II. Financing mechanisms for transport infrastructure development

This chapter deals with infrastructure financing, bankability and the respective mechanisms within the ESCAP region that finance transport infrastructure.150 The study report Comprehensive Planning of Eurasian Transport Corridors to Strengthen the Intra-and Inter-Regional Transport Connectivity (UNESCAP, 2017) estimates the priority investments needed for upgrading the railway routes of the ESCAP Eurasian Transport Corridors to be USD 21.470 billion.[151] The same report stated USD 22.153 billion[152] was needed to upgrade road corridor routes, given the costs for connecting roads and railways to the Korean Peninsula and the related costs for upgrading rail and road infrastructure.

II.1 Financing transport infrastructure

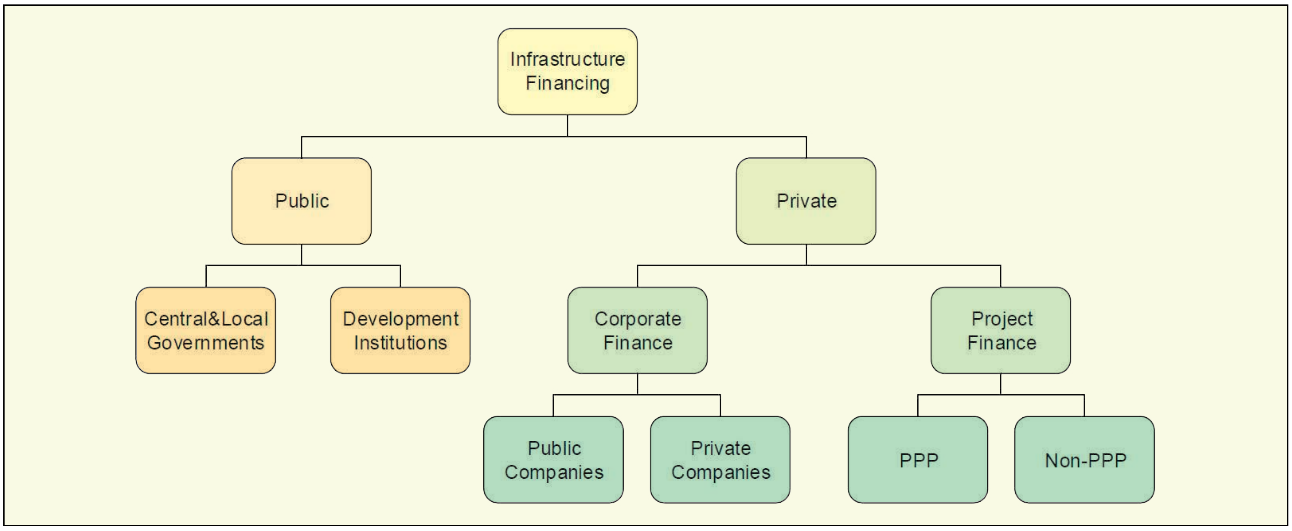
Investment is needed to develop new transport infrastructure and to rehabilitate what is already in place along the ESCAP Eurasian Transport Corridors, to meet transport and trade requirements between Asia and Europe. These investments will have to come from either public or private sources (see figure 31):

[150] This chapter is largely based on Chapter II.3 of the Comprehensive Planning of Eurasian Transport Corridors to Strengthen the Intra- and Inter-Regional Transport Connectivity, Study Report (2017), with some minor changes and additions.

[151] Comprehensive Planning of Eurasian Transport Corridors to Strengthen the Intra- and Inter-Regional Transport Connectivity, Study Report (2017); p. 87.

[152] Comprehensive Planning of Eurasian Transport Corridors to Strengthen the Intra- and Inter-Regional Transport Connectivity, Study Report (2017); p. 90.

