Developing Bankable Transport Infrastructure Projects: Case Studies, Experiences and Learning Materials for LLDCs and Transit Countries

These learning materials were developed for capacity building activities to strengthen capacity to develop bankable transport infrastructure projects and transport connectivity in landlocked developing countries and transit countries. The learning materials were commissioned by the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS) in collaboration with partners UNESCAP, UNECA, UNECE, UNECLAC, African Development Bank and Asian Development Bank. UN-OHRLLS and partners worked with Mr. Glory Jonga in preparing the training materials. The views expressed do not necessarily reflect those of the United Nations.

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Module 1. **Identification and Preparation of Bankable Transport Infrastructure Projects to Improve Transport Connectivity**

1.1 Key Objectives of the Module

- To train participants on how to identify and develop bankable transport projects (business case development).

1.2 Defining the term "Bankable"

"The investment gap in infrastructure is not the result of a shortage of capital. Real long-term interest rates are low, there is ample supply of long-term finance, interest by the private sector is high and the benefits are obvious. **The main challenge is to find bankable and investment-ready projects.**" **– The Business Twenty (B20) Taskforce (2017)**[1]

There is no universal or one size fits all definition of the term "bankable" when referring to bankability of infrastructure projects. Although projects are commonly termed "bankable" if lenders are willing to finance them, the definition can vary depending on perspective and financier.

- **From a commercial lender's perspective**, bankability of a project may be defined as the level of willingness of the prospective lender to finance the project, that is, what amount and under what conditions. Higher bankability means access to more funding and/or better conditions in terms of the amount of debt (leverage), the loan term and the loan costs. Lenders are concerned about the risk profiles of the project and as such, the riskiness of their investment decisions. If a prospective lender considers the project to have an unacceptable level of risk and uncertainty, they will not provide finance and the project will not be bankable.
- **From the private sector perspective**, bankability refers mainly to financial returns and determining whether the project will be profitable for an investor. The costs and benefits of the project, and hence the profitability and potential financial returns of the project, are key aspects of bankability for private investors. These factors, together with the potential risk-return ratio often determine private sector interest.
- **From the public sector perspective**, a bankable project can be one that responds to national priorities and considers citizen's needs and concerns. Emphasis may be placed on social returns, employment, developmental potential as well as financial soundness and cost-effectiveness. But the public sector also has a tendency to fund flagship high-profile projects that are used as a tool for geopolitical strategic interests by politicians.

[1] The Business Twenty (B20) is the official G20 dialogue with the business community and serves as the voice of the private sector to the G20. The platform enables the global business community to contribute to international policy discussions and the quote illustrates the importance of bankability in the investment community. The G20 countries are a major source of financing for LLDCs through bilateral agreements and financing of Multilateral Development Banks (MDBs).

- **From the donor's / development partner's perspective**, emphasis is strongly placed on developmental potential as well as the social impacts and social returns of a project when considering funding. Higher weighting is placed for social considerations such as positive impact on poverty alleviation, gender equality, environmental sustainability, and perhaps alignment to development partners' objectives etc.
- **For International Finance Institutions (IFI's),** weight is placed on social considerations and financial soundness and cost-effectiveness, but they may have other specific goals such as creating regional transport / trade corridors, opening up the skies to more air traffic, or any other specific agenda that would make them consider projects bankable.
- **From the perspective of special funds**, such as climate funds, bankability may go beyond financial returns to encompass specific criteria of the particular fund in question – that could be environmental benefits such as contribution to emissions reduction.

Key Take Away

Bankability means a project meets the requirements of the financier in order for them to provide capital for the project. The financial profits (returns) likely to be yielded by investment in a project will be more heavily weighted by the private sector, compared with public sector and multilateral donor funders. The latter may place more emphasis on economic, social and environmental considerations as well as developmental potential.

Understanding the requirements of a financier is therefore key to being able to leverage investment from one. Governments / project proponents need to define and structure their projects well from very early on, and importantly they need to consider where the funding for the project will likely come from (e.g. public, private or IFI), so that they can prepare their projects accordingly.

Ability to reconcile national interest/priorities and the requirements of financiers in efforts to leverage infrastructure funding.

1.3 Main Tenets of Identifying and Developing Bankable Projects

In much the same way that the definition of bankability varies, the criteria that is used to determine bankability of a project also varies widely and is dependent on the rules, guidelines, goals, agenda and perspective of the financier. There are however some common criteria that apply to most transport projects that financiers - be they commercial lenders, private investors or international financial institutions (IFIs) - will usually look for. These can be broadly classified into two as shown below and discussed further in the following sub-sections.

1. The project country environment (these are "upstream" considerations and can include social, economic, political, and legal /regulatory environments as well as institutions); and
2. Project preparation and planning (this can include pre-feasibility / feasibility studies, financial structure, third party risk allocation and contract arrangement).

1.3.1 The Project Country Environment

Economic and Political Environment

The term economic environment refers to economic factors such as employment/unemployment, income, inflation, interest rates, tax rates, currency exchange rates, saving rates and overall economic performance, which affect or influence the economic activity of a country. Researchers[2] have found that social-economic characteristics and economic strength of a country are two important criteria in assessing the viability of a project from a debt financing perspective. When lenders consider whether to fund a project they start by assessing the location of the project, in terms of the economy. They assess factors such as income because it can for example, determine user's willingness/ability to pay a toll along a road, for example. Lenders are also often exposed to currency risk because although they make their investments in more stable currencies such as the United States Dollars (USD), revenues for transport projects are often collected in local currency. Therefore, currency stability is important when considering bankability issues. Furthermore, the tax regime applicable to projects must be sufficiently stable because the lenders need to forecast their exposure to tax liability and insert it into their financial models.

Political economy issues can impede infrastructure development and political instability and violent conflicts are a significant threat for infrastructure development in LLDCs. Political events, such as contested changes in government, recurrent strike actions, deteriorations in law and order or public security or economic crises, can stall construction for many years and are therefore some of the first factors that financiers will look at when assessing a project. In particular, disputes arising from the political process as well as the expression of vested interests by politicians or businesses can take time to resolve. Changes in political leadership can also overturn previous commitments to infrastructure projects. On the other hand, strong political commitment can accelerate infrastructure development.

A number of economic and political factors/criteria that financiers are looking for when examining transport projects are shown in Table 1.1 below.

