises, *inter alia*, co-operation in transport that includes hard and soft aspects. For hard infrastructure, the EC supports projects that particularly connect different transport corridors, such as the Trans-African highway corridors. For soft aspects, it focuses on regulatory reforms to harmonise relevant intellectual property rights, standards, investment codes, laws and guarantee systems. The strategy also highlights the importance of ensuring projects to invest in environmental, safety and social aspects (Council of the European Union, 2007).

Transport sector strategy

The EC considers connectivity projects to be essential in expanding access to markets which would enhance trade and economic integration. While support is given to all subsectors of roads, railways, airports and ports, a large share is allocated to roads for landlocked countries, as improving road connectivity between neighbouring countries is essential to their economic growth. In addition, EC projects in transport connectivity are increasingly focusing on support to relevant policies, reforms, institutional capacity building, and feasibility studies, as well as trade facilitation projects such as one-stop-border posts (European Commission, 2017b).

Developing social and economic infrastructure in developing countries

Aside from the EC, the European Investment Bank (EIB) also considers connectivity projects essential to development as they increase trade and economic growth. Hence, in its support to developing countries, particularly in eastern Europe but also in Africa, EIB finances connectivity projects aiming both at hard and soft infrastructure improvements. An example of a hard project that involves official development assistance-recipient countries is the upgrading of a railway from Ukraine to Moldova (EIB, 2016).

Plans and programmes

EU-Africa Infrastructure Trust Fund aims to increase infrastructure investments in sub-Saharan Africa by blending grants from EU member states and the EC with long-term loans from public and private financers. In transport, with an aim to enhance regional and continental integration of Africa, the fund supports exclusively connectivity projects - i.e. cross-border or national projects that are likely to have a demonstrable regional impact.

Western Balkans connectivity agenda

Under the Western Balkans Connectivity Agenda, the EU finances hard and soft connectivity projects. For example, in Serbia, it supports the expansion of rail and road corridors, improvement of core railway networks and the construction of intermodal terminals that link railways, roads and ports. Targeted corridors include those such as the Mediterranean Road Corridor between Croatia and Bosnia & Herzegovina as well as the Eastern Mediterranean Corridor which links the Former Yugoslav Republic of Macedonia,

Kosovo, Montenegro and Serbia. For soft projects, the programme focuses on addressing technical standards in these countries in order to reduce non-tariff barriers among them and between this sub-region and the EU (European Commission, 2017a).

Transport Corridor Europe-Caucasus-Asia (TRACECA) Programme

Since 2000, the EC has been funding the TRACECA programme which supports hard and soft projects in the Black Sea Basin and Central Asia region. Its main objective is to strengthen trade and transport between the EU and these countries through the Trans-European Transport Networks (TEN-T), which is a set of planned highways, railways, airports and ports in the EU and neighbouring countries. The EC and EU member states therefore finance projects to improve transport hardware, including by improving the compatibility of different national transport systems, such as railways with different gauges. The programme also has a focus on soft transport, which includes support for the components below (TRACECA, 2017):

- Ensuring dialogue and co-ordination: harmonisation of transport legislation in order to facilitate the flow of goods among the beneficiary countries and with the EU.
- Infrastructure and network planning: advice for countries in selecting infrastructure projects.
- Attracting funds: finding financing from member-states, international financial institutions and other stakeholders for projects that have been prioritised.
- Capacity building: project investment appraisal, trainings on methodology and exchange of best practices for public officials.
- Communication, visibility and information: exchanges with local and international media on projects.

Examples of projects

Bandajuma Liberian border road and bridges – Sierra Leone

This project consists of supporting the Government of Sierra Leone through a EUR 118 million grant to improve hard infrastructure at its border with Liberia by constructing three new bridges along the road between Bo Town and the Liberian borderland by upgrading a 99 km road from Bandajuma Village to the Liberian border to an all-weather standard. The project is expected to boost trade between the two countries and promote economic diversification (EEAS, 2016).

Supply, delivery and installation of equipment in inland ports - Democratic Republic of the Congo

This project, with a funding of EUR 5.4 million from the European Development Fund for 2015-2016, consists of rehabilitating several waterways in the Democratic Republic of the Congo, including some rivers between Kinshasa to Kisangani, part of the Kasai River in Kinshasa, and the Tanganyika Lake, in order to enhance the efficiency and safety of navigation. It supports the installation of cargo equipment and the improvement of port management. Expected results include: shorter time for loading and unloading cargo, alleviation of port congestion and increased connectivity between the Democratic Republic of the Congo and Burundi, United Republic of Tanzania ("Tanzania") and Zambia (European Commission, 2018a).

Improvement of regional airports – Tanzania

The EIB is financing the upgrading and expansion of five regional airports in western Tanzania through a EUR 50 million ODA loan. The project is expected to enhance the business environment by strengthening transport connectivity in East Africa. It finances the improvement of the airport's hardware by: provision of all-weather asphalt runways that currently cannot operate in the rainy season; construction of new terminal buildings; expansion of aircraft parking; and enhancement of airport links to roads. Furthermore, it tries to address soft aspects, such as the application of international safety standards in securing perimeter fencing and boosting efficiency in passenger handling (EIB, 2012; 2018).

France

Strategies

The French Development Agency's transport strategy

The transport strategy of the French Development Agency (AFD) promotes safe, efficient, affordable, inclusive and sustainable green transport. The AFD states that effective transportation networks at all levels - local, national, and international - give people access to jobs, goods and services, thereby becoming the foundation for global and regional economic growth, sustainable development, and poverty alleviation.

In the new AFD Transport Strategy of 2017, regional integration of international networks is one of three "pillars" that would receive 25-50 % of its annual commitments in transport. It involves supporting the modernisation of airport infrastructure and services - rather than greenfield construction - as well as development of seaports and river infrastructure to enhance partner countries' access to global markets. Furthermore, in countries where poverty reduction and economic growth are paramount, the AFD focuses on rehabilitating and building strategic national roads and railway lines, in order to foster inclusive and balanced development and to facilitate their integration in a regional economic community.

More specifically, in its support to transport connectivity, the AFD prioritises Africa - including North Africa - where the infrastructure gap is significant. Additionally, the AFD is committed to help improve governance, regional co-operation, and financial, economic and environmental sustainability in transport. This is carried out by capacity building to relevant government authorities. Aside from engaging institutions at regional levels to facilitate the implementation of regional transport development plans, the AFD co-finances key programmes with other development partners such as the World Bank, the EC, and so on (AFD, 2009; 2015).

Proparco's strategy on transport

Proparco's overarching strategy for 2017-2020 is to double its annual commitment to EUR 2 billion to increase the private sector's contribution to development, as well as triple its impact on sustainable development, with a focus on Africa. In this context, Proparco considers efficient transport networks as key in accessing labour markets, services and goods, as well as in fostering regional and international integration of countries. As such, Proparco supports the construction and rehabilitation of road networks and airports, as well as rail and port projects, in order to boost import-export traffic, particularly in Sub-Saharan Africa (Proparco,n.d.).

Plans

Sustainable ports and airports

In a competitive market, the efficiency and good governance of ports and airports that are national monopolies is key for sustainability. The AFD therefore carries out dialogue with its partner countries to help maintain their competitiveness. Specifically, it prioritises support to the rehabilitation, extension, modernisation of existing infrastructure rather than greenfield projects. Furthermore, the AFD tries to help improve air navigation and control, customs procedure and financial and commercial management. It also addresses environmental concerns - particularly for ports - by focusing on energy efficiency

investments and climate resilience strategies. The AFD also supports advances in technology to improve safety and security in ports and airports.

Road and rail: National connectivity

The AFD finances the rehabilitation, extension, modernisation - especially for signalling and electrification - of long-distance rail transport through sovereign loans, in order to help long-distance freight and passenger transportation become safer, more efficient and environmentally friendly. In this context, emphasis is given to enhancing railway management. In addition, the AFD finances the rehabilitation and the extension of long-distance and strategic roads that have the potential to integrate a country into a wider region. The aim is to help develop long-distance roads with safe and smooth traffic as well as to maintain them in a long-term sustainable manner. At the same time, the AFD is mindful of the need to keep the competitiveness of a potential close railway line.

Support to the Sub-Saharan African Transport Policy (SSATP) Programme

The AFD supports the SSATP Programme, which is a global partnership involving African countries, United Nations, the World Bank, other development agencies, and private sector organisations. The aim of this programme is to promote regional integration and connectivity of sub-Saharan African countries by helping them develop policies and strategies for efficient and sustainable transport. This includes, *inter alia*, building capacity of government authorities, other domestic institutions, and Regional Economic Communities (RECs) in corridor management. Since its establishment in 1987, the SSATP has helped 28 countries improve the governance, sustainability, and effectiveness of the transport sector in sub-Saharan Africa, 18 of which now have their own road agency that are independent from ministries. The programme has enhanced connectivity by developing efficient transport corridors across the sub-Saharan Africa, thereby boosting intra-trade and economic competitiveness (SSATP, 2015).

Examples of projects

Expansion and Rehabilitation of the International Airport of Nairobi (2009)

The Jomo Kenyatta International Airport in Nairobi is a key hub for Kenya and the East Africa region. However, relative to the large volume of passengers and goods, the airport's infrastructure and facilities were saturated and insufficiently developed. To address this issue, the AFD provided a non-concessional and non-sovereign loan of USD 93 million to build a fourth terminal, a new landing runway, and a car park, as well as to expand and rehabilitate the existing terminals. As a result, this project has enabled the airport to improve its ability to deal with large flows of passengers and goods, thereby stimulating the economic prosperity of the region (AFD, 2015).

Supporting the Republic of the Congo's Insertion into International Trade (2009 - 2014)

The Port of Pointe Noire in the Republic of the Congo has recently experienced considerable increase in maritime and trade flows. As the only port in the country that has the capacity to allow cargo ships to enter, it is one of its most important gateways to international trade and a crucial transhipment hub for the Central African countries. Therefore, with co-financing from EIB and the Development Bank of the Central African States, the AFD provided USD 34 million to expand its traffic capacity as well as to

enhance its financial and environmental management. The project aimed at upgrading the capacity, modernising the cargo terminals and electric networks, purchasing two tugboats, and reducing maintenance costs. Furthermore, to address its growing maritime traffic, the container business was conceded to a private operator, which also invested in handling the infrastructure (AFD, 2015).

Rehabilitation of the railway between Hanoi and Lao Cai at the border with China (2007 – 2014)

To facilitate Viet Nam's integration into the GMS, and stimulate international trade between Vietnam and China, AFD has co-financed the rehabilitation of 300 km of railway between Hanoï and Lao Cai. The aim was to facilitate the movement of goods and people between the port of Haiphong in Viet Nam and the Yunnan province in China. The project involved rehabilitating the tracks and several railway bridges, extending the stations' platforms, and strengthening river banks, in order to increase the capacity, speed, and safety of the railway line, as well as to decrease transport costs (AFD, 2015).

Germany

Strategies

The Federal Ministry for Economic Co-operation and Development (BMZ): Economic infrastructures in aid for trade

BMZ supports the integration of partner countries into the global and regional economy by helping them improve their economic transport infrastructure and enhance their value chain and trade capacities (BMZ, 2011). Inherent to this strategy is the view that international trade fosters sustainable development and helps alleviate poverty.