Figure 31 Infrastructure finance by agent



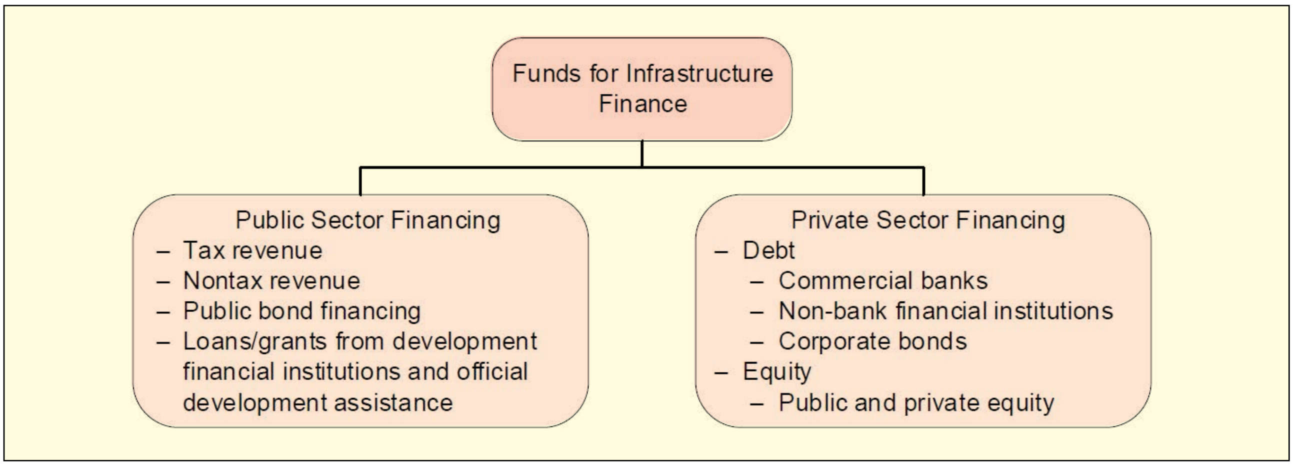
Source: Adapted from G. Inderst, 2016.[153]

Most of this finance comes from the public sector. For example, according to the Asian Development Bank's (ADB) observations on its 25 developing member counties (96 per cent of Asia's total population), 92 per cent of infrastructure in Asia is financed by the public sector.[154] Public sector providers of finance are central and local governments, other governmental agencies, national and multilateral development banks and other development institutions.

Private sector infrastructure financing can come from entities such as commercial banks and non-bank financial institutions. Project finance may also come in the form of public-private partnerships (PPPs) that have both public and private equity. Borrowing from the private sector is justified by the future user fees that a project may be entitled to gather, such as track access charges, road tolls, landing fees at airports, dockage and port dues, and mooring fees.

The figure below illustrates the various sources of funding.

Figure 32 Sources of funds (capital) for infrastructure financing



Source: Adapted from Asian Development Bank, "Meeting Asia's Infrastructure Needs", 2017.