Table 1.1: Economic and Political Factors that can influence / affect Bankability of a Project

Criteria	What financiers are looking for
Economic environment	▪ GDP growth trend (performance of the economy). ▪ High existing or increasing income levels. ▪ A sound macro-economy creating increasing output and real income growth. ▪ Low and stable inflation rate. ▪ Stable local currency and a stable exchange rate. ▪ Financial markets / domestic capital markets capable of providing domestic (additional) financing. ▪ Public debt management. ▪ High level of infrastructure development / connectivity of the country.
Political environment	▪ Political support for the proposed project. ▪ Political leadership and commitment to policy. ▪ Political stability. ▪ Peace and safety.
Public opinion	▪ General positive public sector support for the proposed project.

[2] For example B. S. Laishram and S. N. Kalidindi (2009).

Criteria	What financiers are looking for
	▪ Support of key stakeholders.
Tax policies	▪ Favourable tax laws. ▪ Availability of tax incentives or other financial incentives.

It should be noted that the importance or weighting given to political environment may differ depending on the financier. Financing from multilateral development banks (MDBs) or IFIs and Organisation for Economic Co-operation and Development (OECD) members is based on the principles of governance – transparency, accountability, inclusiveness, equity and the rule of law. These conditions are required by traditional development organisations from all their partner countries since they need to be accountable to their taxpayers and shareholders (OECD / ACET 2020). However, this requires institutional capability within the recipient state, which may not be strong in some LLDCs and can delay processes in the infrastructure project cycle and at times can completely stall infrastructure development.

In contrast, other financiers such as the People's Republic of China (China), may adopt a non-interventionist approach by taking the local environment as a given[3] (OECD / ACET 2020). Through this pragmatic stance, China has played an increasing role in the development of LLDCs and other developing countries (see text box). Infrastructure supported by China has been built relatively quickly and has potential to accelerate the economic growth and social development of LLDCs.

Looking East – China's increasing role in funding projects in LLDCs

China has significantly increased its financing of transport projects and programmes in LLDCs. There are various new financing sources involving Chinese financing and funding. These new bilateral sources of finance are already being accessed by some LLDCs and have the potential to make a major contribution to closing the LLDCs' transport infrastructure gap.

A few examples of projects in LLDCs that have recently been funded include:

- The Lao - China railway (also known as the Boten-Vientiane railway)
- Victoria Falls International Airport Expansion, Zimbabwe
- Upgrading of Addis Ababa Bole International Airport, Ethiopia
- The Addis Ababa - Djibouti Railway, Ethiopia and Djibouti
- The Miladinovci - Stip Motorway, Macedonia

Legal and Regulatory Environment

The legal and regulatory environment of a country is also an important consideration for financiers. Lenders and investors want to know if there is legislation in place to enable the project to go ahead and if there is a supportive regulatory framework. They also want to know that they

[3] In Chinese President Xi Jinping's speech at the opening ceremony of the Beijing Summit of the Forum on China-Africa Cooperation (FOCAC) in 2018, he announced China's "five-no" approach in its relations with Africa: no interference in African countries' pursuit of development paths that fit their national conditions; no interference in their internal affairs; no imposition of China's will on them; no attachment of political strings to assistance; and no seeking of selfish political gains in investment and financing cooperation (http://www.xinhuanet.com/english/2018-09/06/c_137449669.htm)

would receive appropriate legal protection if the project ran into any problems. The availability of justice, arbitration, contract enforceability, and issues to do with nationalisation and expropriation are important criteria from a lenders' perspective. Some researchers[4] have found that lenders feel less protection in nations where civil law is in force than in nations where the common law is in force. Lenders also consider the legal system applicable to a project in view of a long-term commercial agreement (Delmon, 2005).

A number of important legal and regulatory criteria that financiers are looking for when examining transport projects are shown in Table 1.2 below.

Table 1.2: Legal and Regulatory Factors that can influence / affect Bankability of a Project

Criteria	What financiers are looking for
Legal system	▪ Recipient state's adherence to constitution/rule of law ▪ Investor friendly laws. ▪ Private sector participation laws or PPP laws. ▪ Independent and fair judiciary. ▪ Enforceability of contracts. ▪ Legal framework in land ownerships, disagreements for resettlement and compensation with local populations. ▪ Effective policing.
Regulatory framework	▪ An autonomous and independent regulator which is also accountable. ▪ Clear and transparent procurement rules / procedures. ▪ Clear and adequate procedures for project development (planning consent, environmental, land acquisition etc.).

Policies and Institutions

Transport policy deals with developing a set of constructs and propositions that are established to achieve specific objectives relating to social, economic, and environmental conditions, and the functioning and performance of a transport system (Slack, Rodrigue and Notteboom, 2020). Governments are often the most involved in the policy process since they either own or manage many components of the transport system and have levels of jurisdiction on all existing transportation modes. Governments also often perceive that it is their role to manage transport systems due to the essential public service they provide (Slack, Rodrigue and Notteboom, 2020).

Financiers want to know about the policies of a country because policies effect decisions concerning the allocation of resources, the management and regulation of existing transportation activities and structure of the transport system (for example is there a deliberate policy to incentivise / involve the private sector in transport development). They also want to know that there is policy harmonisation between different ministries and government departments that would be involved in development of the project.

The terms "policy" and "planning" are used very loosely and are frequently interchangeable. However, policy and planning represent separate parts of an overall process of intervention. A major distinction between planning and policy is that the latter has a much stronger relation with legislation. Policies are frequently, though not exclusively, incorporated into laws and other legal instruments that serve as a framework for developing planning interventions. Planning does not necessarily involve legislative action and is more focused on strategy, and the means of achieving

[4] For example S. Gatti (2008).

a particular goal, often within the existing regulatory framework. **- Slack, Rodrigue and Notteboom (2020)**

Institutional strength in transport development and implementation is also vital to attract financiers. Governance capacity and human capital within institutions, organisational experience and co-ordination among ministries is critically examined by financiers.

Financiers want to know if there is human resource capacity and skills within ministries / departments in order to build / implement a project; and due to the multi-sectoral nature of infrastructure development, they want to see clear division of roles of regulatory bodies and executing agencies involved in developing the project, but also a collaborative desire and effort to successfully implement a project. In addition, financiers are looking for the availability of transparent procurement rules and procedures, and procurement authorities or departments with a clean track record.

Table 1.3 below summarizes the policy and institutional criteria that financiers are looking for when examining transport projects.

Table 1.3: Policy and Institutional Factors that can affect Bankability of a Project

Criteria	What investors are looking for
Policy	▪ Clear transport sector policy. ▪ Investor friendly policies. ▪ Policy harmony between different government ministries / departments.
Institutions	▪ Institutional strength in project development and implementation (based on previous performance / reporting). ▪ Capacity of project proponents. ▪ Availability and performance of procurement institutions. ▪ Ease of doing business / quality of service.

