Cross-border Infrastructure Financing

Economic Corridor Management

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UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

The objectives of this Lecture

The training provides a big picture of infrastructure financing in cross-border context and introduces several good practices.

It aims to provide a strong understanding of the project lifecycle, key stakeholder, risks and common financing structure of cross-border infrastructure. The module will discuss the political, financial, legal, technical aspects of cross-border infrastructure financing, highlighting most common difficulties encountered in financing.

The training aims to expand understanding:

- Cross-border infrastructure projects lifecycle
- Key features of infrastructure finance
- Various funding sources and financing structure
- Stakeholders and its interest of cross-border infrastructure financing
- Risks and risk mitigation/allocation in infrastructure financing
- Additional considerations relating to cross-border projects
- Project legal structure and respective agreements
- Best practices of successful cross-border infrastructure financing
- Case study (Singapore-Malaysia HSR, GMS Northern Economic Corridor, China-Central Asia Gas Pipeline)

Learning Outcomes

After completing this training module and having consulted the reference readings

you will be able to:

- Build a robust idea that bankable projects result from reasonable risk allocation and benefit sharing.
- Recognize the importance of political cooperation and early-stage stakeholder engagement for a smooth project lifecycle.
- Understand the process of initiating and financing a cross-border infrastructure project and the potential sources of funding.
- Understand the option for financing structures and respective funding sources.
- Understand the features of Public-Private Partnership applied to infrastructure projects.
- Learn lessons from good practices of successful cross-border infrastructure projects.

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Cross-border infrastructure projects lifecycle

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Cross-border infrastructure projects lifecycle

Identification & Planning

- Project Selection, Scoping & Management
- PPP Suitability & Affordability Tests
- Inter-Government Relationship

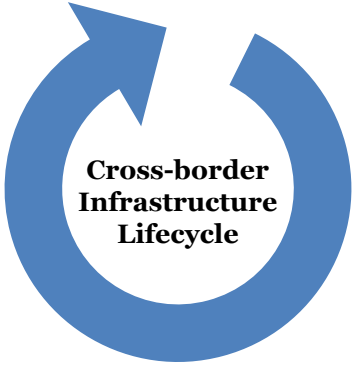
- Agreement on benefits
- Different Criteria for different countries
- National Plans VS. Cross-border projects

Preparation & Procurement

- Feasibility Tests & VfM Assessment
- Contractual Structure Design
- Political & Regulatory Consensus
- Procurement and Financing Schemes

Implementation

- Construction & Operation
- Oversight by the SPV's
- Evolving standards
- Political Stableness



Identification and planning

Activities

1. Needs and option analysis: select the project
2. Scoping the project and collecting information
3. Preliminary technical assessment and economic feasibility analysis
4. Value for Money (VfM) assessment is conducted to estimate net economic benefits
5. Scoping private sector interest and suitability
6. Readiness of the project: Project management plan. It should also include budget estimates and a funding plan

Output

1. Preliminary report and project definition

- project scope
- how much budget/time needed
- clear benefits for all stakeholders involved (e.g. MDBs)

2. Relevant strategies to develop the project

3. Authorizing environment to proceed with the project => joint coordination authority set up

Preparation and procurement

Activities

1. Project is appraised in several dimensions to have technical, commercial, economic, environmental, social and legal feasibility
2. Developing resettlement plans, social development plans and environmental impact management plans to meet social and environmental safeguard requirements of MDBs (if their loans or grants are needed)
3. Defining and drafting contract structure
4. Drafting tender package e.g. Request for Proposal (RFP), Request for Qualification (RFQ) and contract
5. Managing matters during the bid submission stage in open tenders

Output

1. A common framework for all parties to comply
2. Legally-binding contracts
3. Projects is tendered/bidder selected
4. SPV set up=>Governments participation in the SPV after conducting FRM assessment
5. Compliance on ESG issues

Implementation

Activities

Construction phase

1. Ensuring all key activities during the construction phase are carried out well
2. Monitoring tasks during the construction phase. Schedule management and quality management

Operational phase

1. Making sure contractual performance is in accordance with contractual requirements by providing continuous contract management
2. Supporting constant development, quality improvement and innovation
3. Managing finances
4. Variation management
5. Expiry, default and early termination management

Output

1. Overall economic development of the region from the project
2. Establishing a common preparation & implementation framework

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Key features of infrastructure finance

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Key features of infrastructure finance

001

Large capital needs and long maturation cycle

- Compared with national infrastructure, cross-border infrastructure projects are usually larger-scale requiring large upfront capital investments. This is even more challenging as these projects compete with the investment demand of national infrastructure projects which are normally prioritized higher by the national governments.

- The physical cross-border infrastructure is often capital-intensive and potential financial sources can be the governments, bilateral/multilateral development banks and institutions, and private investors if possible.