153 Inderst. "Infrastructure Investment, Private Finance, and Institutional Investors: Asia from a Global Perspective."

154 Asian Development Bank, 2017. "Meeting Asia's Infrastructure Needs."

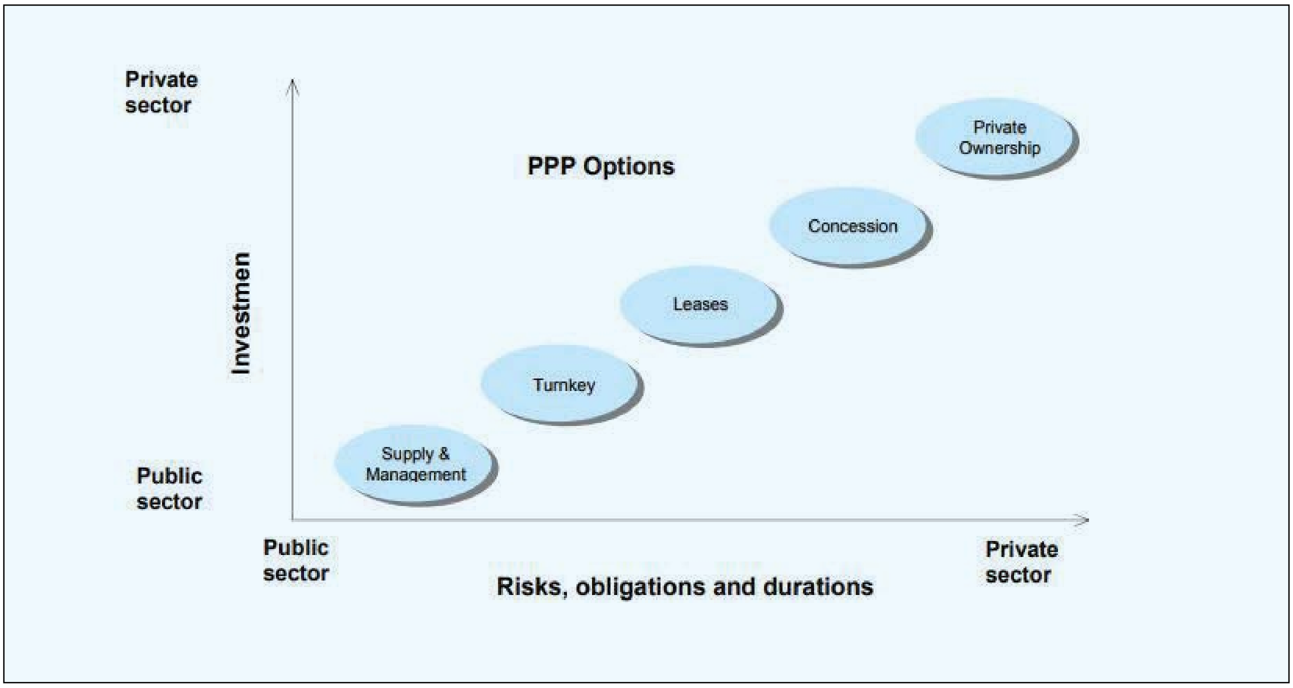
Transport infrastructure investments are distinctive in that they require a high level of sector expertise. Many different parameters have to be taken in account – such as transport demand analysis and forecasting – and it is necessary to deal with long periods of infrastructure construction and cost recovery. Because the cost of transport infrastructure is significant, the main challenge is to estimate a realistic and unbiased estimate of infrastructure cost. Experience has shown that cost overruns and actual end-product usage below projections are not uncommon for large projects.

Public Private Partnerships

Public-private partnerships are contractual arrangements between governments and private business entities for the provision of a public service that might include the development of the infrastructure needed for the delivery of this service.[155] This type of contract defines the allocation of resources, risks, responsibilities and rewards between both the government and the private business entity. It presents advantages such as risk mitigation and increased efficiency, but also bears disadvantages such as possible additional costs compared to public procurement in the form of higher borrowing and transaction costs.

The United Nations Economic and Social Commission for Asia and the Pacific identified the main types of PPP models in its Guidebook on Public-Private Partnership in Infrastructure.[156] Each of the five identified categories have many variants (and in recent times many PPP projects have been combinations of types) depending on the features of the contract (see figure 33).

Figure 33 Basic features of PPP models



Source: ESCAP, Guidebook on Public-Private Partnership in Infrastructure.

[155] Van den Broek, "Transport Corridors in the Greater Tumen Region: Financing Infrastructure Development".

[156] Available at <https://www.unescap.org/resources/guidebook-public-private-partnership-infrastructure>

II.2 Infrastructure project bankability

Due to the large sums involved, it is complicated for investors to decide on whether to invest in an infrastructure project. The required level of technical expertise, long implementation periods and associated risks are just some of the difficulties that can put off investors.

It is therefore important that a project preparation agency address the risks involved in a project in the most transparent and detailed way possible. Bankable projects should comply with the following requirements:[157]

a) Proper documentation and due diligence

It is essential to define a project's timeline and to set clear milestones. It is as important as establishing a project's governance structure and ensuring the provision of all permits (land, construction, etc.) from the necessary authorities. Financial feasibility studies and risk analysis assessments are also requirements for further safe investment.

b) Appropriate covenants – clauses in the lending agreements between the Special Purpose Vehicle and the bank and deal structure

To ensure project bankability, it is necessary to clarify the financial obligations of a Special Purpose Vehicle (SPV) and to safeguard stakeholders' interests. Appropriate covenants include defining concession rights with explained cost-recovery mechanisms for the concessionaire (which is the SPV) and a schedule of payments for the concession. It is also necessary to implement a transparent payment mechanism with incentives for providers to meet the required standards of services, along with defined penalties for failure to deliver.

c) Existence of legal and economic recourse/ protection

These legal recourses include procedures regarding conflict escalation (with terms of settlements and litigation), and there must be economic protection that provides insurance or direct guarantees against political or economic risks.