1.3.2 Project Preparation

The second set of broad criteria that is important for financiers when considering bankability are project level criteria related to project preparation and planning. These can include pre-project development work, feasibility studies, financial structure, and contract arrangements.

Pre-development Work and Feasibility studies

Transport infrastructure projects are complex, stochastic and fraught with uncertainties, which if not accurately predicted, can lead to inadequate assessment and management of risks and over time, poor performance in terms of costs and associated expected benefits from implementation. Financiers are acutely aware of this and practically all project / construction financiers require that a feasibility study or some form of project planning and preparation is carried out before availing funds.

The initial step in the project preparation phase of transport projects is the pre-development stage. At this stage projects are screened and alternatives are evaluated. Efficient early-stage screening of project proposals can improve chances to receive construction finance quicker and ensures that only relevant projects move on to the (costly) feasibility stage, where they are initially pitched to financiers (OECD/ACET, 2020).

The next step is feasibility assessment. At this stage, financiers are looking for detailed feasibility studies that assess technical, financial, economic and environmental aspects of the project. They want to know the overall development priorities, project boundaries and scope, project benefits, technical options and demand projections. They also want to know how the project will be structured. For example, will it be a public, private or public/private project and is there a legal structure in place to support whichever option is selected?

Financiers are also looking for the existence of (or a plan to address) a number of important issues such as site acquisition documents and access, licenses, permits, and regulatory authorisations which affect the project. Lenders want to know that required permits and licenses are in place or can easily be obtained by the project proponent. Lenders also attach great importance to the capacity of the technology to be used and its appropriateness for the site and the region.

Table 1.4 below summarizes early stage planning factors that financiers are looking for when examining transport projects.

Table 1.4: Early Stage Planning Factors that can influence / affect Bankability of a Project

Criteria	What financiers are looking for
Project definition	▪ Clear definition of the project. ▪ Overall objective of the project. ▪ Justification of the project / why the project should be carried out. ▪ Expected benefits. ▪ Project boundaries and scope. ▪ Potential risks. ▪ Indication that technical options have been assessed even at a high level, and the technical solution selected is the best option available. ▪ Government support for the project. ▪ Project partners and project champions i.e. the project proponents
Feasibility studies	▪ Risks and potential financial returns have been determined and are evident to the various parties. ▪ The project is financially / economically viable. ▪ Rigorous environmental and social impact assessment has been carried out to high environmental standards. ▪ Technical options and demand projections. ▪ Traffic studies have been carried out and are as accurate as can be.
Capacity of the technology	▪ The technology being used is appropriate for the project. ▪ Detailed assessment of technical options.
Site acquisition and access	▪ Land / site of the project is available for implementation of the project and any resettlement studies have been carried out.
License, permits, and authorizations	▪ Licenses, permits and authorisations required to develop the project have been acquired.

Project Financial Structure and Shareholders' Credibility

The financial structure of a project including factors such as debt service cover ratio, debt-equity ratio, and debt service reserve, and the financial flexibility of a project are important for debt financing. Essentially, the financial project structure, the commercial plan, and the forecast revenue stream is an important consideration for lenders to provide financing for a project. This is particularly important for private sector investors but also for IFIs.

The reliability of shareholders / project proponent is also an important consideration for financiers. Lenders will assess the creditworthiness, availability of technical and managerial capacity or skills of the shareholders / project proponent. Shareholders are examined through a due diligence investigation. Based on an empirical study to identify the determining characteristics of a firm to be engaged in a PPP project, Lopes and Teixeira Caetano (2015) disclosed that larger and more leveraged firms had a higher probability of being engaged in a public-private-partnership (PPP) project. The strong financial capability, sufficient commercial experience, and technical expertise of the concessionaire were an important prerequisite to the successful development of a PPP project. Compared with the private sector, the public sector's reliability and creditworthiness are often viewed as the critical risk for PPP projects. Factors, such as corruption and rent-seeking behaviour, often turn a decision of a PPP project against lenders.

A summary of credibility factors that financiers are looking for when examining transport projects are shown in Table 1.5 below.

Table 1.5: Credibility Factors that can influence / affect Bankability of a Project

Criteria	What investors are looking for
Financial structure	▪ Appropriate allocation of risk. ▪ Suitable debt service cover ratio, debt-equity ratio, and debt service reserve, and the financial flexibility. ▪ Commercial plan and the forecast revenue stream.
Shareholders' credibility	▪ Competent and committed project proponents / shareholders. ▪ Creditworthy shareholders / project proponents.
Public sector's reliability	▪ Public sector support for the projects. ▪ Public sector track record in implementation of transport projects.

Third Party Risk Allocation and Contract Agreements

Transport infrastructure projects are inherently high capital cost projects therefore financiers are looking for sufficient insurance coverage to protect themselves from risks. Financiers are looking for projects that have put in place a comprehensive insurance scheme.

To ascertain that all risks are appropriately allocated to various players, lenders closely look at the network of contracts in place or planned for the project. The relevant contracts include the concession agreement, engineering, procurement and construction (EPC) contract or construction contract, operation and maintenance (O&M) agreement, purchase agreement, input supply agreement, termination provisions, and direct agreement. Financiers will ask: how and when will all the documents be signed, covering project financing, technical/engineering aspects, legal matters etc.? Furthermore, financiers also want to know how a project will be implemented and monitored, and how legal / contract disputes would be arbitrated.

A number of important criteria that financiers are looking for when examining transport projects are shown in Table 1.6 below

Table 1.6: Contract Agreements that can influence / affect Bankability of a Project

Criteria	Details
Insurance arrangement	▪ Risk capital and insurance. ▪ Guarantee from multilateral investment agency. ▪ Catastrophic risk.

Criteria	Details
Concession agreement	▪ Concession period. ▪ Support agreement/guarantee. ▪ Termination provisions. ▪ Construction contract, and operation and maintenance agreement. ▪ Supplier agreements ▪ Arbitration.

Key Take Away:

Bankability means a project meets the requirements of the financier. The criteria that financiers require to determine bankability of a project may vary but in general financiers will usually ask project developers / proponents the following questions:

1. What is the economic and political environment of the project country?
2. Is there an enabling legal and regulatory environment? E.g. is legislation in place to enable the project to go ahead? Is the regulatory framework supportive?
3. Has project been clearly defined? E.g. what is the project? What is the end goal of the project? Have the project outputs been identified? Who are the partners and project champions? Is there an action plan?
4. Has a comprehensive feasibility study been carried out? E.g. has financial modelling been completed? Has an environmental and social impact assessment been carried out? Is the project technically viable?
5. How has the project been structured? E.g. is it a public, private or public/private project? Is there a legal structure in place?
6. What contract documents have been prepared? E.g. how and when will all the documents be signed, covering project financing, technical/engineering aspects, legal matters etc.?
7. How and who will implement and monitor the project? E.g. does the project have a credible project proponent? How will project progress be monitored and evaluated? Can my project adapt to changed circumstances?