Key features of infrastructure finance

002

Insufficient rationale for a cross-border project

- Usually, economic and commercial viability of national level projects are generally more meticulous than justification for cross-border projects.
- The main reason is that with national or traditional projects, authorities can define the project scope, derive benefits and services level making it easier to quantify the viability than for a cross-border project. Sometimes, cross-border investment analysis based on national level benchmarks and costs which may undermine the objective to achieve 'win-win' shared benefit from the project to all countries involved, resulting seemly insufficient rationale for a viable cross-border project.

Key features of infrastructure finance

003

Political considerations drive economic incentives

- Commercial arrangements between governments are often dictated more by political than economic considerations.
- This underscores the importance of putting project analysis in a proper institutional and political economy context and sequencing appropriate forms of interventions in stages.

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Various funding sources and financing structure

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Various funding sources and financing structure

The simple fact is that extremely large sums of money are required for cross-border infrastructure projects.

1. Government (sovereign) funding

- Government funding is one of the biggest sources of funding for cross-border infrastructure finance, especially for those projects that cannot generate sufficient financial return in a short term.

- In many cases, the government does engage the SOE or private sector to execute the project on its behalf.

Various funding sources and financing structure

The simple fact is that extremely large sums of money are required for cross-border infrastructure projects.

2. International official lending through ODA/MDBs concessional lending

- MDBs and bilateral ODA agencies are important sources of finance for infrastructure projects.
- International official lending is also being used strategically for the mobilization of additional commercial finance.
- Institutions like the World Bank and the Asian Development Bank also provide other services to enable the better execution of infrastructure projects. This means that even if they do not directly fund a project, they try to add value by providing advisory services such as loan guarantees, advisory services for the creation of suitable policies.

Various funding sources and financing structure

The simple fact is that extremely large sums of money are required for cross-border infrastructure projects.

3. International official lending through ECA financing

- Export credit financing is often widely used to fund critical infrastructure projects (especially those in the developing world) in conjunction with, or as an alternative to, more traditional sovereign funding.
- To promote export, ECAs usually structure a tied lending with “Exporter element” in exchange for a concessional loan term, importing country needs to allocate certain level of loan proceeds to procure engineering, procurement and construction service from exporting country.
- It is also notable that for many infrastructure projects ECAs require a sovereign guarantee in various forms, therefore ECA lending for infrastructure projects may constitute a form of sovereign borrowing too.

Various funding sources and financing structure

The simple fact is that extremely large sums of money are required for cross-border infrastructure projects.

3. International official lending through ECA financing

	Commercial banks	Export credit agencies	Multilateral agencies
Purpose	• Maximise remuneration through upfront fees and loans margins • Minimise risk exposure • Develop commercial relationships with sponsors	• Promote exports from their country • Minimise risk exposure	• Promote sound economic principles • Help mobilise commercial bank funding • Promote best environmental practices
Products	• Corporate or project senior loans	• Insurance or guarantees provided to commercial lenders (European agencies) • Direct loans (other agencies)	• Corporate or project loans • Corporate equity investments
Constraints	• Maturity • Size of unsecured loans	• Cover typically limited to 85% of export contract plus local costs • Average life of loans	• Maturity • Direct loans typically limited to $250 million per project

Various funding sources and financing structure

The idea is to create a partnership, where the government brings in land and other resources, wherein the private party brings in technical expertise and fund.

4. Private sector financing, mostly PPP approach

Viability Gap Funding model

Viability Gap Funding is typically provided by government to guarantee the financial return to private sector investors, where the revenue from an acceptable level of user-fee is less than what would be required to meet commercial viability

User Fee model

User fee model is commonly used for those projects are commercially viable without any government subsidy

Government payment model

In certain cases, government payment is the only source of revenue of the project company during the life of the contract. It is typically used for social infrastructure, such as prisons, hospitals, and schools

Purely government-pays PPPs can also be used to allocate the demand risk to governments

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Stakeholders and its interest of cross-border infrastructure financing

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Stakeholders and its interest of cross-border infrastructure financing

Multilateral Development Banks (MDBs) such as ADB, AIIB, and World Bank are established to promote economic development, they can stimulate cross-border infrastructure development from multiple aspects, besides providing direct investments and mobilize private sector funding, MDBs are also proactively facilitating political coordination

MDBs

- Improve of Infrastructure/realization of resources/economic development
- Promote sound economic principles
- Help mobilize commercial bank funding
- Political/development objectives

For cross-border infrastructure projects, the role of national governments is important as most cross-border projects have been financed by the public sector.

This requires not only long-term planning and inter-governmental agreements but also good quality of coordination in the implementation phase.

National governments and government affiliates

- Improve of infrastructure/realization of resources/security of supply
- Reduction of public sector expenditure
- Access to private sector capital, experience, technology and innovation

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Stakeholders and its interest of cross-border infrastructure financing

Commercial banks are desirable as long-term debt providers, given their flexibility in renegotiating loans and reacting to new or unforeseen conditions. Commercial banks usually provide debt financing through senior loans and guarantee products such as performance guarantees and letters of credit

Commercial banks

- Bankability of deal
- Maximize remuneration through upfront fees and loans margins
- Develop commercial relationships with sponsors
- Minimize exposure to risk

An export credit agency (ECA) is a quasi-governmental institution that acts as an intermediary between national governments and exporters to issue export financing, with aim to encourage the export of goods/international trade by assuming political and other risks

ECAs and policy banks

- Promote exports from their country
- Political and development objectives
- Political objectives

Stakeholders and its interest of cross-border infrastructure financing

As most cross-border projects are public funded, SOEs normally participate the projects as the project sponsor on behalf of their government

As equity holds the lowest priority of the funding contributions in a project, project sponsors bear the highest risk and therefore potentially receive the highest returns.