German Corporation for International Cooperation GmbH (GIZ): Sustainable Infrastructure

GIZ has a strategy on Sustainable Infrastructure which aims at developing sustainable transport and mobility. Its view is that access to regional and global markets, coupled with efficient and climate-friendly transport systems, fosters economic and social development while curtailing negative externalities from increased transportation. Therefore, GIZ focuses on helping partner countries integrate in global trade while simultaneously addressing issues related to pollution and noise.

German Development Bank (KfW): Transport Strategy and Economic Growth and Employment Strategy

KfW's view is that facilitating the movement of people and the exchange of knowledge promotes innovation and progress in an economy. Therefore, its Transport Strategy aims at helping boost the economy through sustainable and climate-friendly transport by developing urban transport, expanding rural roads, and improving long-distance and freight transport. More specifically, KfW focuses on connecting ports, airports, and long-distance roads and railways through cost-effective trans-regional links.

KfW also supports transport projects as part of its Economic Growth and Employment Strategy, which promotes, *inter alia*, the integration of partner countries in global trade. In this respect, KfW assists partner country governments in planning, implementing, and improving trans-regional transport links as well as logistic service provides for rails, roads, ports, and airports. According to KfW, between 2011 and 2016, 15% of the commitments in transport was allocated to long-distance transport, while 79% was for urban transport and 6% for rural transport (KfW, 2016; 2017).

Plans

GIZ: Sustainable Freight and Logistics Plan

As part of GIZ's strategy on sustainable infrastructure, the Sustainable Freight and Logistics Plan aims to increase the efficiency of logistic systems, particularly by shifting to environmentally friendly means of transportation. Specifically, GIZ supports soft projects by sharing German expertise in capacity building projects for port authorities in greening logistics, sustainable freight transport, and implementation of social and environmental standards. GIZ also funds hard projects, such as the development of regional corridors that link landlocked developing countries (LLDCs) to seaports. Examples include the South African North-South corridor that connects five LLDCs in Southern African

Development Community (SADC), i.e. Zimbabwe, Zambia, Botswana, Malawi, and Democratic Republic of the Congo (GIZ, 2017).

KfW: Logistics and Long-Distance Transport

KfW's plan on Logistics and Long-Distance Transport is linked to its overall Economic Growth and Employment Strategy. The agency views that efficient and sustainable long distance transport enhances mobility across borders, promotes regional knowledge sharing and innovation, invigorates regional trade, and boosts regional economic competitiveness. The focus of this plan is therefore to shorten and optimise transport routes in order to reduce economic losses. By the same token, the plan aims at ensuring that the transport sector in partner countries is underpinned by sound climate protection measures to curb the negative externalities of increased transportation (KfW, 2017).

Examples of projects

Developing civil aviation in Afghanistan (GIZ)

This project, completed in 2012 with a USD 3 million grant funding, supported Afghanistan's Ministry of Transport and Civil Aviation in establishing an Afghan Civil Aviation Authority and an Aircraft Accident Investigation Board. Most notably, it helped ensure that the Authority complied with the standards set by the International Civil Aviation Organisation (ICAO) and passed the required regulatory audits. This project has also helped train 23 Afghans in flight safety, operations, and licensing, as well as 47 air traffic controllers using German Aerospace Centre standards (GIZ/BMUB, 2014).

Regional Corridor "Kenya -South-Sudan Link Road" (KfW)

KfW is financing the construction of the Kitale Morpus section of the South Sudan Link Road, which connects South Sudan and a large underdeveloped area of Kenya to Africa's Northern Corridor. The aim is to promote regional trade and to enhance economic integration, particularly by better connecting landlocked South Sudan with sea ports and other East African countries. This is also expected to improve the security situation in Northwest Kenya, which is often prone to conflicts, while reducing the number of accidents in the corridor. Apart from road rehabilitation, the project promotes road safety and social service delivery.

BMZ & GIZ: ASEAN - German Technical Co-operation Programme on Cities, Environment and Transport

Financed by BMZ and implemented by GIZ, the overarching purpose of the ASEAN-German Technical Co-operation Programme on Cities, Environment and Transport is to strengthen the Association's capacity for environmental protection at the regional level. It therefore promotes greater harmonisation, co-ordination and knowledge sharing among the countries in areas relevant for transport connectivity as below (GIZ, 2017):

Transport and Climate Change

The Transport and Climate Change project aims at mitigating the environmental impact from increased mobility and enhancing energy efficiency of land transport in Indonesia, Malaysia, Philippines, Thailand and Viet Nam. In particular, this project fosters knowledge sharing and greater co-ordination in the areas of fuel consumption and emission standards, NAMA in transport, and green freight transport GIZ (n.d.a) Activities consist of training,

workshops, experts' meetings and research. Specifically, TCC has provided major inputs to the Kuala Lumpur Transport Strategic Plan (GIZ, n.d.b). Likewise, in Indonesia, the project involved drafting a White Paper on environmentally friendly freight transportation in co-operation with the Ministry of Transportation and local experts.

Sustainable Port Development

The Sustainable Port Development project aims at improving the management and quality of the workplace by enhancing the safety, health, and environmental standards of 12 ports across Myanmar, Viet Nam, Thailand, Cambodia, the Philippines, Malaysia, and Indonesia. This is carried out by involving all countries in the development of pan-ASEAN regional action plans and by encouraging greater compliance of international environmental and workplace safety guidelines in ports, thereby facilitating the harmonisation of such standards across the region (GIZ, n.d.a).

Japan

Strategies

"Quality growth" and poverty eradication

One of the priorities highlighted in Japan's White Paper on Development Co-operation 2015 by the Ministry of Foreign Affairs (MOFA) is quality growth and poverty eradication. This is to be realised through, *inter alia*, promoting quality infrastructure to connect people, towns, regions and countries to unlock the growth potential (MOFA, 2015a). In this context, at the G7 Ise Shima Summit in May 2016, Japan launched the Expanded Partnership for Quality Infrastructure to bring together the Japan International Cooperation Agency (JICA), the Japan Bank for International Cooperation, Japan Overseas Infrastructure Investment Corporation, Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development and other stakeholders. The aim was to provide approximately USD 200 billion in the following five years to infrastructure projects across the world as well as to boost infrastructure investment in Asia and other developing countries by involving the private sector through ODA (MOFA , 2015a; 2015b).

"Free and Open Indo-Pacific Strategy"

Japan included the new Foreign Policy Strategy - "Free and Open Indo-Pacific Strategy" - in its policies for development co-operation in 2017. Under this strategy, Japan will enhance "connectivity" between Asia and Africa through a free and open Indo-Pacific Strategy to promote stability and prosperity of the regions as a whole. In particular, Japan will assist in infrastructure development, trade and investment, business environment and human development from East Asia to the Middle East and Africa. In addition, in order to promote this strategy, Japan will strengthen strategic collaboration with India - which has a historical relationship with East Africa—as well as the United States and Australia (MOFA, 2017).

Plans

Support to the ASEAN Connectivity Master Plan

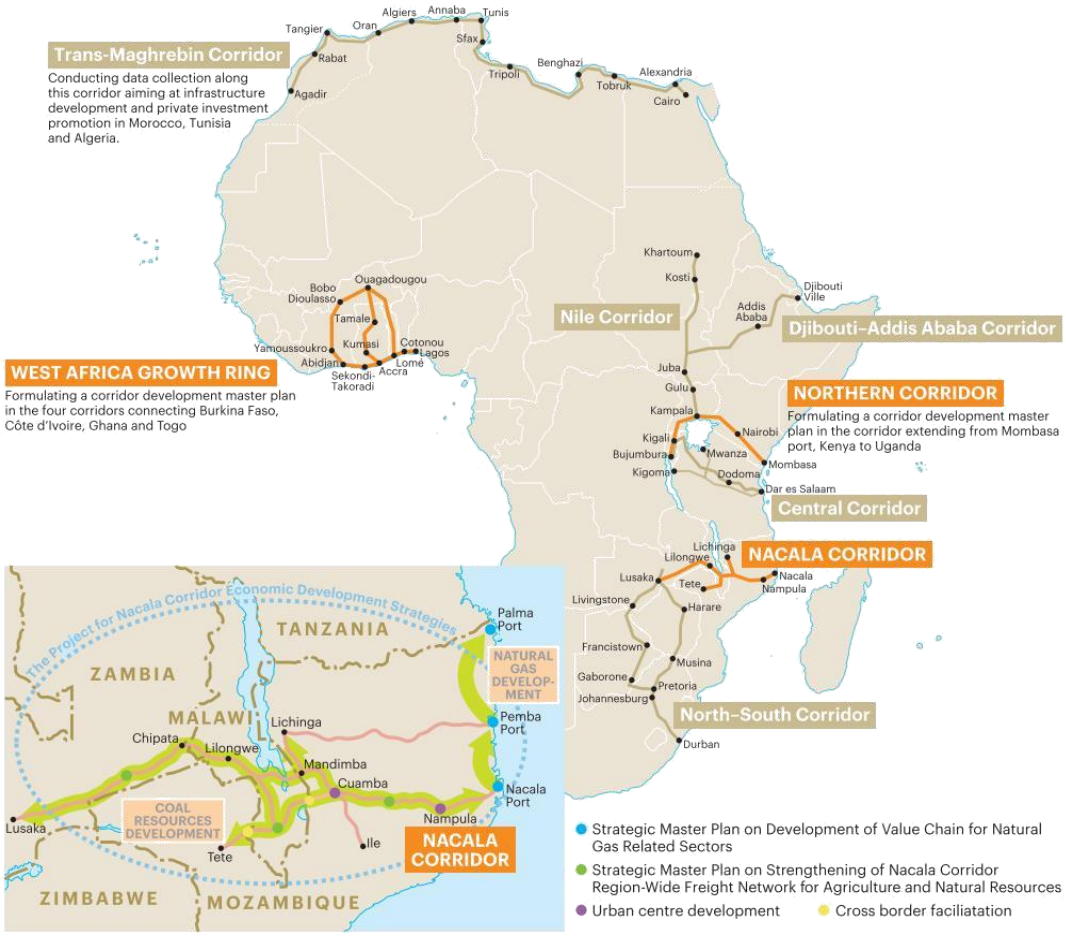
Japan supports the ASEAN Connectivity Master Plan through ODA and PPPs to enhance physical, institutional and people-to-people connectivity in the region. It does this in several areas that include hard transport infrastructure (e.g. roads and bridges, railway, airports and ports) as well as soft infrastructure (e.g. custom systems) (MOFA, 2015c).

Support to transport corridor master plans in Africa

Since 2013, JICA has been supporting the development of master plans for the three major transport corridors - West Africa Growth Ring, Northern Corridor, and Nacala Corridor (See Figure 4.1). Taking into account the Programme for Infrastructure Development in Africa (PIDA) and the interest of the private sector, these master plans try to address the long-term prospects for Africa's economic development in 20 to 30 years, while simultaneously identifying short-term priority projects. These transport corridor master plans, which normally take two to three years to complete, are developed by collecting detailed data and stakeholder information to estimate population growth and the future demand for the corridors' transport infrastructure. Surveys on the business and industry

potential in these regions are also carried out, as well as analysis on the main logistical bottlenecks (JICA, 2017; n.d.a).

Figure 4.1. Japan's support to transport corridor master plans in Africa



Source: ICA (2017), *Infrastructure Financing Trends in Africa – 2016*, The Infrastructure Consortium for Afr ica Secretariat c/o African Development Bank, https://www.icafrica.org/fileadmin.d.ocuments/IFT_2016/Infrastructure_Financing_Trends_2016.pdf.