To help grow the number of new "ready for funding" infrastructure projects across Africa, the Infrastructure Consortium for Africa (ICA) has developed a number of initiatives including a project preparation checklist of criteria that financiers want to see. The checklist lists information that developers need to compile when first approaching a potential financier. The list above includes a number of factors from that checklist.

ICA's checklist can be found on ICA's website or on the following link: https://www.icafrica.org/fileadmin/documents/PP_Fund_Finder/Project_Preparation_Checklist.pdf (accessible as of 11 January, 2020)

1.4 Challenges of Identifying and Developing Bankable Projects

There are a number of challenges that countries face when developing bankable projects. These include:

- Lack of data, project specific documents and feasibility studies for projects.
- Poor preparation of documents by project proponents or consultants which may include extraordinarily high levels of misinformation about costs and benefits in the analytical preparation of projects.
- Long lag time; as infrastructure projects often have extensive development periods and often entail multifaceted feasibility studies and expert transaction advice -rendering some information obsolete by the time the project reach financial close.
- Lack of resources (financial and expertise) which are required to make the projects bankable.
- Lack of funding for early-stage preparation of projects. A general rule of thumb is that preparation requires the equivalent of 5% to 10% of a project's investment cost, which can translate into hundreds of millions of dollars over time (J. Leigland and A. Roberts, 2007). As LLDC governments grapple with constrained public resources, their ability to commence early project preparation is limited without external support, and while large amounts of projects preparations funds (PPFs) are available for project preparation, the conditions to access these funds can be complex and time-consuming.
- Poor project preparation and planning, which could include environmental and social impact studies that do not adequately address or mitigate environmental issues or address social matters such as resettlement action plans.
- Lack of enabling environment for infrastructure development – there is little help for "upstream" preparation in developing infrastructure projects. Support for this work is scarce largely because it is risky: the work, such as support in the development of legal and regulatory frameworks, is so far upstream from actual transactions that it may or may not result in a closed deal. That makes the work unattractive to private developers, which must recover development costs from completed deals, and somewhat unappealing for donors, which must justify expenditures with tangible results that clearly promote development objectives.
- Most financiers will provide funding only for a specific part of the project preparation cycle—there are not a lot of "one-stop shop" funders able to provide support from project inception to financial closure. Organizations preparing a project therefore must often seek funding from several of these sources.
- Limited use of innovative financing arrangements.
- Complicated cross border projects. For LLDCs, a number of their projects are cross-border and cross-border infrastructure projects tend to be extremely complicated, often lack ownership or involvement by country-level officials and are difficult to coordinate.
- Political economy issues such as governance problems and the behavioural responses to controversial projects by beneficiaries and bureaucrats can also be a challenge.
- Limited institutional capacity, government constraints and varying regulatory and technical standards.

- The requirements of individual development partners. As demonstrated in Section 1.1, financiers may have different requirements to make funding available.
- Inefficiencies in the procurement process and or complications in negotiations.
- Since the global outbreak of COVID-19 pandemic in 2020, this has presented new challenges to the LLDC economies and transport sectors as detailed in the text box below.

Despite the numerous challenges, there are some best practices that that can be employed to address the issues raised above and help governments / project proponents make their projects bankable, these are examined in the following section.

Impact of Covid-19 on Transport in LLDCs

The COVID-19 (coronavirus) pandemic has taken a toll on human life and brought major disruptions to economic activity across the world, precipitating an unprecedented global health and economic crisis. Although it is too early for a full assessment of the impact of the pandemic throughout the world, it is clear that COVID-19 has already brought severe hardship, especially to landlocked developing countries, and poor and vulnerable communities. Vulnerable sectors (e.g. tourism, oil and gas industry, maritime, air and road transport, freight forwarding, logistics, and wholesale and retail sectors) have been hard hit and some take time to recover. The demand for, and price of many commodities has declined sharply, increasing the vulnerability of many commodity-dependent countries. The forecast challenges include food insecurity, lack of medical supplies, loss of income and livelihood, difficulties in applying sanitary and physical distancing measures, a looming debt crisis, as well as related political and security risks.

According to the IMF the global economy contracted by 3.5% in the year 2020 highlighting logistics exposure to trade, manufacturing and demand for goods. In terms of Aviation the International Air Transport Association (IATA) advised that the impact of Covid-19 on the sector is that airlines globally were expected to lose about $84.3-billion in 2020 alone with passenger numbers roughly halving to 2.25-billion.

In response to the need to maintain some level of connectivity, most governments have put in place measures to respond to the crisis. For example, s countries like India have exempted the movements of cargo ships through ports. In landlocked countries such as Malawi, Zambia and Zimbabwe, borders have been closed to private vehicles but remained open to cargo movements between landlocked countries and South Africa, which has access to various ports on both the Indian and Atlantic oceans (World Bank Group, 2020).

Central Asia has a number of landlocked countries and farther from sea ports than anywhere on earth. In normal times, this makes trade with the rest of the world expensive and challenging at best. The Global Pandemic has disrupted global supply chains and the effects of this disruption continue to ripple in the region. The transportation services market in Asia pacific region was severely affected by the COVID-19 outbreak as lockdowns were imposed by countries in the region. Restrictions on travel and movement of goods, suspension of manufacturing activities affected the demand for transportation services. The market was expected to decline in 2020 to reach $1,773.91 billion from $1,811.28 billion in 2019[5].

[5] https://www.marketresearch.com/Business-Research-Company-v4006/Asia-Pacific-Transportation-Services-Briefing-13377798/

In Bolivia and Paraguay, air connectivity is deemed very low by international comparative indexes, to begin with. The external shock of COVID-19 made national governments of both countries take restrictive measures to try to contain the spread of the virus. The effects of these measures on air connectivity can be perceived by the significant decrease in number of flight departures, and volumes of passengers and freight during the affected months. According to the International Civil Aviation Organization (ICAO), daily departures plunged in March, 2020 for both Bolivia and Paraguay to only a daily flight the following months. Numbers of passengers decreased to about half the regular volumes, and in April 2020 almost came to a complete stop. Freight volumes were also affected significantly, -76% in Bolivia and -55% in Paraguay, for April Year on Year (YOY). Commercial flight restrictions continue until today, with all commercial airports virtually stopped (Rivera, 2020).