Project sponsor (mostly SoEs)

- Leverage to increase return on equity investment
- Minimize exposure to risk/ring fencing
- Political risk mitigation
- Strategic support from governments

Private sector investment into cross-border projects is rare for the project complexity, few private sector investors have capacity to conduct due diligence and take the risk profile of cross-border projects, particular projects in developing countries

Private sector equity investor

- Financial return
- Minimize exposure to risk

Cross-border infrastructure projects face more complex and rigorous social and environmental risks than domestic projects. Appropriate environmental and social risk management can reduce the project risks and maximize the benefits that the project can bring to the users and the affected communities

Affected groups

- Minimize project negative externality

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Risks and risk mitigation/allocation in infrastructure financing

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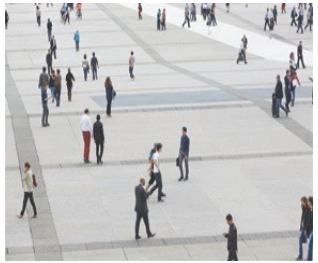
Risks and risk mitigation/allocation in infrastructure financing



There is no perfect one-for-all solution of risk mitigation, each of the project stakeholders is expected to bear the risks which it is best able to manage.

Political risks are an important aspect of risk allocation for cross-border infrastructure projects, host government and intergovernmental agreements are a very effective way of mitigating such risks.

These agreements create a legal framework that binds together the various countries in which the project is located.

Risks and risk mitigation/allocation in infrastructure financing

From a financing perspective, risks are often divided between the pre-completion and operation periods, together with force majeure and wider compliance risks.

Sample risk allocation matrix: toll road

Project viability and performance

Risk category	Description	Public	Shared	Private
Development risk	Can not reach financial close		●	
Construction risk	Construction delay			●
Operating risk	Can not reach performance standard			●

Sample risk allocation matrix: toll road

Project input, output and economics

Risk category	Description	Public	Shared	Private
Supply risk	Can not reach financial close		●	
Demand risk	Traffic level being lower than forecast levels	●	●	
Financial risk	The risk of inflation, interest rate fluctuation, exchange fluctuation	●		

Sample risk allocation matrix: toll road

Force majeure

Risk category	Description	Public	Shared	Private
Physical event	Natural disasters	●	●	
Political event	War, armed conflict, terrorism or acts of foreign enemies	●		

Force majeure is an event (or combination of events) outside the reasonable control of the contracting parties which prevents one or both parties from performing all or a material part of their contractual obligations.

Sample risk allocation matrix: toll road

Compliance and structuring

Risk category	Description	Public	Shared	Private
Law and environment	Not complying with any legal and environmental licenses, permits.			●
Tax and corporate governance	Corporate governance failure or tax related issues			●

Compliance with applicable law and mandatory regulation is each party's risk. The Private Partner is typically subject to an express contractual obligation and will be in breach if it does not comply with applicable law, **subject to change in law relief.**

Risks and risk mitigation/allocation in infrastructure financing

1	Project viability and performance	- ***Development risk***: *cannot reach financial close* - ***Construction risk:*** *construction delay*	- ***Performance risk:*** *project not achieving expected performance level*
2	Operational risks	***Revenue and cost uncertainty:*** *- The revenue stream and cost is not same as forecasted*	***Operational performance risk:*** *-such as key pieces of plant breaking down when they are out of construction warranty and also in the project company failing to meet the performance requirements and facing penalties and even the risk of termination for default.*
3	Political risk	***Force majeure and change in law:*** - *It is important to note that the financing agreements will not include force majeure or change in law provisions. The obligation to repay the loans will continue in the event of force majeure or change in law*	***Compliance and structuring:*** - *The project company will want to review the reasonableness of sanctions for failure to operate to the environmental/social standards required, the payment structure for financial penalties, and any further sanctions for project company breach.*

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Additional considerations relating to cross-border projects

Considerations	Analysis
Room for public borrowing is limited	For many countries, funding through government budgets via debt financing is usually the only choice of funding infrastructure projects. • **Elevated debt in low-income countries and emerging market economies in recent years has raised concerns about countries' capacity to sustain these levels of debt.** • **COVID-19 is adding to spending needs as countries seek to mitigate the health and economic effects of the crisis. The resulting rise in public debt will likely heighten the tension between meeting important development goals and containing debt vulnerabilities.**

Additional considerations relating to cross-border projects

Considerations	Analysis
Political risk: Politically more sensitive	The success of cross-border infrastructure projects relies more on long-term political stability and continuity. Compared with national infrastructure, political risks of cross-border infrastructure projects are heightened given the involvement of multiple countries and geopolitical considerations. The potential political risks include **multiple political cycles, socio-political, leadership changes, breach of contract, default risks, unexpected government interference leading to expropriation, integration risks due to difficulties in coordinating with multiple government entities** and so on. Sometimes, the public counterparties fail to implement the input supply agreement or the off-take agreement. Political election cycles or leadership changes can result in ex-post.