Developing these Master Plans requires working with African countries individually as well as collectively. Once completed, the Master Plans are expected to be submitted to the parliaments of the respective countries or included in their development strategies. For example, the upgrade of Mombasa Port is now included in Kenya's "Vision 2030" as one of the highest priorities. In addition, after the adoption of the Master Plans by individual countries, RECs often co-ordinate the implementation of these Plans among states. The East African Community (EAC) for instance, has guided its member states to develop regulations to implement the various provisions of the Mombasa Special Economic Zone (SEZ) Master Plan. Other development partners besides Japan, such as China, EU and WBG, also funded hard and soft infrastructure projects around the Mombasa SEZ, such as the railway from the Port to Nairobi (JICA, 2017; PIDA, n.d.a).

Connectivity in Mekong

Every three years, Japan and the countries of the GMS establish a co-operation strategy for development. The last strategy, agreed in 2015, includes supporting the expansion of soft and hard infrastructure in the four transport sectors, i.e. airports, ports, roads and rail. Furthermore, Japan supports the construction of economic corridors, such as the Southern Economic Corridor, which links Viet Nam, Lao PDR, Thailand and Myanmar. On the soft side, it provides assistance to the modernisation of customs systems and streamlining of port procedures (MOFA, 2015b; 2015c).

One Stop Border Posts

Japan has provided support to 14 One Stop Border Posts (OSBPs) development projects in Africa, mainly in East Africa, with the aim of streamlining border clearance. OSBPs replace the border control system that involves a double procedure of one custom on each side by a system of single procedure. OSBPs significantly reduce the time of transit from one country to another, which contributes to enhanced connectivity and increased trade. Furthermore, the OSBP projects introduce an integrated IT system of border management that enables the countries to reduce the length of administrative procedures in sharing information on trade flows. The projects also include the creation of Joint Border Committees by government officials and private stakeholders to address trade obstacles linked to border-issues (JICA, n.d.b; US Chamber of Commerce and Africa Expoer Network, 2014).

Cross border transport infrastructure capacity Building and Research

JICA has carried out a series of capacity building projects on cross-border transport infrastructure (CBTI), mainly for railway projects in Africa and Asia (JICA, 2009). The activities include inviting officials from the national railways of different developing countries to attend seminars on high-speed railway, as well as facilitating exchange of experience in overseas operations by companies in railway-related industries.

For CBTI research, the need for transport infrastructure is measured according to the economic context of each region. On Africa, JICA focused on three areas in transport where Japan can significantly contribute its know-how. The first is on port development through improved connectivity to arterial roads and railways as well as on institutional capacity in simplifying port procedures. The second area relates to railways that involves upgrading management to increase the rolling stock. The third one concerns improvement of weighbridges and introducing IT at OSBPs, as mentioned above (JICA, n.d.b).

Examples of projects

East-West Economic Corridor Improvement in Myanmar

The East-West Economic Corridor Improvement in Myanmar project consists of constructing bypasses and bridges in the economic corridor that links the Mon and Kayin states. The objective is to help smooth the traffic between Mawlamyine (East coast) and Maywaddy (at the border with Thailand) in order to meet increasing traffic demand. Expected outcomes include the promotion of trade and foreign direct investment (JICA, n.d.c).

The Bay of Bengal Industrial Growth Belt Initiative

Within the framework of Japan-Bangladesh development co-operation, the Bay of Bengal Industrial Growth Belt Initiative aims to help Bangladesh in playing a node and hub role by connecting South and South-East Asia, mostly through roads and railways. The Initiative encompasses support to the development of hard transport infrastructure as well as the improvement of the investment environment (MOFA, 2015b).

Korea

Strategies

Economic Development Co-operation Fund (EDCF)'s Strategy on Transportation

EDCF Strategy on Transportation is to support projects aimed at building efficient infrastructure in developing countries in order to foster sustainable economic growth and eradicate poverty. More specifically, EDCF's strategy involves developing specific plans for road construction and rail modernisation. For instance, EDCF is providing support in accordance with Viet Nam's National Transportation Development Strategy 2020 by building coastal and inter-city roads to connect broad regions, as well as Egypt's National Railway Restructuring Project by modernising the railway signalling system.

Korea International Cooperation Agency (KOICA)'s Transportation Mid-Term Strategy (2016-2020)

KOICA's Transportation Mid-Term Strategy (2016-2020) is based on the idea that sustainable transportation infrastructure - such as trans-national railways, airports, and roads - connects people together across regions and countries, thereby significantly contributing to social and economic development. This strategy aims to promote inclusive and sustainable growth by helping partner countries develop safe, sustainable, and equitable transport systems among regions and countries. It involves setting up trans-regional railways, modernising airports, widening and rehabilitating strategic roads, and conducting feasibility studies. Furthermore, as part of this strategy, KOICA is taking a more active role in stimulating private investment from the planning stage of projects.

Programmes

Development Experience Exchange Programme (KOICA)

The Development Experience Exchange Programme provides capacity building, technical co-operation and knowledge-sharing on soft aspects of transport. Under this programme, KOICA assists in feasibility studies, master plans, and improvement of systems and management for trans-regional railways, expressways, and airports (KOICA, 2017).

Examples of projects

New Salendar Bridge construction project in Tanzania (2014 – 2020) (EDCF)

While Dar es Salaam is the second largest port-city and one of the main trading routes for landlocked countries in Eastern Africa, its population growth and number of vehicles have caused major traffic congestion. As a result, the Tanzanian government launched the Dar es Salaam Transport Policy and System Development Master Plan, which aims at developing an efficient transportation system for the city. To contribute to this Master Plan, EDCF is supporting the construction of the 1km-long New Salendar Bridge in order to connect the eastern coast of Dar es Salaam to the western coast of the port as well as to extend existing coastal roads. By improving connectivity of Northern and Southern regions of Tanzania through reducing traffic congestions in Dar es Salaam, the Export-Import Bank of Korea (KEXIM) expects to help foster regional development (EDCF, 2014).

Modernisation of the railway signalling system on Nagh Hamady and Luxor Corridor in Egypt (2014-2020) (EDCF)

As part of Egypt's National Railway Restructuring Project, which addresses the lack of safety of the country's railways, EDCF provided a USD 115 million loan - in addition to the World Bank and the EBRD - for the construction and modernisation of railroad signalling system. The loan financed the purchase of an Electronic Interlocking System and Automatic Train Protection System along 118km of the Nagh Hamady–Luxor section of the railway. Since the Egyptian railway serves 1.4 million passengers and transports 20 000 tons of freight per day, the modernisation is expected to help invigorate the tourist industry and foster international trade for Egypt. In addition, since the project also serves as a means for Korean companies to share their technology and know-how, the project is also expected to pave the way for co-operation with African countries in developing the railway network (KEXIM, 2016; EDCF, 2014).

Feasibility study for the construction of a new international terminal at Tashkent Airport in Uzbekistan (2016) (KOICA)

In 2016, KOICA undertook a feasibility study for the low-cost construction of a new international passenger terminal at Tashkent airport in Uzbekistan to deal with the increasing number of passengers. Following the study, the construction of the new terminal which would involve the private sector and cost USD 436 million, was approved by the Uzbekistan government. The increased capacity and modernisation of the Airport is expected to promote tourism in the country (UzDaily, 2016).

Modernisation and automation of Entebbe International Airport in Uganda (2014-2018) (KOICA)

KOICA is currently helping modernise the Entebbe International Airport and upgrade aviation safety at a cost of USD 9.5 million. Specifically, the project involves: installation of an airport database system and computerised maintenance management system; implementation of an Air Traffic Services message handling service; and improvement in the efficiency of flight procedures (Africa Business Communities, 2017).

New Zealand

Strategies

Ministry of Foreign Affairs and Trade (MFAT): Strategic Intentions 2016-2020

In the Strategic Intentions 2016-2020, MFAT states that New Zealand's foreign policy focuses on playing an international role particularly in the Pacific region, which can have a direct bearing on the well-being of New Zealanders. More specifically, MFAT aims at, *inter alia*, enhancing the prosperity, stability and resilience of Pacific island countries (PICs) by promoting international solutions to environmental problems and strengthening regional economic integration. MFAT also works on increasing market access for New Zealand businesses and improving their international performance (MFAT, 2016a).

Strategic Plan for the Aid Programme 2015 – 2019

In the Strategic Plan for the Aid Programme 2015-2019, MFAT focuses on, *inter alia*, trade and labour mobility, with the aim of increasing economic benefits and outputs in developing countries of the Pacific. With this in view, New Zealand considers that many of the challenges faced by countries in this region are best dealt through a regional or multi-country approach. Therefore, MFAT has developed regional initiatives in different sectors, including transport. Specifically, it supports maritime and aviation's hard and soft infrastructure, which are expected to improve connectivity and consequently trade and labour mobility (MFAT, 2015).

Examples of programmes and projects

Improving maritime safety

MFAT's Pacific Maritime Safety Programme aims at improving maritime safety in the Pacific through the improvement of: regulatory capacity; maritime legislation; safety procedures and standards for maritime navigation; marine pollution prevention and response capability; and search and rescue response capability. It works in the Cook Islands, Niue, Kiribati, Tokelau Tonga and Tuvalu. The Pacific Regional Navigation Programme also helps improve maritime charts and navigation through hydrographic surveys and Aids to Navigation. It is delivered through a partnership between MFAT, Land Information New Zealand and the Secretariat of the Pacific Community. MFAT also finances maritime transport infrastructure in order to improve transportation links. These projects are expected to reduce risks associated with maritime navigation and, consequently, improve connectivity (MFAT, n.d.a).

Partnership arrangement for customs sector in the Pacific

The Customs Sector Development in the Pacific Programme (2017-2021) is concerned with increasing long-term security and economic growth of PICs through capacity building of customs administration. The project has established a regional assistance programme and partnerships with the Cook Island, Samoa, and Fiji. An evaluation of the project's previous phase concluded that, for example, customs clearance time was reduced from an average of 145 hours to 25 hours (MFAT, 2016b).

Aviation infrastructure improvement in Kiribati

MFAT is financing approximately USD 5 million to support the infrastructure improvements in Kiribati's two international airports, which connect the island with Australia, Solomon Islands, Marshall Islands, Fiji, Nauru and Micronesia. The funding, provided through the World Bank's Pacific Aviation Investment Programme, includes the rehabilitation of runways, construction of a new emergency service building to host the aviation rescue and fire-fighting units, as well as the provision of improved navigation and communications equipment. Expected outcomes are increased regional trade and the number of tourists (MFAT, n.d.b).

Improving Pacific Air Safety Project (2015-2019)

Under the Improving Pacific Air Safety Project, MFAT is providing funding to the World Bank to install Very Small Aperture Terminals at the Rarotonga International Airport in Cook Islands and the International Airport in Niue. These terminals link international airports with a regional aeronautical communications network, resulting in reliable and faster aviation communications. This project also includes a Pacific Aeronautical Charting and Procedures component to upgrade aeronautical data, charts and approaches at 38 aerodromes across eight PICs (De Serio and Giovannitti, 2017).

United States

Strategies

United States Agency for International Development (USAID)'s support for soft infrastructure

USAID underlines that support for soft infrastructure can catalyse and mobilise significant amounts of investment from the public and private sectors. In general, USAID tend to fund more soft transport projects than hard transport infrastructure projects (USAID, 2016a). Thus in 2015, the majority of their financing of transport connectivity were soft projects, such as providing technical assistance to the public and private sectors to: prioritise, plan and maintain transport networks; regulate or manage the logistic system of the networks for ships at ports, flights at airports, trucks on roads, and so on.