In terms of public transport connectivity, there has been significant impacts on the LLDCs. For example, formal and informal public transport in the African LLDCs have taken a significant hit as lockdowns and restrictive measures affecting peoples' mobility in most cities. The vast majority of cities have experienced reductions in transit which contributed to demand constraints, a reduction in the provision of public transport services, and to some extent a shift towards the use of Non-Motorised Transport (NMT). There has been a shift in policies in cities such as Lusaka, Zambia where the use of NMT has been brought high on the agenda through government and city council initiatives. Many cities are also reallocating street space to improve walking conditions and facilitate better physical distancing. In countries like South Africa and Zimbabwe, the reduction in the frequency of public transport has been as high as 80% due to severe restrictions whereas in countries like Zambia and Tanzania reductions were lower at approximately 20% (Ministry of Transport, Zambia, 2020).

In response various LLDCs and Transit countries have embarked on innovative solutions and use of digital applications for both their informal and formal public transport provisions. For example, in Kampala, Uganda, the motor cycle transit (boda, boda) carriers are now required to register and operate from a digital platform to facilitate contract tracing and tractability.

One of the consequences of the Covid-19 pandemic is that of future cuts in funding of transport projects. In South Africa for example the Interim CEO of the Transport Agency for Gauteng (TAG), Jack van der Merwe laments, "The allocation of funds for transport that was not sufficient in the past, will be even less for the next five to ten years". The sector would also have to explore innovative ways of funding public transport through public–private partnerships (Engineering News, 2020).

1.5 How to Develop Bankable Projects

Developing bankable projects means preparing projects that meet the criteria of financiers. As was shown in the previous sections, there are a number of factors or criteria that influence bankability of a project; these can include social, economic, financial, technical, environmental, legal and administrative factors and, in most cases a combination of all the aforementioned. Project development normally involves feasibility and prefeasibility studies to assess these factors. But it is important to note that these studies need to be preceded by conceptualization, consensus building around a project's purpose and initial design, and action plans. These steps in turn, are often preceded by legal and regulatory reforms in the relevant sector and by policy reforms.

Indeed, attracting lenders or investors requires a combination of a conducive enabling environment, effective institutions and actors (public and private), providing incentives, and adequate project preparation. Whether a new infrastructure initiative is large or small, and whatever the transport sub-sector, issues around the institutional, legal, social, environmental, financial, regulatory and engineering aspects need to be fully addressed in order to take an idea from a concept to a clearly defined and fully structured project proposal, ready to be considered by potential funders.

The following sections present a basket of actions that governments / project proponents can take to develop bankable projects. These actions can be categorised into the two broad areas of focus, presented in previous sections and as follows:

1. **Creating an enabling environment** (Economic and political environment; Legal and regulatory environment) - "Upstream" preparation such as creating enabling legislation, designing investor friendly regulations, reforming project-relevant institutions, setting clear policy, building capacity to support project and building consensus around project forms an important base for attaining bankability. Even if a detailed feasibility study is available, the lack of a basic legal and regulatory enabling environment can stall project development. A weak policy environment can have similar effects because of the government's inability to identify, plan, prioritize, or conduct action planning for projects.

2. **Project preparation** (Feasibility studies together with project definition; financial structure; third party risk allocation; and contract arrangement/transaction) - It is important for governments / project proponents to prepare project specific documents and conduct evidence-based analysis which lenders/ investors can scrutinise.

The absence of any one of the above/following criteria may not hinder the prospects for project development, but the more a country / project proponent considers and addresses these criteria, the higher their chances of securing funding for their projects.

1.5.1 How to Create an Enabling Environment

Infrastructure development requires an appropriate economic, political, legal, policy and regulatory environment to facilitate its development. Strong and capable institutions are critical for the creation of an enabling environment and the implementation of infrastructure projects. Project development without a well-developed legal and regulatory framework increases the level of risk to investors. It also encourages investors to rely on special situations and political relationships rather than their merits as a means for securing and implementing contracts (ADB,

2000). Institutions may need to be reformed / restructured and best practice employed in order to avoid tendencies for corruption or empire building. For example, regulatory bodies separate from vested sector interests should be created.

Transport infrastructure projects in LLDCs are often of a regional nature and can often involve several countries; thus harmonisation of regulatory frameworks is key to minimising geographical disparities.

Supporting policies need to ensure investment returns as well as greater transparency in procurement and tendering processes. Political leadership and commitment are also important when developing / implementing projects. Proponents should identify project champions that are decisive and will move a project forward.

In all cases above capacity-development is key to ensure efficient project preparation and improve project bankability. The following are a number of actions that can be taken to create an enabling environment[6] for transport infrastructure development.

[6] This topic is explored in greater detail in Module 3

Table 1.7: Creating an Enabling Environment for Transport Infrastructure Development

Criteria	Steps that can be taken by project proponents
Economic environment	▪ Demonstrate high existing or increasing real income levels[7]. ▪ Demonstrate a sound macro-economy, economic growth (GDP growth) and creating increasing output. ▪ Low and stable inflation rate. ▪ Stabilising the local currency. ▪ Developing / encouraging domestic capital markets capable of providing domestic (additional) financing. ▪ Private sector funding of infrastructure usually brings the risk of foreign currency mismatches in the financing package; income is in local currency, but the need to resort to foreign debt and equity markets means that debt service requires substantial foreign currency. The root problem is inadequate depth in capital markets in most Debt Capital Markets (DMCs) which prevents a tailoring of local currency debt to long-lived assets. The need to resort to foreign debt (and equity) creates substantial risks, ▪ Reduction in national debt.
Political environment	▪ Demonstrate that the political leadership is in support of the project(s). ▪ Political stability – this could include smooth transition of power, respect for human rights, and support for democracy. ▪ Peace and safety – show commitment to the rule of law by the executive and avoidance of conflict. ▪ Demonstrate strong governmental support for the project. Lack of co-ordination among ministries can lead to an incoherent government approach towards individual infrastructure projects, which can discourage private investors and development partners from engaging in project preparation.
Policy	▪ Create investor friendly policies. ▪ Show commitment to policy, and harmonise policies i.e. *policies should point in the same direction.* ▪ Development, within government, of an effective transport strategy and project identification process.
Institutional and capacity building	▪ Institute widespread understanding, through education and application, of the different private sector participation (PSP) options which can be effective in transport development. ▪ Identify and rectify institutional weaknesses via reforms. ▪ Improve quality of (government) service. ▪ Better training, professional development and advisory support in areas such as regulatory reform, concessional arrangements, procurement and negotiation would enhance capabilities. ▪ Streamline processes and avoid red tape. ▪ Enhance intergovernmental co-ordination and make it easier for external parties to move through the process. Standardisation, paired with transparent digital platforms, would help improve scale and efficiency, as well as prevent corruption. ▪ Establishment of a “one-stop-shop” for infrastructure projects can also be an attractive feature for private investors.