Additional considerations relating to cross-border projects

Considerations	Analysis
Regulatory risk	Regulatory risks of cross-border infrastructure are heightened as there are multiple regulatory systems involved. The participating firms may face regulatory restrictions in the host country, such as adverse and abrupt changes of laws and regulations, **restrictions on engineering activities, protectionism or lack of transparency in government procurement policies, land acquisition related risks, complicated construction legislative systems, cancellation of license and approvals**, and so on. Some cross-border infrastructure such as hydropower infrastructure may have long-term sales contracts with a few customers, which make the project vulnerable to ex-post renegotiation issues. Therefore, cross-border infrastructure projects have to adopt appropriate dispute settlement mechanisms.

Additional considerations relating to cross-border projects

Considerations	Analysis
Institutional capacity	• Due to its complexity, the development of cross-border infrastructure puts high pressure on the governance capacity of the participating countries. • Corruption issues or ambiguous rules in the host countries can hold back private investments or FDI in the cross-border infrastructure. • If the private sector is involved through PPP at the construction or operation stage, interference risks exist when the governments have insufficient contract management and monitoring skills.

Additional considerations relating to cross-border projects

Considerations	Analysis
Technical standard risk: Different technical standard	• Infrastructure needs to be built with one standard across borders. Further, linked national infrastructure may or may not be built with the same technical standards. • The variations in design specifications, construction codes or material standards can become a crucial problem, especially if the project is to be competitively bid. • Most illicit practices occur during procurement and consequently in engineering contracts. Large scale of the investment also requires ample availability of contractors, suppliers, manufacturers in the market for a full competition who are able to comply to such demands.

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Project legal structure and respective agreements

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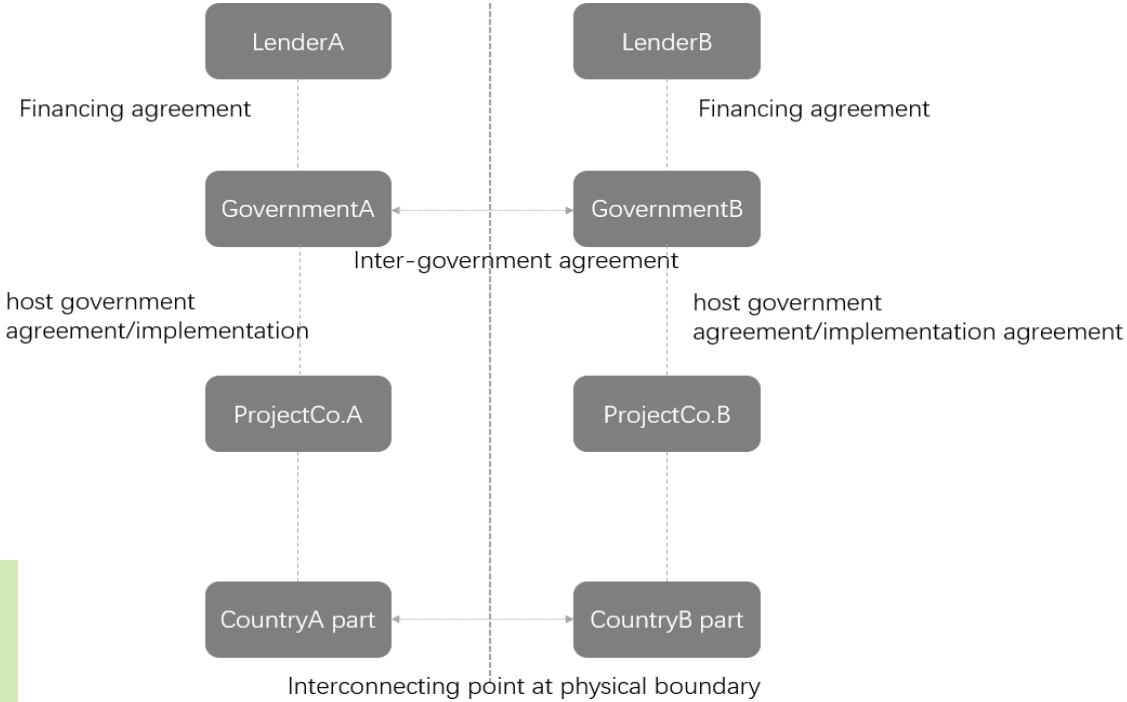
Project legal structure and respective agreements