USAID's focus on disaster-affected countries

In transport, USAID focuses on the construction and rehabilitation of infrastructure and transport systems—including both hard and soft components - in conflict and disaster-affected countries to facilitate stability and economic recovery. For example, USAID has provided significant amount of finance in building and rehabilitating roads in Afghanistan, as well as assisting the Afghan government and private sector to expand, operate, and maintain the country's road network. This includes helping the Afghan Ministry of Public Works to establish a governmental road authority and a fund which would be based on road user fees. This fund would pay for operations and maintenance, thereby improving efficiency and sustainability (USAID, 2016b; OECD/WTO, 2017).

Programmes

Trade Capacity Building Policy 2016 (USAID)

Trade facilitation is one of the main pillars of USAID's Trade Capacity Building Programme. For example, the Agency supports border control agencies expedite the movement, release, and clearance of goods by enhancing customs procedures that involve, for instance, import licensing which adds to the cost and time requirements for trade. In addition, USAID finances the installation of weighing stations for lorries and warehouse facilities for inspection at the border (USAID, 2016a).

Examples of projects

Road Rehabilitation Compact Project in Senegal (2010-2015) (MCC)

The Millennium Challenge Corporation (MCC) and Senegal signed a USD 540 million Compact in 2009, aimed at reducing poverty and increasing economic growth by unlocking the country's agricultural productivity and expanding access to markets. It included two primary projects: Roads Rehabilitation and Irrigation and Water Resource Management. The Roads Rehabilitation project was designed to connect major population centres and agricultural production areas through the rehabilitation of 372 kilometres of two of Senegal's critical transport corridors in the North-West and South (MCC, n.d.).

The US-ASEAN Connectivity through Trade and Investment Project (2013-2018) (USAID and Department of State)

The US–ASEAN Connectivity through Trade and Investment is a five-year project of USAID and the Department of State. The project includes technical support to ASEAN member states on the creation of the ASEAN Single Window, which is an electronic system to streamline cargo clearance data so as to lower the time and cost of doing business across Southeast Asia. The Single Window will connect the electronic systems to streamline cargo data in 10 ASEAN member states, with the aim of lowering the transaction costs of trade in goods by at least 8% (USAID, 2014; 2015).

Gardez-Khost National Highway (2014-2015) (USAID)

The Gardez-Khost National Highway, a USD 33 million project by USAID, was a 101-kilometre road linking eastern Afghanistan with the Ghulam Khan Highway in Pakistan. The previous pathways that linked remote and insecure terrain were often impassable during floods or landslides. Therefore, the project built bridges, causeways, and drainage structures as well as asphalt pavements for the Highway under international standards. As an outcome, highway traffic has been increased with the average travel time from Gardez to Khost for passenger vehicles and trucks being significantly reduced (USAID, 2016c).

Bilateral development partners beyond the DAC

Brazil

Strategies

Brazil supports transport connectivity in Latin America and Africa through the Brazilian Technical Cooperation Agency (ABC) for soft projects and the state-owned Brazilian National Bank for Development (BNDES) for hard projects. The ABC's objective is to leverage its knowhow to help other developing countries better manage their transport infrastructure as well as improve safety and working conditions. As Brazil is an emerging country that shares a similar development experience with other aid recipients, it sees its role in providing appropriate assistance to projects with limited resources and infrastructural constraints, such as in port improvement and airport management. Examples of ABC projects in transport connectivity include technical co-operation for Bolivian road transport institutions as well as capacity building in port management for authorities of the Cotonou port in Benin (ABC, n.d.).

Hard transport projects, on the other hand, are meant to help internationalise Brazilian private enterprises by providing them with public loans from BNDES, which often take into account political and credit risks. Between 2002 and 2006, the BNDES provided loans at interest rates varying from 2.8% to 8.6% to 14 Brazilian companies to implement projects in Latin America and particularly Lusophone African countries. In addition, Brazil also partners with DAC members, such as Japan and Germany, to offer complementary expertise (Cabral, 2011; Goes, 2017).

Examples of projects

- enlargement and modernisation of Mariel Port (approximately USD 680 million) and the Jose Marti International Airport (USD 150 million) in Cuba (Cuba Headlines, 2015);
- construction of Hacia El Norte highway in Bolivia (USD 199 million);
- logistics corridor in Honduras (USD 145 million);
- rehabilitation and expansion of the Central American highway in Guatemala (USD 280 million);
- construction of the Nacala Airport in Mozambique (USD 125 million); and
- expansion of the N2 national Highway in Ghana (USD 215million).

People's Republic of China

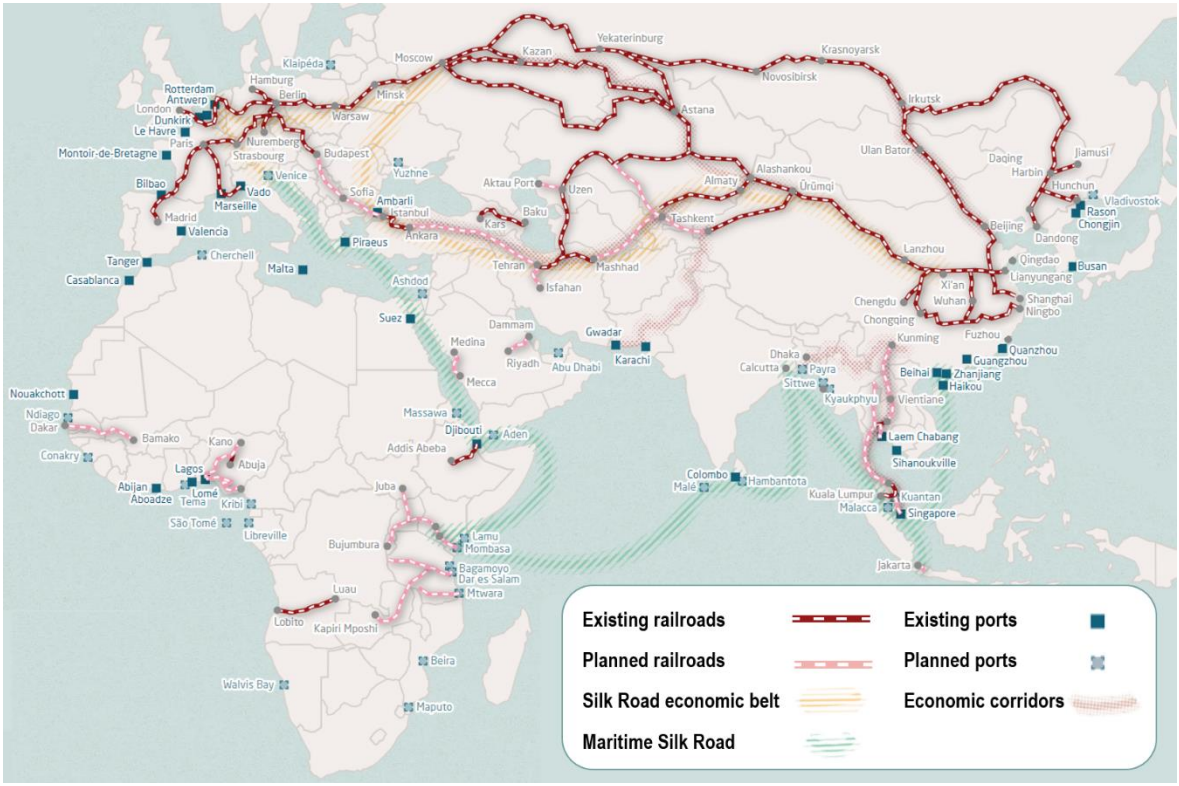
Strategies

China has been rapidly increasing its foreign aid to other developing countries in the last decade (JICA-Research Institute, 2017), especially for infrastructure. According to the second White Paper on China's Foreign Aid (State Council of China, 2014), about half of the 156 infrastructure projects from 2010 to 2012 were in regional transport, such as construction and rehabilitation of railways, highways and airports, although the amount of funding for these projects are not disclosed.

The Belt and Road Initiative (BRI)

In 2013, China launched the BRI with the aim of reviving the ancient Asia-Europe trade routes by land and sea (see Figure 4.2). The "Belt" refers to networks of roads and railways connecting China with the rest of Asia, Europe, the Persian Gulf, and the Mediterranean Sea. The "Road" refers to maritime routes connecting China with the South Pacific, as well as with Europe through the South China Sea and the Indian Ocean. Within this wide geographic coverage, the initiative also proposes six land-based economic corridors (see red lines in Figure 4.2) (NDRC/MFA/MOC, 2015).

Figure 4.2. Part of the projects under the Belt and Road Initiative



Note: As of March 2017.
Source: Mercator Institute for China Studies (2018), China creates a global infrastructure network: Interactive map of the Belt and Road Initiative, https://www.merics.org/en/bri-tracker/interactive-map.

One of the main priorities of BRI is improving cross-border transport networks, especially railways (see red and pink lines in Figure 4.2). While the Initiative mainly covers the Eurasia continent, it also includes projects in Africa, with one rail planned to connect the East and West coasts and another to traverse Kenya, Rwanda, Uganda and South Sudan. In addition to rail, there are around 30 projects for port construction or upgrading on the West and East Coast of Africa and Southeast Asia. Likewise, BRI also supports airport construction, although they are not shown in Figure 4.2.

In order to fund these projects, PricewaterhouseCoopers (PwC) estimated that the Chinese government would have to provide up to USD 1 trillion in the next ten years, or on average USD 100 billion annually (PwC, 2016). Most of this funding is expected to be in the form of preferential debt funding. In fact, since 2013, the Export-Import Bank of China (CEXIM) and the China Development Bank (CDB) have financed around USD 260 billion of BRI projects (Xinhua, 2017), which translates to an average of USD 65 billion annually. More recently, China's President Xi Jinping pledged USD 124 billion to the Silk Road Fund, which was launched in 2014 to provide loans for the BRI (Reuters, 2017).

At the same time, China calls for co-operation from partner countries and international organisations to realise this plan. In fact, China has signed co-operation agreements with more than 40 countries along and beyond the planned routes and expects to engage BRI with multilateral co-operation mechanisms such as Asia-Pacific Economic Co-operation and the Central Asia Regional Economic Co-operation (CAREC) Programme (NDRC/MFA/MOC, 2015). The Silk Road Think Tank Network (SiLKS) was also established in 2015 as a platform for joint research and knowledge exchange on development issues in BRI countries. To date, there are 54 members and partners in SiLKS, including: research institutions in Cambodia, Indonesia, and Myanmar; development partners such as EBRD, GIZ, and Swedish Agency for Growth Policy Analysis; and international organisations such as the OECD Development Centre, the International Road Transport Union, and the World Ocean Council. In terms of finance, AIIB, AsDB and the New Development Bank - set up in 2014 by Brazil, Russia, India, China, and South Africa - also finance BRI projects, although the last one is mostly supporting energy infrastructure.

Given the significant amount of investment under BRI, as well as its wide geographic coverage, there are ongoing concerns and discussions on the fiscal and environmental sustainability of involved countries. By some estimates, over half of the countries that have accepted BRI projects have credit ratings below investment grade (New York Times, 2017). In addition, the planned corridors of the Initiative overlap with the range of many endangered species. Furthermore, the transparency and sustainability of China's bilateral support for BRI is questioned by media and some international organisations. Others call for the need for China to adhere to various standards for development co-operation and export credits established by the OECD-DAC and the Export Credit Group.