Project cycle in Multilateral Development Banks[158]

Project components and their bankability can be illustrated well through the project cycles used by Multilateral Development Banks (MDBs).

1) Identification

Countries turn to a multilateral development bank (MDB) for the financing of projects usually included in their national development strategies and plans. Projects are identified based on countries' development strategies, and the bank then selects projects that fit the bank's mission and priorities.

2) Preparation

In the second stage, project documentation is prepared. The borrower country and the bank jointly clarify the project's objectives, risks, alternative development scenarios, the tentative schedule for the project's approval stages, key issues related to the bank's safeguards, etc.

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[159] Asian Development Bank. "Meeting Asia's Infrastructure Needs."

[158] These steps are prepared on the basis of World Bank Group project cycles (available at <http://www.worldbank.org>) and those of ADB (available at <https://www.adb.org>). It is also prepared using the Asian Infrastructure Investment Bank's presentation at the Eurasian Transport Corridors Experts Group Meeting in Beijing, on 5-6 July 2017. For the exact list of stages and necessary documents, the banks should be consulted directly.

3) Due diligence

The project documentation is thoroughly analyzed for conformity with the bank's operational requirements and the project's readiness for implementation. Institutional arrangements are reviewed, and the project timetable agreed between the bank and the requesting government.

Several sets of documentation and assessments are developed during this phase. These include feasibility studies (with technical and engineering designs); economic assessments using cost-benefit analysis (calculations of Economic Internal Rate of Return (EIRR) and Economic Net Present Value (ENPV) etc.); financial assessments including the Financial Internal Rate of Return (FIRR) and the Financial Net Present Value (FNPV); environmental and social impacts (accounting for greenhouse gas emissions, impact on indigenous peoples, resettlement needs); procurement plans; and risk and legal assessments.

4) Negotiation and approval

This phase covers negotiation between parties on loan conditions, on what part of the project's costs the bank may cover, and on related issues. The finalization of legal and financial documents takes place and they are submitted to the bank's board of directors for approval. Documents can include project agreements and loan agreements. If approved, the project moves to the implementation stage.

5) Implementation

During the implementation stage, the borrower government carries out the project while the bank assists the implementing agency with the development of detailed designs, bidding documents, and the procurement of goods, services and works. Project implementation is monitored by the bank and the borrower government, and the bank use data from the monitoring to measure the project's efficacy.

6) Evaluation

After project completion, an assessment is undertaken by a separate evaluation body of the bank (sometimes this evaluation is done jointly with the borrower government). This analysis aims to evaluate a project's finances, its developmental effectiveness, outcomes and results against objectives, and the problems met and lessons learned. The evaluation usually takes the form of a separate report, and the information is used for the assessment of similar future projects.

II.3 Finance mechanisms in the ESCAP region

Substantial financial resources are required to improve road and railway links along the Eurasian Northern Corridor. Preliminary estimates state the need for some USD 44 billion to enhance transport infrastructure along the corridor, aside from any extra investment required for road and railway infrastructure on the Korean Peninsula.

There are many options available for infrastructure finance, and they vary according to the ways in which capital is provided and the financial vehicles and instruments used.

a) Multilateral Development Banks

In 2015, MDBs financed 2.5 per cent of infrastructure investment in Asia, and as much as 10 per cent when India and China are excluded.[159] Transport infrastructure projects are very costly to implement, and these projects often require a consortium of MDBs to finance a single project. A consortium can also be formed by banks and financial institutions under regional cooperation programmes.

159 Asian Development Bank. "Meeting Asia's Infrastructure Needs."

Multilateral Development Banks finance infrastructure through credits, loans and grants. These funds can either (i) be transferred to the borrower government to pay for project-related expenses, for which supporting documents should be provided after the expenses have occurred; (ii) be transferred to the borrower government as reimbursement for the eligible costs it has already paid; (iii) stay at the bank, which then directly pays for the eligible works, services and goods; or (iv) be paid by the bank to third parties for the eligible expenditures under special commitments.