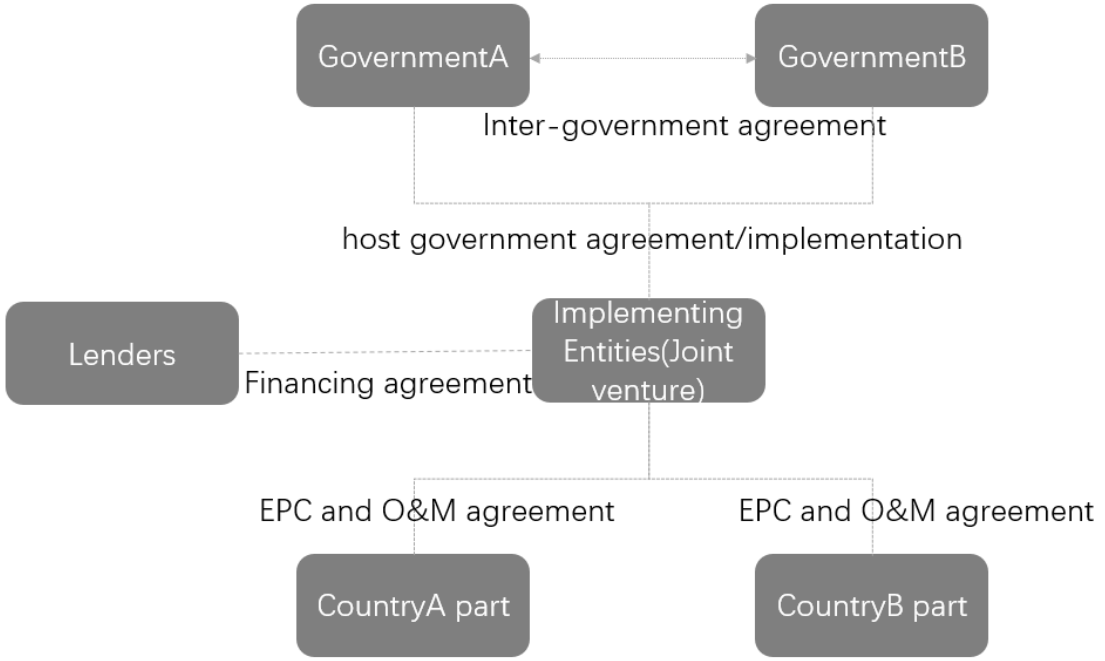
Seperate implementation entities structure



Central Asia-China gas pipeline: CNPC forms JV project Co. with local SOE in each country.

Project legal structure and respective agreements

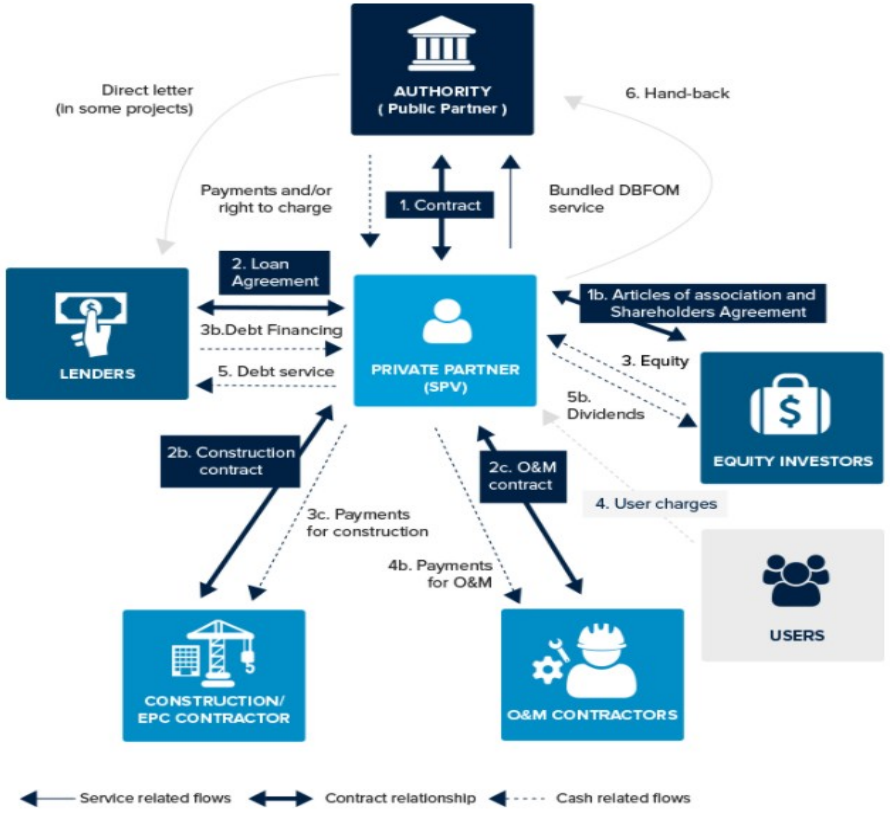
Single implementation entity structure



Addis Ababa-Djibouti Railway: Single implementing entity is joint ventured by two states.