Programme example

The China-Europe Express Programme

The China-Europe Express Programme under BRI aims at connecting China and Europe by high-speed freight trains. This programme plans to build new railways across Kazakhstan, Iran, Turkey, and others, to connect China and Europe. Meanwhile, this Programme has already introduced direct freight trains based on two existing railways - the Trans-Siberian Railway and the railway linking China and Germany through northern

Kazakhstan and Russia. China aims to complete this major infrastructure programme within ten years, possibly linking about 75% of the world's population (NDRC, 2016).

In addition to the construction of railways, this Programme tries to enhance logistic procedures. For example, after a two-year negotiation and co-ordination, the railway administration in China and all other transit countries agreed to adopt a common consignment note that is recognised by two different railway systems - the Uniform Rules Concerning the Contract of International Carriage of Goods by Rail (CIM) of Western and Central Europe and the Agreement on International Goods Transport by Rail (SMGS) of Eastern Europe, Russia and most countries in Asia. This common consignment note serves as a customs transit and bank document - without this, clients need to pay for re-issuing different notes for each shipment at the border stations (International Rail Transport Committee, 2013; International Union of Railways, 2012).

Examples of projects

Based on project information from the Chinese government, recipient country governments, media and research institutes, it is estimated that in 2014-2015, China committed on average more than USD 8 billion[1] a year to 21 transport connectivity projects in other developing countries in Asia, Africa, Latin America, and Europe. All commitments are for hard infrastructure projects, with 65% for railways and 30% for roads (Technical Notes in Annex A provides the project list). In addition, China also supports soft projects, such as feasibility studies for national highway or railway networks in Central Asia, and capacity building for transport authorities in African countries. However, as the amount of funding for these soft projects are not available, they are not included in the USD 8 billion mentioned above. In fact, since China's financing cannot be verified by official sources, figures should be used with considerable caution.

Multilateral development partners

African Development Bank

Strategies

Regional Integration Policy and Strategy 2014-2023

One of the two pillars of African Development Bank (AfDB)'s Regional Integration Policy and Strategy 2014-2023 is regional infrastructure development. The objective of this strategy is to create larger and more attractive markets, link landlocked countries to international markets and support intra-African trade (AfDB, 2015).

Transport strategy

AfDB's strategy in transport infrastructure prioritises economic integration. For hard aspects, it focuses on closing missing transport links, expanding and modernising existing infrastructure and promoting hubs and corridors that open landlocked countries to international trade. For soft aspects, AfDB concentrates on cross-border transport regulations—such as improving OSBPs - freeing up the airspace by implementing the Yamoussoukro Agreement, facilitating trade, resolving nontariff barriers, and improving logistics services (AfDB, 2015).

Plans and programmes

Africa50

To implement PIDA (See Chapter 1), Africa50 was created in 2015 as an infrastructure fund to support high-impact national and regional projects, mostly in the energy and transport sectors. Africa50 aims at closing the gap between infrastructure spending and needs in Africa by mobilising public and private sources, such as pension funds and investment funds from insurance companies. More specifically, it facilitates project development and channels capital from private investors into well-structured projects. Africa50 is owned by the AfDB and 23 African national governments (Africa 50, 2018).

Examples of projects

Road improvement and transport facilitation on Yaoundé-Brazzaville Corridor (Congo, Cameroon)

The poor condition of the road between Ketta in Congo and Djoum in Cameroon, which is part of the Yaoudé-Brazaville corridor, hinders trade between these two countries. Therefore, AfDB provided a USD 424 million loan to improve this 500 km road. Results include the increase of average speed of heavy goods vehicles from 30 km/h in 2009 to 80 km/h, reduction of average vehicle operating costs by 55% and enhanced trade between Cameroon and Congo by 11% (AfDB, 2018a).

Kazungula Bridge: Bridging the regional divide

At the North–South Corridor, ferries were predominantly used to cross the Zambezi River, which took transporters many days to travel, impacting negatively on trade. The AfDB therefore supported the construction of a road and rail bridge at the border of Zambia and

Botswana to replace the ferries and reduce travel times. In addition to the hard components, the USD 260 million loans financed soft components of the project, such as feasibility studies and supporting institutional capacity building of the SADC Secretariat for project management (AfDB, 2018b).

Marrakech--Tanger Railway (Morocco)

AfDB supported the expansion of the railway between Marrakech and Tanger in Morocco. The project included the improvement of its catenary capacity, replacement of crossings and the establishment of a logistics platform. These enhancements are expected to increase train speed from 60km/h to 100km/h, thereby decongesting the railway system, which was facing growing flows of goods and people. The project is also expected to facilitate international trade by benefiting five zones in Morocco, namely Marrakech, Tanger, Casablanca, Zenata and Fès (AfDB, 2018c).

Asian Infrastructure Investment Bank

Strategies

The Asian Infrastructure Investment Bank (AIIB) is a new MDB established in 2015 with a mission to help improve social and economic development in developing countries by investing in infrastructure and other productive sectors (AIIB, 2016). In 2016, the new AIIB President Jin Liqun stated that, while the Bank would support BRI projects, it was not created exclusively for this Initiative (Weiss, 2017). In particular, AIIB considers "multinational connectivity" as one of its thematic priorities, i.e. cross-border infrastructure projects across Central Asia, South Asia, Southeast Asia, and the Middle East, including in transport (AIIB, 2016).

In the first two years of operation, AIIB lent about USD 4 billion to infrastructure projects, of which 74% were co-financed with other multilateral financial institutions (AIIB, 2018). In addition, AIIB expects its overall infrastructure investment to grow from USD 3-5 billion in 2017 to around USD 10 billion in 2018 (Financial Times, 2016). This ambitious goal is underpinned by the Bank's abundant paid-in capital of approximately USD 20 billion in commitments, which accounts for 20% of its initial total capital. Moreover, the DAC's Working Party on Development Finance Statistics agreed to place AIIB on the list of ODA-eligible organisations with an ODA coefficient of 85%, in order to incentivise DAC members to contribute more to the capital of the Bank (OECD, 2018,unpublished). As such, according to some estimates, AIIB could reach a portfolio of approximately USD 120 billion by 2025 (ODI, 2015).

Examples of projects

According to its reporting to the DAC, the Bank committed more than USD 1 billion for seven infrastructure projects in 2016, with two transport connectivity projects in Pakistan and Tajikistan accounting for USD 130 million. One project is the construction of a section of the national motorway in Pakistan, which is expected to connect seven main economic centres of the country, including Islamabad, Faisalabad, Multan, and so on. In addition to the AIIB's USD 100 million, this project was co-financed by AsDB (USD 100 million), the Department of International Development of the United Kingdom (USD 34 million), and the Government of Pakistan (USD 39 million) (AIIB, 2017).

Asian Development Bank

Strategies

Sustainable Transport Initiative

The Asian Development Bank (AsDB)'s Sustainable Transport Initiative aims to guide support for policies and projects in transport systems that are safe, accessible, affordable, inclusive, low carbon, clean, and energy efficient. As part of this strategy, AsDB emphasises the importance of investing in cross-border transport and logistics.

Regional Co-operation and Integration in Asia and the Pacific

AsDB's Regional Co-operation and Integration Strategy aims at, *inter alia*, increasing trade, investment, and financial stability, as well as improving living conditions by enhancing regional and sub-regional connectivity. Programmes to implement the strategy include cross-border infrastructure and related software (AsDB, 2017a).

Plans, programmes and examples of projects

South Asia Sub-Regional Economic Co-operation (SASEC) Operational Plan 2016-2025

AsDB launched the SASEC Operational Plan 2016-2025 to support Bangladesh, Bhutan, India, Nepal, Maldives, Sri Lanka and Myanmar in strengthening economic links and co-operation among themselves, particularly through better connectivity. One of the priorities of the Plan is to upgrade hard and soft transport infrastructure through: enhancement of multimodal linkages for land-based transport; reduction of container dwell times at ports; and improvement of access and reduction of congestion at border crossing points and ports. The focus is particularly on key trade routes such as the expressway between Dhaka and Chittagong in Bangladesh. The total cost of all transport connectivity projects in this plan amounts to approximately USD 17 billion (AsDB, 2016).

Akhaura-Laksam double track project in Bangladesh

As part of the SASEC plan, AsDB has financed the upgrading of 72km of the railway that links Laksam in Bangladesh with Akhaura that borders with India, as part of the Trans-Asia Railway Network, with the objective of facilitating sub-regional co-operation and trade between Bangladesh and India. The project consists of transforming this section to a double track railway line and installing modern signalling equipment (AsDB, 2017b).

Central Asia Regional Economic Co-operation Programme

Alongside six other multilateral institutions, AsDB supports the regional integration CAREC, which consists of eleven countries - i.e. Afghanistan, Azerbaijan, China, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Tajikistan, Turkmenistan and Uzbekistan. One of the objectives of CAREC in enhancing regional co-operation is to improve transport infrastructure. As such, in 2015 and 2016, the CAREC programme for regional co-operation financed nearly 30 transport connectivity infrastructure projects, mostly in the road sector, in order to develop economic corridors in Central Asia (AsDB, 2017c).

Uzbekistan railway electrification

As part of the support, AsDB provided a loan to electrify 145 km of a railway linking the cities of Pap, Namangan and Andijan in Uzbekistan. Before the electrification, trains had to bypass this section by taking longer routes or had to switch to diesel traction. As a result of the electrification, freight costs are reduced, 30% of time is saved for freight and passengers, and carbon emissions have declined. Moreover, it is estimated that the electrification could almost triple the weight of transported cargo from 2016 to 2030 and further quadruple by 2040 (AsDB, n.d.).

The Greater Mekong Sub-Region Programme

AsDB promotes the economic modernisation, liberalisation and industrialisation of the GMS. As enhancing the connectivity of the sub-region is crucial to this endeavour, one of the priorities of AsDB's GMS Programme is to support regional or sub-regional transport infrastructure. In this context, AsDB has mobilised approximately USD 11 billion for connectivity projects in the GMS under the Programme.

Phnom Penh to Ho Chi Minh City Highway Project

As an example of the GMS Programme, AsDB is financing the rehabilitation of the highway between Phnom Penh and Ho Chi Minh. Besides hard infrastructure, the project supports soft aspects such as reducing bureaucracy and length of custom procedures at the border. As a result, the project has enhanced transport efficiency, increased trade, and created new business opportunities on both sides (AsDB, 2017d).

Brunei Darussalam, Indonesia, Malaysia and Philippines-East ASEAN Growth Area Programme

The main objective of the Brunei Darussalam, Indonesia, Malaysia and Philippines East ASEAN Growth Area Programme is to accelerate economic development through enhanced international connectivity in geographical areas that are distant from their national capitals. The programme includes assisting both the construction of hard infrastructure as well as soft infrastructure such as harmonisation of customs and security rules. Furthermore, AsDB is supporting the master plan development of, for example, the Sulu (Philippines) Sulawesi (Indonesia) maritime corridor (AsDB, 2017e).

Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT) Initiative

AsDB provides technical and financial assistance to the IMT-GT Initiative, whose aim is to stimulate economic development through co-operation, integration, and connectivity of 32 poor states and provinces of these countries. In transport, AsDB focuses on expanding and improving economic corridors and multi-model transport links, which includes roll-on roll-off systems in ports to facilitate the transition of goods between ships and lorries (IMT-GT, 2012).