Along the Eurasian Northern Corridor, transport infrastructure projects fall under the operational scopes of several MDBs (see tables 9 and 10):

Table 9 Membership in major MDBs of countries along the Eurasian Northern Corridor

Countries along the Northern Eurasian Corridor	**ADB**	**AIIB**	**EBRD**	**EDB**	**ETDB**	**IBRD**	**IDA**	**IsDB**	**NDB**
China	+	+	+			+	+		+
Democratic People's Republic of Korea									
Kazakhstan	+	+	+	+	+	+	+	+	
Mongolia	+	+	+			+	+		
Republic of Korea	+	+	+			+	+		
Russian Federation		+	+	+		+	+		+

Source: Websites of respective MDBs.

Among the major MDBs in the region, the Asian Infrastructure Investment Bank (AIIB) provides financing to the public and private sectors in member countries, through equity financing, loans to its members or loans guaranteed by its members. Grants from the Project Preparation Special Fund are available to member countries that are also recipients of International Development Association (IDA) funding, including IDA Blend Countries. The bank selects projects that have clearly defined development objectives, action plans to achieve these objectives, no alternative sources of funding and are in line with the bank's policies. In the case of projects proposed for co-financing, the bank may accept assessments carried out by third parties. As of October 2017, six of the 21 AIIB-approved projects were in the transport sector.[160]

The project process of the AIIB is guided by its "strategic goals and thematic priorities: sustainable infrastructure, cross-border connectivity and private capital mobilization".[161] Figure 34 below illustrates the different steps of project procedure within the AIIB (the steps are usually similar in other MDBs).

[160] Asian Infrastructure Investment Bank (available at <https://www.aiib.org>) and AIIB presentation at the Eurasian Transport Corridors Experts Group Meeting in Beijing, on 5-6 July 2017.

[161] Available at <https://www.aiib.org/en/projects/process/index.html>

Figure 34 AIIB project process steps

Source: AIIB website.[162]

Other MDBs include the World Bank Group (which includes the International Bank for Reconstruction and Development (IBRD), the IDA, the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA)); the ADB; the European Bank for Reconstruction and Development (EBRD); the Islamic Development Bank (IsDB); the New Development Bank (NDB); the Eurasian Development Bank (EDB); and the ECO Trade and Development Bank (ETDB).

Table 10 Basic financial indicators of MDBs operating in the ESCAP region

		Ordinary capital resources			
	Establishment/ start of operations	**Total assets USD billion as of 31 Dec. 2016**	**Total equity USD billion as of 31 Dec. 2016**	**Paid-in capital USD billion**	**Callable capital USD billion**
ADB*	1966	156.666	48.026	7.154	135.545
AIIB	2016	17.795	17.790	18.065	72.262
EBRD	1991	59.249	16.283	6.550	24.793
EDB	2006	3.255	1.667	1.516	5.484
ETDB	2005	0.638	0.483	1.025	0.424
IBRD**	1944	405.898	39.798	16.109	252.828
IDA**	1960	197.041	158.476	215.403	245.930
IsDB	1975	24.395	11.198	6.914	54.747
NDB	2016	10.054	9.605	10.000	40.000

*Note: * Ordinary capital resources of ADB, reported as of 1 January 2017.*

*** Data on IBRD and IDA, reported as of 30 June 2017.*

Source: Financial statements of respective MDBs.

[162] Available at <https://www.aiib.org/en/projects/process/index.html>

b) Other sources of finance for transport projects

Investment development funds

When a country wants to act as a donor, an investment development fund is established as a corporate business entity, and unlike MDBs, the funds normally use equity financing as their main funding tool. Examples relevant to the Eurasian Northern Corridor are:

- The Silk Road Fund (established in 2014, USD 40 billion). This is a mid/long-term investment and development fund used for supporting infrastructure and industrial cooperation under the Belt and Road Initiative (BRI). Projects in countries participating in the BRI are eligible for financing. The fund focuses on projects that would strengthen cooperation between China and countries where the projects are located; the projects are subject to assessments similar in structure and steps to those conducted by MDBs. Equity is the main tool of investment;[163] other tools include debt investments (bonds, loans), mezzanine investments and mutual investment funds, while management of entrusted assets is also available;[164] and
- The Japan Infrastructure Initiative (established in 2017, 20 billion Japanese yen). This is an investment fund that financially supports projects outside of Japan with the involvement of Japanese manufacturers or engineering companies.