Project legal structure and respective agreements

Project finance legal structure (PPP)



Project legal structure and respective agreements

Bankable project requires a very sophisticated legal structure. For a cross-border project

Why legal structure critical

- **Dependent on project revenue :** The SPV will be dependent on revenue streams from the contractual arrangements and/or from tariffs from end users which will only commence once construction has been completed and the project is in operation.

- **Risk allocation:** through the legal structure the SPV will "pass through" most of the rights and obligations to a downstream structure of contracts, allocating responsibilities, obligations, risks, and cash flows from the SPV to the different private actors through different agreements.

Project legal structure and respective agreements

Bankable project requires a very sophisticated legal structure. For a cross-border project

Key documents
Inter-government agreement providing overarching arrangement with regard to cross-border coordination.
Concession agreement/Implementation agreement between host governments and project company granting project company the right and obligation to build, operate and transfer the asset in a given period.
Offtake agreement between project company and off-taker to guarantee the revenue stream since commercially operation.
Fuel supply agreement with fuel supplier and O&M agreement with O&M operator to guarantee the project can meet the designed output since commercially operation.
EPC contract with contractor allocating the construction risks to contractor.
Loan agreement with lenders and Credit Support with ECAs in regard to loan arrangement and repayment.
Usually project sponsors need sign additional Sponsor Support Agreement with lenders promising to provide contingent support to projects in some circumstances during construction and early operation stage.

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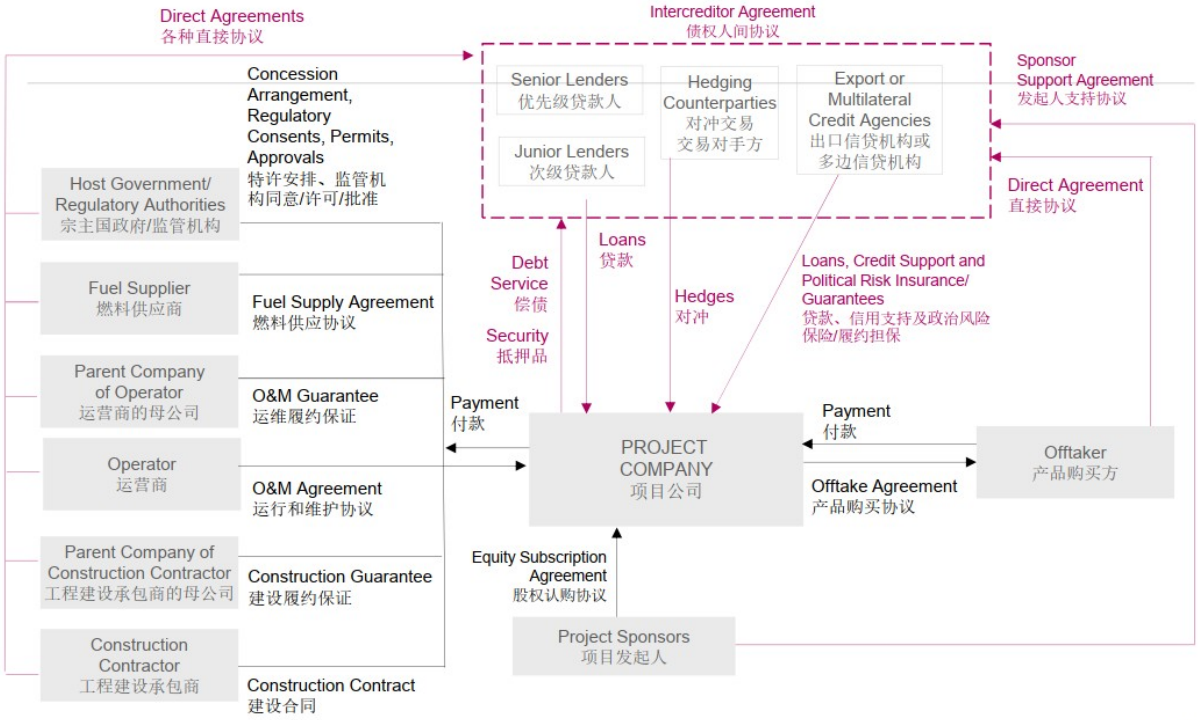
Project legal structure and respective agreements

Bankable project requires a very sophisticated legal structure. For a cross-border project

Sample structure of a showcase project finance project



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Best practices of successful cross-border infrastructure financing