European Bank for Reconstruction and Development

Strategies

Strategy on transport

The European Bank for Reconstruction and Development (EBRD) views transport as a key enabler of economic growth that links businesses and consumers to markets and services, promotes regional integration, connects local, regional, and international levels, and integrates emerging markets into the global economy. In this context, EBRD aims at supporting the development of safe, secure, and sustainable transport systems, which embody market principles, balance economic, environmental and social needs and are responsive to the needs of industry and the individual, notably in emerging countries such as the South Eastern Mediterranean (SEMED) countries (Egypt, Jordan, Morocco, and Tunisia), Central Asia Early Transition Countries, Turkey, and Kazakhstan (EBRD, n.d.).Within this broad strategy, the Bank focuses on improving the efficiency and financial sustainability of the transport sector and developing sustainable, climate-friendly, and energy-efficient transport.

More specifically, in the SEMED countries, EBRD emphasises private sector participation in transport infrastructure, the establishment of competitive markets for transport services, and institutional development of the transport sector. In the ETCs, the Bank's priorities are to support improvements in port and airport infrastructure and services; establishment or strengthening of road agencies, and institutional reforms in the railway sector. In Turkey, the Bank focuses on supporting restructuring of the railway sector and financing the expansion of recently privatised ports, while in Kazakhstan, the priority is on rehabilitating and developing key regional road corridors (EBRD, 2013; n.d.).

Programmes and examples of projects

Astana airport upgrade and tariff reform programme in Kazakhstan

Alongside the Development Bank of Kazakhstan, EBRD is providing a USD 42.5 million loan to upgrade the Astana International Airport, which is in need of expansion in order to cope with the increasing flow of passengers and traffic. More specifically, a runway will be modernised and new lighting and meteorological equipment will be installed. Furthermore, safety standards will be brought into compliance with ICAO regulations, while luggage handling services will be improved and expanded. EBRD is also promoting a reform to make tariffs for regulated airport services more flexible. (EBRD, 2015a).

Moroccan port of Nador (2015)

EBRD provided a loan of approximately USD 234 million to Société Nador West Med for the construction of a new port on the Mediterranean coast of Morocco, 30 km from the town of Nador. The aim is to enhance Morocco's intra-national and international trade generate economic growth and create new jobs. Specifically, the project entails building a breakwater, dredging infrastructure, quays, terminals for container transhipment, and hydrocarbon storage. As EBRD focuses on promoting sustainable and climate-friendly transportation, a number of environmental protection measures are also incorporated, while the port's carbon footprint is minimised by using lower-carbon cement (EBRD, 2015b).

Terminal for grain export in the Ukrainian port of Odessa (2014)

Given the importance of the agribusiness sector in Ukraine, EBRD supported the development of a trans-shipment terminal for grains with a capacity of 4.5 million tonnes in the Port of Odessa. Specifically, EBRD provided a loan of USD 60 million to Brooklyn-Kiev, a leading private stevedoring company to undertake the construction of the terminal. The aim of the project is to strengthen Odessa as a major grain handling hub, thereby stimulating economic growth in Ukraine and creating jobs in the region (EBRD, 2014).

Modernisation of the Manas airport (Bishkek) in Kyrgystan (2017)

EBRD is financing the modernisation of a terminal in the Manas Airport (Bishkek) through a USD 4.7 million loan and USD 500 000 grants to the airport's operating company, International Airport Manas. The project addresses the growing demand for quality airport services in Kyrgyzstan. The financing was used to, *inter alia*, install ventilation and heating systems that comply with energy efficiency standards and improve the financial management and efficiency of operations. As the Airport is the main air gateway in Kyrgyzstan, this project is expected to enhance the country's international and regional connectivity (EBRD, 2017).

Road repairs and upgrades in Bosnia and Herzegovina (2016)

In light of the damages caused by the recent floods in Bosnia and Herzegovina, EBRD has financed repairs and upgrading of the country's road networks through a sovereign loan of approximately USD 76 million. The loan was also used to improve road traffic safety systems and procedures as well as enhance the management and procurement practices of the state-owned road company. With 70% of cargo and 90% of passengers resorting to roads for transportation in Bosnia and Herzegovina, the upgrading of the networks is expected to significantly contribute to the country's connectivity (EBRD, 2016).

Inter-American Development Bank

Strategies

Partnering with Latin America and the Caribbean to Improve Lives (2016-2019)

The Inter-America Development Bank (IADB)'s strategy called Partnering with Latin America and the Caribbean to Improve Lives raises the lack of regional integration as a major bottleneck to sustainable growth, poverty reduction and inequality. This is due to insufficient regional infrastructure and its inadequate management, especially ports, roads, railways and inter-modal connections. Furthermore, trade and regulatory frameworks and slow border crossing procedures also reduce the efficiency of the existing regional transport system. As a result, firms of all sizes face major hurdles in becoming regionally and globally competitive, particularly in moving up the value chain. In fact, IADB estimates that Latin America and the Caribbean is at 50% of its intra-regional trade potential. Thus, the Bank supports transport projects that enhance connectivity in the region - including the software - in order to help overcome these obstacles (IADB, 2015).

Programmes

Initiative for the Integration of South America through Regional Infrastructure

IIRSA is a plan to link the region's economies through connectivity projects in transport, telecommunications and energy. In transport, IIRSA projects are expected to increase trade by integrating highway networks and inland waterways throughout the continent. The Initiative was launched in 2000 with the participation of all 12 South American countries. IADB supports this plan by providing technical and financial support, as well as hosting the IIRSA Secretariat (IADB, 2011a).

Regional integration of Countries in the River Plate Basin

The Multisectoral Credit Programme for Regional Integration of Countries in the River Plate Basin - which includes Argentina, Bolivia, Brazil, Paraguay and Uruguay - supports projects in various sectors that aim at strengthening economic, social and cultural integration among these countries. In transport, the programme focuses on the development of international corridors (IADB, 2018).

Regional Integration Fund

In the context of limited intra-regional trade in Latin America and the Caribbean, IADB created a Regional Integration Fund to support cross-border infrastructure projects and the harmonisation of regional trade-related regulatory frameworks. Canada, Chile, Colombia, Mexico, Spain, the U.S. and other development partners have contributed to this non-reimbursable fund (IADB, 2011b).

World Bank Group

Strategies

Stronger Connected Solutions (2013)

The World Bank Group (WBG) points out that the increasing demand for consumption goods in emerging markets opens up the opportunity for manufacturing in new countries. This contributes to a more regionally based production model, which increases the need for better regional transport. Accordingly, the WBG supports a number of plans and projects whose aim is to enhance regional transport connectivity in developing countries (WBG, 2013).

Sustainable Mobility for All (Sum4All)

The WBG considers transport as a key sector in improving efficient, safe and green mobility and achieving the Sustainable Development Goals (SDGs). In this context, its strategy, Sum4All, aims at: reducing cost and time of transport; enhancing transport safety; improving access to jobs and services; and curbing carbon emissions through different transport modes. In implementing this strategy, the WBG particularly funds transport projects that enhance regional connectivity, including inter-urban roads. However, the Bank is also increasing funding to other types of transport such as ports, which has a clear regional dimension. In fact, in 2016, most of the International Finance Corporation's transport commitments were allocated to ports (WBG, 2017).

Plans and programmes

Infrastructure Action Plan–African Region

The WBG's Infrastructure Action Plan for the African Region aims at, *inter alia*, enhancing competitiveness and boosting employment. In transport, a focus is on improving connectivity in order to increase regional integration and trade. The Action Plan encompasses both hard and soft projects. On the hard side, the focus is on addressing missing links in transport; on the soft side, the plan concentrates on building the capacities of regional organisations in project development and operations, as well as helping improve the enabling environment for private investment in transport through reforms in labour and land regulations (WBG, n.d.).

Africa Transport Policy Programme

The WBG co-ordinates the Africa Transport Policy Programme, which is a partnership of more than 40 African countries, RECs and international organisations. It finances projects to integrate national transport networks regionally, improve transport management, and promote the inclusion of remote areas to transport networks. A trust fund finances projects for the management and monitoring of corridors, modernisation of trucking services, review of strategic plans, and co-ordination of policies through dialogue between RECs and national governments (SSATP, 2015).

South Asia Regional Integration Programme

Trading within South Asia costs more than trading between South Asia and other regions. As a result, intra-regional trade within South Asia consists of less than 5% of total trade in

the region. The WBG states that, if barriers to trade with neighbours were removed, intra-regional trade in South Asia could increase from USD 28 billion in 2016 to 100 billion. Some important barriers to trade include precarious transport networks, onerous logistics and regulatory impediments. In this context, two of the three pillars of the South Asia Regional Integration Programme address regional transport and trade facilitation, with the aim of increasing regional trade. Relevant projects include support to the enhancement of logistics services and the development of economic corridors, such as the Mizoram Roads Regional Connectivity Project in India (WBG, 2018a).

Economic and Monetary Community of Central Africa Transport and Transit Facilitation Programme

The Economic and Monetary Community of Central Africa Transport and Transit Facilitation Programme is to help enhance access of Central African Republic, Cameroon and Chad to world markets as well as to promote regional trade among its member states. With this aim, the WBG supports the rehabilitation or spot interventions of the region's corridors, such as the deteriorated sections of the Douala - N'Djamena corridor (WBG, 2018b).

Examples of projects

Aviation Investment Project - Vanuatu

The WBG provided a USD 60 million loan to Vanuatu in 2015 to finance the upgrading of runways, improve terminals, and enhance traffic control management. It also funded capacity building to identify the long term needs of air transport as well as to develop an Airport Master Plan and an Aviation Sector Strategy. The support is expected to make air transport more efficient and safer. Since aviation is a vital means of regional and global connectivity for this country, the project could have a significant impact on international movement of people and goods to and from Vanuatu (WBG, 2015)

Mizoram State Roads II Regional Connectivity Project – India

The Mizoram State Roads II Regional Transport Connectivity Project aims at improving the regional trade corridors in the Mizoram State of India, which borders with Myanmar. The USD 107 million funding from the WBG is directed to widen cross-border roads, construct truck stops and build the institutional capacity of the Public Works Department in managing the corridors (WBG, 2018c).

Regional Trade Facilitation and Competitiveness Project – Burkina Faso and Côte d'Ivoire

With USD 100 million loans, the Regional Trade Facilitation and Competitiveness Project supports the efforts of the Burkinabe and Ivorian Governments in enhancing trade by reducing transport costs and delays along the Abidjan-Ouagadougou corridor. Specifically, it aims at: the establishment of an efficient market for cargo handling and trucking services; improvement of operational efficiency at terminals; enhancement of the competitiveness of maritime and inland gateway; and streamlining transit and customs clearance through better information flows (WBG, 2017).

Regional Connectivity Project – Bangladesh

The Bangladesh Regional Connectivity Project aims to increase international trade by addressing transport-related bottlenecks. The USD 150 million loan is directed to reduce congestion by expanding the capacity of inland ports along rivers, particularly in strategic areas for trade with India, Bhutan and Nepal. It is also used to remove non-tariff barriers in ports by streamlining and modernising customs procedures (WBG, 2018d).

Notes

[1] The amounts of China's finance for transport connectivity in 2014-2015 include all types of flows, namely preferential export buyer's credit, concessional loans, interest-free loans and grants.

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Annex A. Technical notes

Data source

The official development finance (ODF) data in this report include concessional official development assistance (ODA) and non-concessional developmental other official flows (OOF). It excludes non-developmental OOF, such as officially supported export credits,1 whose main objective is commercial and not developmental. The ODF data was extracted from the Creditor Reporting System (CRS) Aid Activities database (hereinafter "CRS" database), which includes project level information reported to the Development Assistance Committee (DAC) Secretariat by more than 60 bilateral and multilateral development partners. The eligible ODA recipient countries can be consulted in the DAC List of ODA Recipients http://www.oecd.org/dac/stats/documentupload/DAC_List_ODA_Recipients2014to2017_flows_En.pdf.