[7] Projects in middle-income developing countries, preferably with an equitable income distribution. Here the willingness-to-pay tolls and the prospects for traffic growth Exist.

Criteria	Steps that can be taken by project proponents
	▪ Particularly in terms of promoting PPPs for quality infrastructure, there is a need to train project proponents to use specialised finance techniques, such as blended finance and managing contracts. Not only do LLDCs need a larger pipeline of investable infrastructure projects, they also need the pipeline of human capital to develop PPPs. ▪ Workshop training should be combined with on-the-job internships. ▪ A database of experts in the different infrastructure fields that could serve as a marketplace platform to demand and supply African expertise could also be explored.
Public opinion	▪ Obtain public sector support for the project(s).
Tax policies	▪ Tax incentives for investors. ▪ Provide other suitable financial incentives.
Legal system	▪ Development of acceptable PSP legal frameworks, and laws for PPP operations. ▪ Adhere to legally-binding concession agreements which set out clearly the rights and obligations of all parties, and the procedures to be followed in the case of unforeseen events. ▪ Establish means for enforcement of contracts and the resolution of disputes. ▪ Improve transparency in the project development cycle, particularly procurement. ▪ Limit nationalisation and expropriation of legally developed projects. ▪ Improve government institutions by reducing the regulatory burden and improving transparency, as an overly-regulated economy often provides more incentives for corruption (IMF, 2016). In general, highly-corrupted economies discourage private investment (IMF, 2016). Corruption also weakens the enforcement of regulations. Anti-corruption strategies need to have more transparency, rule of law and economic reform policies with effective institutions (IMF, 2016).
Regulatory framework	▪ Establish autonomous and independent regulators which are also accountable. ▪ Design and implement clear and transparent procurement processes. ▪ Transparency and competition are essential in the procurement process and greater use of e-procurement procedures which could further increase transparency and possibly reduce incidences of mis-procurement and other delays. ▪ Develop adequate procedures for project development (planning consent, environmental, land acquisition etc.). ▪ Implement reforms that insulate regulators from outside influence.

Sources: Asia Development Bank (ADB) (2020); OECD/ACET (2020); Zhu and Chua (2018); Lopes and Caetano (2015); Gatti (2008); Delmon (2005).

1.5.2 Project Preparation

What is a Business Case?

"A Business Case is a comprehensive collection of evidence and analysis that sets out the rationale for why an investment should be implemented to solve a problem or address an opportunity. Each Business Case is developed using the same guidance to ensure a flexible but consistent and comparable approach across a wide range of investments. Investments include a range of policies, initiatives, and programs that require expenditure" – **Metrolinx (2017)**

Policy reforms and good governance are basic building blocks that must be in place to create an enabling environment for infrastructure development, but beyond that it is also important, and perhaps more important[8], to package projects well. A common complaint of financiers and investors is that it is not finance, but rather the shortage of "ready to go", bankable projects and programmes that is the biggest constraint to infrastructure development. Not enough time and money is invested to establish that projects are financially viable from the standpoint of a financier. Many projects in LLDCs and transit countries lack a detailed and accurate cost-benefit analysis or sustainability assessment.

Efficient early-stage screening and advisory of project proposals can improve chances to receive construction finance quicker and guarantee successful operations. The pre-development stage is especially important and may include preparation of a pre-feasibility study.

A key factor to consider at the project preparation and planning stage is a clear project definition - identifying the need or justification of the project and the expected outcomes. As a project proponent, it is important to clearly state what the project is, why you are carrying out the project, what the benefits will be and how the project will be sustainable, and very importantly **why you believe the project will be a success (the Case Studies at the end of this Module present a number of projects and their justifications i.e. why they were investable / bankable projects)**. It is also important to state who the partners or project champions are for the proposed project and an overall action plan should be created.

At feasibility stage, projects should be taken through a technical, financial, economic and environmental assessment. Robust feasibility assessments identify expected service outcomes in line with overall development priorities, project concepts, access benefits, project boundaries and scope, technical options and demand projections. It is also important to determine how the project will be structured. For example, will it be a public, private or public/private project and is there a legal structure in place to support whichever option is selected?

[8] Historical evidence of countries that are wealthy today suggests that economic development leads to improved institutions, not necessarily the other way around (Chang, 2011). For financiers like China, institutional development is an outcome rather than a starting point, and early infrastructure investment is necessary to leapfrog the development process. For this reason, governments in LLDCs (particularly in Africa) have been turning to Chinese infrastructure finance and construction firms whose response times and upstream processes are fast and competitive in providing investment in transport projects.

It is important that feasibility studies are prepared accurately and to a high standard. It is estimated that 80% of infrastructure projects fail at feasibility (McKinsey, 2020). In a number of cases, the comparison between forecasted numbers included as part of feasibility studies and actual data collected during the operation phase about the usage of the facility reveals a huge difference. A survey of 58 rail projects carried out by Flyvbjerg (2005) at the World Bank, for example, found costs to be underestimated by an average of 45% and future demand overestimated by an average of 51%.

Other factors to consider include government guarantees/support/comfort letters that would enhance the bankability of a project and, to some extent, reduce the relevant political risks. Furthermore, in terms of international financing, obtaining a guarantee from a multilateral investment agency is regarded as an effective way of mitigating expropriation risk and obtaining the support of the project developer's home government. In addition, the force majeure and relevant arbitration when a dispute occurs are also critical risks that should be considered in project development.

The factors outlined above and other factors which enhance project bankability at the project level are presented in Table 8 on the following page. These are a basket of actions that can be taken to prepare a project to bankability. It should be noted that many projects that are socially or economically desirable may not be bankable, at least by the private sector or commercial lender, no matter how well structured, and many others may not be viable or desirable.