Official development assistance agencies

Official development assistance is financial support provided to developing countries by the central/local governments of donor countries and by multilateral agencies. This support may include grants, loans, disaster relief and technical assistance. Agencies specializing in international development and official development assistance (and which operate in countries along the Eurasian Northern Corridor) are:

- Organization of the Petroleum Exporting Countries (OPEC) Fund for International Development (established in 1976, USD 7.9 billion). This fund provides loans for development projects, technical assistance grants, balance of payment support and trade financing to developing countries (except for OPEC members). The fund works with both the public and private sectors. Transport commitments make up 21 per cent of the fund's total commitments;[165] and
- Japan International Cooperation Agency (JICA, established in 2003, 8.55 billion Japanese yen). This agency provides loans, grant aid, technical assistance and emergency disaster relief to developing countries in a wide range of areas, including transport.[166]

The Republic of Korea channels its official development assistance through two agencies:

- The Korea International Cooperation Agency (KOICA, established in 1991, 647.6 billion Korean won) – provides grants and technical assistance; and
- The Economic Development Cooperation Fund (established in 1987, total commitments USD 11.76 billion). This fund provides development loans, equity investments and guarantees, and is administered by Korea Eximbank. The transport sector is one of its investment priorities.

163 Mezzanine financing is a blended form of debt and equity. It is usually used to fill up a portion of needed investment, after the main part has been secured by a loan. In the case of borrower default, the mezzanine investor will be paid off after the main lender – usually a bank – is paid off. The mezzanine investor therefore takes on a higher risk (risk of not getting the investments back in the case of default) and funds provided via this form of financing are more expensive (have a high interest rate).

164 Silk Road Fund, Co., Ltd. Available at <http://www.silkroadfund.com.cn>

165 OPEC Fund for International Development. Available at <http://www.ofid.org>

166 Japan International Cooperation Agency. Available at <https://www.jica.go.jp>

Between 2006 and 2015, transport commitments made up 15-44 per cent/year of the total development assistance portfolio disseminated via these two channels.[167]

Direct partnership of interested countries

In some cases, countries that jointly develop international transport corridors may directly assist each other in raising necessary funds.

The Greater Tumen Initiative Northeast Asia EXIM Banks Association is one of the approaches available for coordinating governmental resources from partner countries for regional transport development. The Greater Tumen Initiative (GTI) is a cooperation platform in Northeast Asia that has China, Mongolia, Republic of Korea and the Russian Federation as members. The development of transport infrastructure is one of the organization's main priorities, and the initiative has defined several investment priorities in the sector as part of its multilateral transport strategy. To secure funds for the implementation of identified projects, the association – made up of the Export-Import Bank of China, the Development Bank of Mongolia, the Export-Import Bank of Korea, and the State Corporation "Bank for Development and Foreign Economic Affairs" of the Russian Federation – was established in 2014. This approach allows the countries to coordinate financing for projects of a cross-border nature in a mix of donor and developing countries. Projects are identified by the association in cooperation with the member governments of the GTI framework.

Governments, PPPs and the private sector may also turn to domestic institutions while seeking funding for transport infrastructure projects. These include, amongst others, national development banks and export-import banks (such as the Development Bank of Mongolia, China Development Bank, Export-Import Bank of Korea, etc.), and national financing institutions and funds (such as the Far East Development Fund in the Russian Federation, and the India Infrastructure Finance Company).

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[167] Korea International Cooperation Agency. Available at <http://www.koica.go.kr>; official development assistance of Republic of Korea. Available at <http://www.odakorea.go.kr>; Economic Development Cooperation Fund. Available at <https://www.edcfkorea.go.kr>

[168] Greater Tumen Initiative. Available at <http://www.tumenprogramme.org>