The private investment data for ODA-recipient countries in this report were mostly derived from the World Bank's Private Participation in Infrastructure (PPI) project database https://ppi.worldbank.org/, which captures investment flows - both domestic and foreign - and other information of infrastructure projects in developing countries at the project level. In addition, the commercial Dealogic Projectware database was used as a supplementary dataset. This database contains information on trade finance transactions for 31 OECD countries and 80 non-OECD countries, collected directly from banks and organisations involved in deals. While some data may have a component of public or development partner financing, it is not possible to determine their amounts or proportions with this dataset.

The data for amounts mobilised from the private sector in this report was based on the 2016 OECD-DAC Survey *Amounts Mobilised from the Private Sector in 2012-2015 by Official Development Finance Interventions* which captures amounts mobilised from the private sector through guarantees, syndicated loans, shares in collective investment vehicles, direct investment in companies and credit lines. This survey was based on a sample of 72 development finance institutions (DFIs) and international finance institutions (IFIs).

Screening of transport connectivity projects

All transport projects were screened using the method described below. All amounts are in commitments and in current USD prices since disbursements and constant prices for the data on private flows are unavailable.

ODF data

From the CRS database, Transport & Storage projects (Sector Code 210) were extracted for 2014 and 2015. However, projects with an amount of less than 1% of total commitments for transport connectivity were excluded. The projects were then determined as transport connectivity or not based on the following method.

- Projects under the sub-sector "Water transport" (i.e. port; Purpose Code 21040) were considered connectivity as they generally involved international ports, unless the project description clearly indicated otherwise. The same applied to the sub-sector "Air transport" (Purpose Code 21050) as they also generally involved international airports. Projects in these two sub-sectors are referred to as ports and airports in this report.
- Under the sub-sector "Road transport" (Purpose Code 21020) and "Rail transport" (Purpose Code 21030), projects that were cross-border, connected major cities, or constituted part of a country's primary network or international transport corridor, were considered connectivity. Projects involving ring-roads, which are usually part of a national primary transport network, were also considered connectivity. On the other hand, projects involving urban and rural transport infrastructure were not considered connectivity projects—therefore, many urban projects with large amounts of funding for metros and city roads were excluded. Furthermore, projects that financed vehicles, rolling stocks, airplanes, ships and other carriers of goods and people that were not part of a fixed infrastructure were also not considered connectivity.
- Projects under "Transport policy & administrative management" (Purpose Code 21010), "Storage" (Purpose Code 21061) and "Education and training in transport & storage" (Purpose Code 21081) that promoted policy dialogue and/or aimed at harmonising regulations, were considered connectivity projects.
- Projects in "Trade facilitation" (Purpose Code 33120) were considered connectivity when they involved reducing barriers to international trade at the location of the transport infrastructure, such as One Stop Border Post or streamlining customs clearance at ports. Projects involving financial support for local companies, small agricultural producers, and banks unrelated to transport projects were excluded.
- General budget support was not considered, as the total amount reported to the DAC each year is small compared to the amount for transport, so estimating the amount benefiting transport connectivity would not make much difference.

Based on the above criteria, of the 4 549 mostly transport projects in the CRS database for 2014 and 2015, 546 projects in 101 ODA recipient countries were considered transport connectivity for this report.

Private investment data

From the PPI and Dealogic Projectware databases, transport sector projects for 2014 and 2015 were screened based on the same criteria as ODF projects in the CRS. However, lease and management, refinancing deals and pure share purchase were excluded. As a result, of the 272 transport projects in the PPI database for 2014 and 2015, 177 projects in 19 ODA-recipient countries were considered transport connectivity for this report.

Private sector mobilisation data

For mobilisation data, projects in 2014 and 2015 were also screened based on the criteria for CRS projects. However, due to confidentiality of disaggregated project information in the OECD-DAC survey on private sector mobilisation, most project descriptions were sought from media coverage and websites of the DFIs that carried out the mobilisation or the private company that provided financing. Transport projects with little or no information were not considered as connectivity. As a result, of the 67 transport projects

with amounts mobilised from the private sector, 27 projects in 17 ODA-recipient countries were included.

Other categorisation in ODF data

Hard and soft infrastructure projects

Transport connectivity projects financed by ODF were categorised as either addressing hard or soft infrastructure. Hard infrastructure projects generally involve building, rehabilitating or upgrading physical infrastructure of roads, railways, ports or airports. Soft projects are those that address: policies, regulatory mechanisms, or institutional frameworks of the transport sector; or operational efficiency and functioning of hard transport infrastructure. If a project description included both hard and soft components, the project was considered hard, since in general the hard component tends to cost more. On the other hand, all projects in Transport Policy & Administrative Management (Purpose Code 21010), Education and training in transport & storage (Purpose Code 21081), and Trade facilitation (Purpose Code 33120) were considered soft.

ODF using private sector instruments

Transport connectivity projects in the CRS database that directly supported private sector entities by using private sector instruments (PSI) were also identified, although with difficulty as the Channel Code did not have a specific category for private sector entities.[2] Therefore, transport connectivity projects whose Channel Codes were marked "Other" were selected by *reducto ad absurdum*. In other words, when the recipient organisation was neither the public sector nor non-governmental organisations, they were assumed to be private sector entities. Further screening eliminated recipient organisations that were state-owned enterprises.

Estimates and figures

Estimates on China's financing for transport connectivity

Transport connectivity infrastructure projects financed by China in 2014-2015 were collected through desk research based on the China Aid database of the William & Mary Research Lab, the Reconnecting Asia database of the Centre for Strategic and International Studies, and the Export-Import Bank of the United States. Projects were considered as transport connectivity financed by China in 2014-2015 if: a) they matched the criteria used in this report, b) the financing amount and the commitment year were clear, and c) they were verified by other sources, such as websites of relevant official institutions, information by state-owned enterprises and media reports. The projects and the links to sources are provided below in Table A.1:

Table A.1. Transport connectivity projects financed by China in 2014-2015

No.	Year	Agency	Recipient	Sector	Commitment (USD million)	Type of Finance	Project Description	Type of Source
1	2014	Export Import Bank of China (CEXIM)	Sri Lanka	Road	1 800	Concessional loan and/or preferential export buyer's credit	Extension of the 96 km Sri Lanka Southern Express from Matara to Hambantota Port, which eventually aims to reduce the transit time between Colombo and Hambantota Port.	State media
2	2014	CEXIM	Montenegro	Road	944	Preferential export buyer's credit	Construction of a 42 km section of the Bar-Boljare Highway in Montenegro.	Official source
3	2014	CEXIM	Macedonia	Road	717	Preferential export buyer's credit	Miladinovci-Stip and Kicevo-Ohrid highway (a total of 110 km).	Official source
4	2015	CEXIM	Bolivia	Road	579	Preferential credit line	Construction of the Rurrenabaque-Riberalta Highway.	State Media
5	2015	Chinese Government (GOV), CEXIM	Costa Rica	Road	395	Not available	Highway from San José to Limón	Research Institute
6	2014	CEXIM	Cameroon	Road	386	Preferential export buyer's credit	Construction of the Kribi–Lolabé highway (35km)	Official source
7	2015	CEXIM	Serbia	Road	301	Not available	Corridor XI, E-763 Highway Belgrade – South Adriatic, Obrenovac – Ub and Lajkovac – Ljig sections, connecting Serbia and Montenegro as part of the Belgrade – South Adriatic Highway (Corridor XI).	Official source
8	2015	CEXIM	Bolivia	Road	253	Loan	Construction of a159 km highway linking the towns of El Espino, Charagua and Boyuibe	Media
9	2014	CEXIM	Indonesia	Road	235	Not available	Development of Cileunyi -Sumedang - Dawuan Toll Road - Phase II	Official source
10	2014	CEXIM	Indonesia	Road	200	Not available	Toll Road Development of Solo - Kertosono	Official source
11	2015	GOV	Maldives	Road	188	USD 116 million grants and 72 million loans	Construction of the 1.39km-long China-Maldives Friendship Bridge between capital Male and airport island Hulhule	Contractor
12	2014	GOV	Cambodia	Road	120	Concessional loan	Cambodian National Road No. 58 Project of 174 km, along the North-west border of Cambodia, connecting the border regions with the commercial centres in the country.	State media
13	2014	GOV	Maldives	Road	82	Not available	Construction of the Laamu Ring Reef Road Connection of 14.9 km, connecting four islands nearby (Gan, Maandhoo, Kadhdho and Fonadhoo).	Contractor
14	2015	CEXIM	Indonesia	Road	66	Preferential export buyer's credit	Construction of the 11 km Nipad Reba board - Sama Linda highway	Contractor

Road subtotal: USD 6 billion								
15	2015	CEXIM	Lao PDR	Railway	4 600	Not available	The construction of China-Lao railway of 418 km, with more than 60% being bridges and tunnels	Official source
16	2014	\	Kenya	Railway	3 200	USD 1,600 million preferential export buyer's credits and 2,000 million loans	Nairobi-Mobassa standard gauge railway of 472 km	Research institute/Official source
17	2015	\	Iran	Railway	1 785	Loan	Electrification and upgrade of the 575 km railway connecting Mashhad to Tehran, which is a part of the 3,200 km railway connecting Urumqi in China and Tehran in Iran.	Official source
18	2014	CEXIM	Indonesia	Railway	150	\	Railway Double Tracking and Signaling Improvement Solo - Surabaya (Phase I: Solo - Paron)	Official source
Railway subtotal: USD 10 billion								
19	2015	\	Iran	Port	120	\	Supply of equipment for the completion of Shahid Rajaee Ports's development	Media
Port subtotal: USD 120 million								
20	2014	CEXIM	Sudan	Airport	700	Loan	Construction of Khartoum's new airport. The new terminal and its facilities, to be built on 86,000 square metres, will receive over 7.5 million passengers annually.	Contractor
21	2014	CEXIM	Zambia	Airport	360	\	Upgrade of the Kenneth Kaunda International Airport	Official source
Airport subtotal: USD 1 billion								
2014-2015 transport connectivity infrastructure total: USD 17 billion								

Source:
1. Xinhua News Agency, http://www.xinhuanet.com/world/2015-07/04/c_127985269.htm
2. The Government of Montenegro, http://www.gov.me/en/News/141755/China-s-Exim-Bank-approves-loan-worth-EUR-687-million-for-highway-s-construction.html
3. The Embassy of China in Macedonia, http://mk.china-embassy.org/chn/xwdt/t1131062.htm
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5. Inter-America Dialogue, https://www.thedialogue.org/wp-content/uploads/2016/02/Dialogue-LoansReport-v4-lowres.pdf
6. The Embassy of China in Cameroon, http://cm.mofcom.gov.cn/article/zxhz/sbmy/201406/20140600615608.shtml, http://cm.mofcom.gov.cn/article/jmxw/201404/20140400545187.shtml
7. Ministry of civil engineering, transportation and infrastructure of Serbia, http://www.mgsi.gov.rs/sites/default/files/PROJECT%202015.pdf
8. Fox News, http://latino.foxnews.com/latino/news/2015/09/20/china-eximbank-provides-253-mn-loan-for-highway-construction-in-bolivia/print
9. Ministry of National Development Planning of Indonesia, https://www.bappenas.go.id/files/4314/1387/1046/drppln-2014.pdf
10. Ministry of National Development Planning of Indonesia, https://www.bappenas.go.id/files/4314/1387/1046/drppln-2014.pdf
11. China Maldives Friendship Bridge Official Website, http://cmfbshec.com/index.aspx?lanmuid=81&sublanmuid=651&id=615