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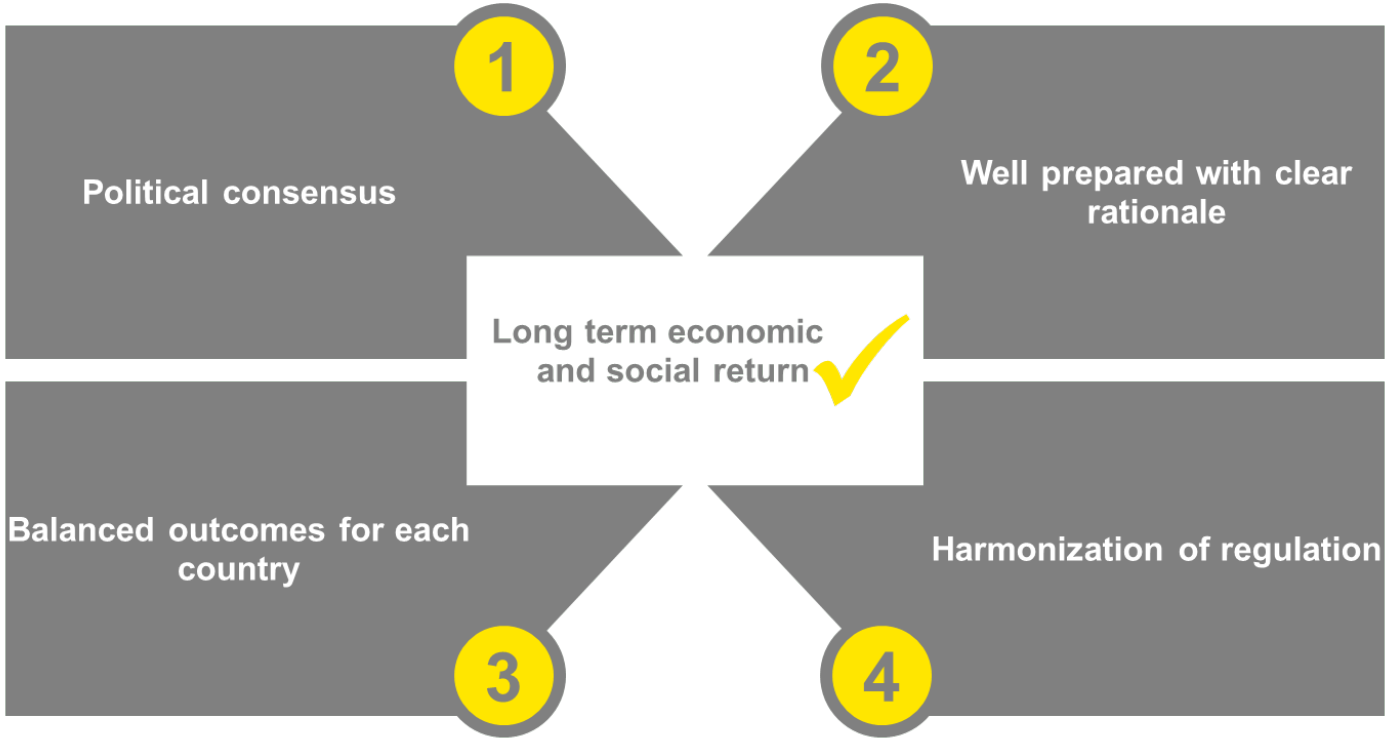
Best practices of successful cross-border infrastructure financing



Best practices of successful cross-border infrastructure financing

Build platform to reach political consensus

Prepare the project with clear rationale:

long-run cross-border benefits that promote regional integration would generate long-tern economic return to investors

Conduct distribution analysis to ensure balanced outcomes for each country

(possible compensation mechanism necessary)

Flexibility: Harmonization of regulation

1

It is crucial that a cross-border infrastructure project has political support and cooperation from all parties involved. A lack of strong political leadership can be detrimental to a cross-border project.

A lack of cross-border political will can be caused by:

- different political priorities and agendas
- legacies of political differences
- inter-country rivalries
- acute power imbalances among various countries within a region

2

The economic, social and environmental costs and benefits of large infrastructure projects must be assessed carefully. Large infrastructure projects by their nature have large externalities, and it may well be the case that a project has a good socio-economic impact but does not generate the internal financial rates of return to be a viable commercial investment.

3

In a cross-border project, the costs and benefits may be unequally distributed (or at least perceived so) among the countries concerned, making the financial arrangements tricky to negotiate. The challenge is thus to find an agreement on how to share the costs and benefits between the participating countries and make the project financially viable for private investment.

4

Technical risks and regulatory inconsistency risks have been examined thoroughly in project risk part. In most successful cross-border projects, an efficient government coordination committee is set up to promote regulatory harmonization. Investment also needs to take place under a clear and agreed legal and regulatory framework

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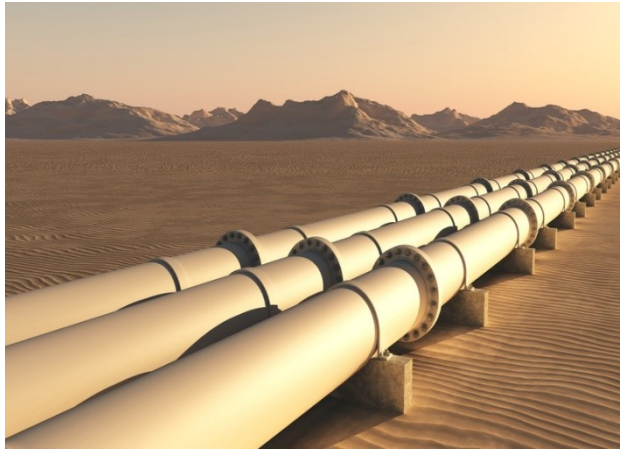
Case study 1