Table 8: Preparing Bankable Transport Infrastructure Projects

Criteria	Steps that can be taken by project proponents
Pre-development	▪ Effective early-stage screening. ▪ Developing SMART, compact and replicable project cycles is necessary to accelerate the planning, design and implementation of scaled-up quality projects. SMART project cycles mean infrastructure development processes that set Specific, Measurable, Attainable, Relevant and Time-bound goals. ▪ Identify priority projects via master plans / policy documents. ▪ The private sector is more likely to invest in existing assets with a track-record of financial viability rather than new projects laden with upfront costs and risks. ▪ Continuous involvement of affected stakeholders and transparent two-way communication to address local demands and concern ▪ Identify strong project sponsors and project champions can be pivotal in driving projects from concept to completion. ▪ The African Union Development Agency (AUDA-NEPAD) designed a project screening and advisory tool called the PIDA Quality Label (PQL) as part of the Service Delivery Model (SDM) - The objective is to shorten the time needed to get from project proposals through to financial closure, with initial quick checks and the use of scoring and technical advisory systems. ▪ Development of a common handbook on infrastructure development which states clear institutional and procedural guidelines and guidance, could reduce uncertainties and confusion regarding who needs to do what in a time-bound manner (This idea is already envisaged in PIDA 2021-30). ▪ The African Union (AU) and AUDA-NEPAD Procurement Manual is also an additional resource that can be utilised in project preparation. ▪ SOURCE[9] (undergoing testing) is an online multilateral platform for quality infrastructure led and funded by multilateral development banks (MDBs). It brings a systemic change in the way governments define, develop, and manage their infrastructure projects for both traditional procurement and public-private partnerships. It has a checklist that can be used to identify project aspects that investors are looking for. ▪ The International Finance Corporation's Anticipated Impact Measurement and Monitoring (AIMM) system allows for estimating the expected development impact of projects, including on the wider economy. ▪ AfDB established the Africa50 Infrastructure Fund, an investment facility that will attract funding from the private sector, governments, and DFIs to finance project preparation and finance.
Project definition	▪ A focus on viability, implementation strategy and financing. ▪ The potential of the project to promote development, social, and environmental objectives, as well as economic efficiency, should be addressed. ▪ Identify expected service outcomes in line with overall development priorities, project concepts, access benefits, project boundaries and scope, technical options and demand projections.
Feasibility studies	▪ A scope including all those activities which affect government's decision as to whether to go ahead (technical, economic, financial, institutional, legal, and land).

[9] https://public.sif-source.org/source/

Criteria	Steps that can be taken by project proponents
	▪ Design evaluation, compliance with legal regulations, financial viability, cost-benefit analysis, socio-economic impact assessments and social and environmental impact assessments. ▪ Robust feasibility assessments identify expected service outcomes in line with overall development priorities, project concepts, access benefits, project boundaries and scope, technical options and demand projections. ▪ Future demand projections for ensuring long-term sustainability of infrastructure projects. ▪ Rigorous social and environmental impact assessments, and stakeholder consultations.
Capacity of the technology	▪ Make an assessment of various technology options. ▪ Choose an appropriate technology for the project.
Site acquisition and access	▪ Land acquisition and resettlement affect people's livelihoods such as the loss of assets, job security, food security and economic conditions. ▪ During this phase, projects may experience delays largely due to weak legal frameworks in land ownerships, disagreements for resettlement and compensation with local populations, as well as political crises. ▪ Identify Requirements and conditions for compensation depending on standards set by funding organisations. ▪ The proactive management of land acquisition and resettlement issues in the early project stage can in fact provide significant development opportunities for affected populations and create better outcomes for displaced and host communities. ▪ Keeping various stakeholders continuously engaged during the infrastructure development is therefore critical for building awareness and consensus for the effective and efficient implementation of projects, while mitigating potential risks of conflict throughout the infrastructure life cycle that could cause delays.
License, permits, and authorizations	▪ Acquisition of necessary licenses, permits and authorisations required to develop the project.
Shareholders' credibility	▪ Competent and committed project proponents / shareholders. ▪ Creditworthy shareholders / project proponents.
Public sector's reliability	▪ Public sector support for the projects. ▪ Public sector track record in implementation of transport projects.
EPC contractor's credibility	▪ Construction risk can be mitigated by a competent general contractor overseeing and implementing a management structure that enables co-ordination among sub-contractors with appropriate risk-sharing measures. ▪ Delays can further be avoided with suitable penalty clauses. In addition, performance records of local contractors should be kept to reference for future projects. ▪ The adoption of digital technology and innovative practices can help build better, cheaper, faster and safer infrastructure. In the long term, temporary facilities could be established to assemble parts close to construction sites, which could dramatically reduce construction time and labour costs. ▪ In addition, innovation-friendly regulations and policies, as well as technological solutions, can reduce life cycle costs.
Financial structure	▪ Contact with potential financiers. ▪ Establish the project financial structure. ▪ Identify the nature and scale of all the project risks.

Criteria	Steps that can be taken by project proponents
	▪ Define the balance between government support and provisions (such as defined tariffs) to secure specific government objectives. ▪ Allocate risks between government and the concession company. ▪ Tariffs close to revenue-maximizing, and with an appropriate tariff escalation formula that allows potential revenues to be captured over time, for the main vehicle classes. ▪ Projects with an existing income stream, e.g., from an existing estuarial crossing/tunnel, or an existing public sector expressway. This is hugely beneficial to financing. ▪ A project that has been well prepared — in technical terms, in securing planning consents and in proving the feasibility of land acquisition — thereby reducing implementation risks. ▪ A large project, which recognizes the high fixed bidding costs associated with BOT projects. ▪ Create investor friendly policies. ▪ Show commitment to policy, and harmonise policies i.e. policies should point in the same direction. ▪ Development, within government, of an effective transport strategy and project identification process.
	Possible strategies ▪ Use project finance techniques, such as special purpose vehicles and ring-fenced revenues: The best practice for the design and risk mitigation of infrastructure projects is nonrecourse project finance techniques. The annual assessment of project finance loans by Moody's Investors Service documents the superior performance of African project finance loans, with defaults of African infrastructure projects from 1983 to 2017 averaging 5.5%, a lower default rate than Latin America (12.9%), Asia (8.8%), Eastern Europe (8.6%), North America (7.6%), and Western Europe (5.9%) (Moody's Investor Service, 2019). ▪ Provide infrastructure project sponsors with highly-specialised technical support needed to develop investable infrastructure projects: African pension funds have indicated a strong interest in investing in Africa's infrastructure, provided the projects meet their investment criteria. The most effective way to meet investor criteria is to engage experienced professional project developers. In fact, surveys of professional project developers have demonstrated their willingness to provide their services to African governments and other project sponsors, provided the project is developed in alignment with investor criteria and a market-based model is used to compensate them for their services.
Insurance arrangement	▪ The success of attracting private finance for infrastructure depends on reducing perceived risks. This can be addressed in part through donor-provided risk capital and insurance (Collier and Cust, 2015).
Concession agreement	▪ Particularly in the case of PPPs, it could support the negotiation stage by linking up with resources, such as the CONNEX Initiative, a contract negotiation support provider which was initiated in the G7 context. ▪ Concession period. ▪ Support agreement/guarantee. ▪ Termination provisions. ▪ Construction contract. ▪ Operation and maintenance agreement. ▪ Offtake purchase agreement. ▪ Input supplier agreement. ▪ Guarantee from multilateral investment agency.