12. Xinhua News Agency, http://www.xinhuanet.com/overseas/2015-03/19/c_1114694811.htm
13. Jiangsu Traffic Engineering Group, http://www.jteg.cn/up_files/P14-9_FIT).pdf
14. Beijing Urban Construction Group, http://english.bucg.com/news/20151018/210108.shtml
15. National Development and Reform Commission of China, http://www.ndrc.gov.cn/xwzx/xwfb/201511/t20151113_758553.html
16. China-Africa Forum, http://www.fmprc.gov.cn/zflt/chn/zfgx/t1288725.htm
17. Ministry of Commerce of China, http://www.mofcom.gov.cn/article/i/jyjl/j/201602/20160201254072.shtml
18. Indonesia Government, https://www.bappenas.go.id/files/4314/1387/1046/drppln-2014.pdf
19. Iran English Radio, http://english.irib.ir/radioculture/iran/economy/item/215750-$120mln-chinese-finance-for-iran-shahid-rajaee-port-development
20. China Harbor Engineering Company Ltd., http://www.chec.bj.cn/tabid/732/InfoID/6004/Default.aspx
21. The Embassy of China in Zambia, http://zm.chineseembassy.org/chn/sgzxdthxx/t1439473.htm

Estimates on current spending and investment gap for transport connectivity

With respect to current spending, the 2015 report *Driving Sustainable Development through Better Infrastructure: Key Elements of a Transformation Program* by Brookings *et al* estimated that current global infrastructure spending amounted to around USD 2-3 trillion per year - of this amount, developing countries accounting for roughly two-thirds. However, it is not possible to determine how much of these concerned transport connectivity. Therefore, first, the amounts of current spending for transport infrastructure were calculated based on the United Nations Conference on Trade and Development (UNCTAD)'s World Investment Report (2014) (See Table IV.2 in UNCTAD 2014 report), which indicates that approximately 35% of infrastructure spending was in transport. Second, as 54% of ODF for transport projects in 2014-2015 was considered as transport connectivity, the same proportion was used as a proxy and applied to the estimated annual global spending for transport connectivity. As a result, the current spending on transport connectivity is estimated at USD 315 billion (54% of the 35% of the 2/3 of USD 2.5 trillion - the average of USD 2-3 trillion).

The same calculation method is applied to the estimate for the annual financing gap. Brookings *et al* estimated the financing gap for global infrastructure at around USD 3.5 billion. Based on this amount, this report thus calculated that the annual financing gap for transport connectivity infrastructure is approximately USD 440 billion (54% of the 35% of the 2/3 of the USD 3.5 trillion).

In addition, the proportion of developing country government spending of roughly 80% was derived by subtracting ODF (USD 15 billion), private investment (USD 52 billion), and export credits (roughly USD 1 billion) from the estimated total current financing (USD 315 billion) and divided by the total (USD 249 billion/315 billion).

Comparison of annual estimates for spending and investment needs of infrastructure and transport

Table A.2. Annual estimates for spending and investment needs of infrastructure and transport

Worldwide estimates		World infrastructure	Developing countries' infrastructure	World transport infrastructure	Developing countries' transport infrastructure
Brookings et al, 2015	Annual Spending	2 000-3 000			
	Investment need	6 000	3 000-4 000		
	Financing gap	3 000-4 000			
Mckinsey Global Institute (2016)	Annual Spending	2 500	942	1 150	
	Investment need	3 300	1 930	1 247	
	Financing gap	1 200	988	97	
Mckinsey Global Institute (2017)	Annual Spending	2 539	931	1 089	
	Investment need	3 700	2 338	1 558	
	Financing gap	1 161	1 407	469	
UNCTAD (2014)	Annual Spending		870		300
	Investment need		1 620-2 530		350-770
	Financing gap		750-1 660		50-470
World Bank (2013)	Investment need		864		254
	Incremental investment need in Capex		781		283
UNSDSN (2015)	Incremental investment need		1 288-1 294		617
Regional estimates	Region		Regional infrastructure	Regional transport	
AsDB (2017)	25 developing member countries	Annual spending	881		
		Investment need	1 211		
		Financing gap	330		
	45 developing member countries	Investment gap	1 503	520	
	15 developing member countries	Annual spending	46	22	
World Bank (2010)	Sub-Saharan Africa	Annual spending	45.3	16.2	
		Investment need	93.9	18.2	
		Financing gap	30.6	1.9	
ICA (2017)	Africa	Annual spending	62.5	24.5	
PIDA, (n.d.)		Investment need		68	

Note: USD billions.

1. For developing countries, data from Mckinsey Global Institute include all Eastern Europe and Middle-East countries as well as Chinese Taipei.
2. Estimates for additional investment for climate change are not included in this table.
3. The number of incremental investment need in Capex is calculated and adjusted by UNSDSN (2015) based on the World Bank (2013) report.

Source:

Brookings *et al* (2015), *Driving Sustainable Development through Better Infrastructure: Key Elements of a Transformation Program*, The Brookings Institution, the Global Commission on the Economy and Climate, the New Climate Economy and the Grantham Research Institute, https://www.brookings.edu/wp-content/uploads/2016/07/07-sustainable-development-infrastructure-v2.pdf.

Mckinsey Global Institute (2016), *Bridging Global Infrastructure Gaps*, Mckinsey & Company, June 2016, https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/bridging-global-infrastructure-gaps.

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UNCTAD (2014), *World Investment Report - Investing in the SDGs: An Action Plan*, United Nations, http://unctad.org/en/PublicationsLibrary/wir2014_en.pdf.

World Bank (2013), *Capital for the Future: Saving and Investment in an Interdependent World,* Global Development Horizons, Washington, DC, http://dx.doi.org/10.1596/978-0-8213-9635-3.

UNSDSN (2015), *Investment Needs to Achieve the Sustainable Development Goals: Understanding the Billions and Trillions*, Working Paper, Version 2, 12 November 2015, http://www.unsdsn.org/wp-content/uploads/2015/09/151112-SDG-Financing-Needs.pdf.

AsDB (2017), Meeting Asia's Infrastructure Needs, Asian Development Bank, http://dx.doi.org/10.22617/FLS168388-2.

World Bank (2010), *Africa's Infrastructure: A Time for Transformation*, African Development Forum, Washington, DC, http://dx.doi.org/10.1596/978-0-8213-8041-3.

PIDA (n.d.), *Infrastructure Outlook 2040*, The Programme for Infrastructure Development in Africa, http://afdb-org.jp/file/news-and-pressrelease/PIDA_EN_140523_ONRI-Rapport_jp.pdf.

Estimates for the share of mobilisation in private investment for transport connectivity

Mobilised private investment by DFIs and IFIs for transport connectivity amounted to on average around USD 820 million *per annum* in 2014 and 2015, based on the Mobilisation Survey. It is assumed that a large portion of mobilised amounts for transport connectivity has been captured since the Survey covered two major instruments (i.e. guarantees and syndicated loans) with 90% or 72 of the invited institutions responding. Theoretically, the mobilised amount from the private sector for transport connectivity of USD 820 billion is part of the amount of private investment for transport connectivity of USD 52 billion although they are derived from two separate databases. Based on this assumption, the average mobilised amount from the private sector for transport connectivity was equivalent to around 2% of total private investment for transport connectivity.

Notes

[1] This applied exclusively to a large volume of OOF loans from the Export-Import Bank of Korea that was not developmental.

[2] New Channel Codes for private sector institutions have been developed applied to data from 2016 onwards.

Glossary

Transport connectivity infrastructure

International airports and ports, as well as railways and roads that are cross-border, part of corridors and networks, or link major cities within a country.

Bilateral development partners

Countries that provide assistance and resources to developing countries. Twenty-nine bilateral development partners report to the Development Assistance Committee (DAC) in Organisation for Economic Co-operation and Development (OECD), including Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States and the European Union. Other bilateral development partners including Brazil, India, People's Republic of China, and so on, do not report to the DAC.

Multilateral development partners

International institutions with governmental membership which conduct all or a significant part of their activities in favour of development and aid recipient countries. They include multilateral development banks (e.g. World Bank, regional development banks), United Nations agencies, and regional groupings (e.g. certain European Union and Arab agencies).

Creditor reporting system (CRS)

The OECD/DAC statistical database recording individual aid activities available at https://stats.oecd.org/Index.aspx?DataSetCode=CRS1.

Official development assistance (ODA)

Grants or loans to countries and territories on the DAC List of ODA Recipients (http://www.oecd.org/dac/stats/documentupload/DAC_List_ODA_Recipients2014to2017_flows_En.pdf) (developing countries) and to multilateral agencies which are: (a) undertaken by the official sector; (b) with promotion of economic development and welfare as the main objective; (c) at concessional financial terms (if a loan, having a grant element of at least 25 per cent. In addition to financial flows, technical co-operation is included in aid. Grants, loans and credits for military purposes are excluded. Transfer payments to private individuals (e.g. pensions, reparations or insurance pay-outs) are in general not counted.

Other official flows (OOF)

Transactions by the official sector with countries on the DAC List of ODA Recipients which do not meet the conditions for eligibility as ODA, mainly because they have a grant element of less than 25%.

Official development finance (ODF)

Used in measuring the inflow of resources to recipient countries: includes (a) bilateral ODA, (b) grants and concessional and non-concessional development lending by multilateral financial institutions, and (c) OOF for development purposes (including refinancing loans) which have too low a grant element to qualify as ODA.

Hard transport connectivity infrastructure

Fixed physical infrastructure of roads, railways, airports and ports. Projects supporting hard transport connectivity infrastructure generally involve construction, rehabilitation and modernisation, expansion and upgrade, as well as maintenance of this infrastructure.

Soft transport connectivity infrastructure

Policies, regulatory mechanisms, institutional frameworks, and operations that facilitate the establishment or efficient functioning of the hard components. Projects supporting soft transport connectivity infrastructure generally involve harmonising transport procedures and regulations, enhancing the management of cross-border transport through, *inter alia*, customs clearance, capacity building of transport authorities, supporting feasibility studies, and so on.

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The Development Dimension

Enhancing Connectivity through Transport Infrastructure

THE ROLE OF OFFICIAL DEVELOPMENT FINANCE AND PRIVATE INVESTMENT

Transport infrastructure is crucial to connect developing countries and help them to boost trade, growth and regional integration. This is because cross-border or long-distance roads and railways as well as international ports and airports are needed to move products and people around in a globalised world.

What can bilateral and multilateral development partners do to help connect developing countries through transport infrastructure? This report takes stock of continental and regional transport plans in Africa, Asia, Latin America and parts of Europe to place development co-operation in context. It then examines the strategies and activities of development partners for transport connectivity. It also takes a hard look at the allocation of official development finance for transport connectivity, particularly in relation to the distribution of private investment for the same types of infrastructure.

How large is the financing gap for transport connectivity to meet the Sustainable Development Goals? What can development partners do to fill this gap? How can they create an environment that can help mobilise more private resources? The report provides a comprehensive picture of the current state of play as well as food for thought on what can be done to move forward. It also features 16 profiles of development partners and their activities for improving transport connectivity.

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