Central Asia-China Gas Pipeline



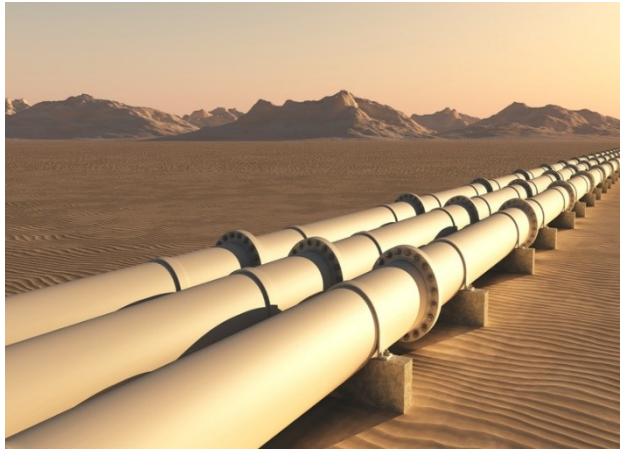
Project overview: This 1,873-km gas pipeline consists of three parallel lines that connect Turkmenistan to China via Uzbekistan and Kazakhstan. The line A of this pipeline became operational in 2009 while the other two parallel lines (B and C) started their operation in 2010 and 2014 respectively.

Separate implementation entities: The state-owned China National Petroleum Corporation (CNPC) initially owns 50% of the pipelines through separate joint venture deals with the three transit countries.

Inter-government agreement: CNPC signed agreement with respective National petroleum company uner the Framework agreements on pipeline construction and operation between the Chinese government and the Kazakh and Uzbek governments

Case study 1

Central Asia-China Gas Pipeline



Financing: The financial viability of the pipeline is assured through a gas sales & purchase agreement signed by CNPC that envisages the annual delivery of 30 billion cubic meters of gas from Turkmenistan to China for 30 years. For the section Kazakhstan China of the Line C, it has been reported that the China Development Bank provided a $4.7 billion project loan. The pipeline has a capacity approximately equivalent to 20% of China's annual natural gas consumption and was the first to connect China with Turkmenistan.

Case study 2

Addis Ababa-Djibouti Railway

Project overview

The Addis Ababa-Djibouti Railway modernisation project is the first cross-border electrified railway in Africa.

As a landlocked country, the line serves as the main transport corridor for Ethiopia to its gateway of the Port of Djibouti which handles over roughly 90% of the country's international trade. It runs from Addis Ababa/Sebeta through the two large Ethiopian cities of Adama and Dire Dawa and links industrial parks and dry ports.

Single implementation entity with ECA financing structure

The railway line is owned by Ethio-Djibouti Standard Gauge Railway Company (EDR), a joint venture company of the two state-owned companies Ethiopian Railway Corporation (ERC) and Société Djiboutienne de Chemin de Fer (SDCF). It was constructed by Chinese state-owned companies China Railway Group (CREC) and China Civil Engineering Construction Corporation (CCECC). CREC and CCECC are operating the railway for a period of six years following construction completion. The line was opened for freight in October 2015 and was formally inaugurated for passenger services in October 2016. It became officially commercially operational as of 1st January 2018.

Case study 2

Addis Ababa-Djibouti Railway

Implementation

- **Inter-government agreement**: In 2012, the governments of Ethiopia and Djibouti signed a bilateral agreement for the development and operation of the standard gauge network. In 2016, the two governments agreed on the development, operation and management of the railway network.. In the same year, they formed a consortium to operate the entire railway line for six years.
- **EPC**: the Ethiopian Railway Corporation (ERC) awarded an EPC (engineering, procurement and construction) contract for the railway line from Addis Ababa to the Port of Djibouti to two Chinese state-owned companies: the China Railway Group (CREC) and the China Civil Engineering Construction Corporation (CRCC).
- **COD**: In October 2016 in Ethiopia and in January 2017 in Djibouti, the passenger railway services were opened. The official commercial operation commenced in January 2018.

Case study 2

Addis Ababa-Djibouti Railway

Financing structure

- **ECA financing with sovereign guarantee:** The Governments of Ethiopia and Djibouti altogether financed 30% of the project and currently own the railway assets. The other **70%** of the project cost was financed through concessional loans from China Exim-Bank (EXIM), the China Development Bank, and the Industrial and Commercial Bank of China**.** These loans were supported by market capitalisation of nearly USD 3.3 billion. The Governments of Ethiopia and Djibouti have both purchased credit guarantee insurance for their loans.
- **Repayment risk:** The project has faced some financial risks, associated with lower traffic volumes than predicted in the transport forecast and currency exchange rate fluctuations – as the project's debt was structured in US Dollar, while construction and operation cost as well as revenues were granted in Ethiopian Birr.

Q & A

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Cross-border Infrastructure Financing

Economic Corridor Management

Thanks!

Guangrui Xiao

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