Criteria	Steps that can be taken by project proponents
	▪ Direct agreement. ▪ Catastrophic risk. ▪ Arbitration.

1.6 Case Studies of Bankable Transport Projects

1.6.1 Detailed Case Study: Kazungula Bridge Project

Background of the Project

The North-South Corridor (NSC) is a key trade route in Africa. It is approximately 2800km long stretching from the mining region of Lubumbashi in the Democratic Republic of the Congo (DRC) to the port city of Durban in South Africa. Along the way it passes though the Copperbelt (Zambia's industrial heartland) and Gaborone, the capital of Botswana. With spill over effects, the corridor further integrates Namibia, Zimbabwe, Lesotho and Eswatini.

The NSC is primarily road-based and the Kazungula crossing point at the Zambezi River at a confluence between Zambia, Botswana, Zimbabwe and Namibia was a critical bottleneck that prevented the efficient flow of goods due to the lack of a bridge across the river(a ferry was being used instead). The development of a Bridge at the crossing (refer to Figure 1.1 below) was an opportunity to increase the capacity and speed of transit and also introduce an alternative mobility mode: railway transportation.

Figure 1.1: Location of the New Kazungula Bridge Project

Source: https://capetocairo.africa/kazungula-bridge/

The Kazungula Bridge Project (KBP) is a multi-national project on the NSC within the Southern African Development Community (SADC) region and part of a corridor-long infrastructure improvement programme. The project was identified as a key project under SADC's regional development plan and is spearheaded by the governments of Botswana and Zambia.

The project scope includes a bridge linking Botswana and Zambia over the Zambezi River to replace the existing ferry and juxtaposed one-stop border facilities at Kazungula. The project's development objective is to improve the efficiency of transit traffic through the Kazungula border to facilitate and increase trade activities and global competitiveness of Zambia and Botswana; improve regional connectivity of the NSC; and contribute to economic regional integration within the SADC region. The project's stated outcomes include: (i) reduced border transit time; (ii) improved procedures on trade facilitation; (iii) improved border management operations, and consequently (iv) increased traffic throughput and (v) reduced time-based transport and trade cost (African Development Fund (ADF), 2011).

Previously, trucks could only cross two at a time at the border using one of two ferries. The waiting period to make the crossing could take up to three days. This turned into five days and more if one of the ferries broke down. The new bridge promises to reduce waiting times to around two hours with a one-stop border post will be placed on both sides of the bridge so that drivers stop only once at their point of exit/entry (SADC, 2017).

The Bridge

Technical details[10] of the bridge are as follows:

- It is a 925m long, 18.5m wide viaduct across the Zambezi River
- Design type: extradose cable stayed bridge
- Longest span: 129m
- Number of road lanes: 2
- Railway tracks: 1, narrow gauge 1.067m
- US$260 million capital cost
- Main contractor Daewoo of South Korea
- One-stop border crossing facility located on the Zambian side

Source: African Development Bank. Retrieved from https://capetocairo.africa/kazungula-bridge/

[10]African Development Bank. Retrieved from https://capetocairo.africa/kazungula-bridge/

Financing the Project

The estimated total project cost is USD 259.3 million funded through a co-financing arrangement between the African Development Fund (ADF) and JICA. The African Development Bank (through ADF) covers 31.5% of the total project cost. The balance is shared between JICA (57.5%), Governments of Botswana and Zambia (9.2%) and EU-ITF Grant (1.8%) (ADF Project Appraisal, 2011). The project implementation period is five (5) years.

Table 1.9: Kazungula Bridge Financing Contribution

Organisation	Percentage of project funding provided
JICA	▪ 57.5%
ADF	▪ 31.5%
Zambian Government	▪ 5.2%
Botswanan Government	▪ 4.0%
ITF Grant	▪ 1.8%

Source: ADF Project Appraisal, 2011

The implementation of KBP is divided into three contract packages namely:

- Package one: bridge and approach Ramps;
- Package two: one stop border post (OSBP) facilities Botswana side and approach road; and
- Package three: one stop border Post (OSBP) facilities Zambia side and approach road.

Package one which involves the construction of a Bridge and approach ramps is a Government financed project where the Republics of Zambia and Botswana are financing the project on a 50-50 basis. On the other hand, Package 2 which involves the construction of a One Stop Border Post facility on the Botswana side is JICA financed whilst package 3 which involves the construction of a one stop border post facility on the Zambian side is financed by the African Development Bank (AfDB).

The loans from AfDB and JICA are zero interest, with a tenure period of 50 years inclusive of a 10 -year grace period (ADF, 2011). The executing agency for the project is a combination of the Zambian and Botswana road authorities.

Governance

Once operational, the bridge will be managed by the Kazungula Bridge Authority, which will be set-up using the European Union Infrastructure Trust Fund (EU-ITF) grant. In effect, the project will be run similar to other trans-boundary projects such as the Zambezi River Authority, a body corporate enacted by parallel legislation in the Parliaments of Zambia and Zimbabwe.

Economic Sustainability

Evaluation of economic sustainability was based on the economic internal rate of return (EIRR) and the net present value (NPV) of toll revenue. With an assumed opportunity cost in Zambia of 12%, the base case of the project yielded an EIRR of 23% and a benefit-cost ratio of 2.34. Even with an increase in costs of 20% and reduction in benefits of 20%, an EIRR of 17.5% and benefit-cost ratio of 1.56 provided a convincing case for financing the project (ADF, 2011). The cost of operating the bridge (OPEX) was intended to be covered by the toll revenue. A conservative

assumption of 2.5% annual growth in traffic and 5% annual growth in OPEX were assumed and found to be covered by projected toll revenue (ADF, 2011).

Challenges

There were a number of challenges that the project went through as detailed below.

Boundary Dispute

A boundary dispute ensued among the partner countries. Botswana and Zambia had originally intended to work with Zimbabwe on the project. However, Zimbabwe later pulled out of the project as a result of some dispute at the time about the country's boundary. Zambia and Botswana decided to go ahead with the project but Zimbabwe refused passage of the bridge through her territory. The Bridge, which was supposed to be 600 metres long, had to undergo design alterations and have its belly stretch away from Zimbabwe and curve into Zambia (see curvature of the bridge in Figure 1). The changes to the bridge design saw it stretching to 923 metres.

Tender Dispute

The KBP also experienced a delay in its development due to a tender dispute. The disputed contract was for the Bridge construction only, but was sorted out after further discussions.

Project Preparation Highlights / Key Take Aways

Utilizing Table 8 that was presented in the previous section, the following table (Table 1.10) highlights the steps that were taken to make the Kazungula bridge project bankable and can act as lessons learnt. The project was seen as a regional priority and financially viable.

Table 1.10: Steps taken to make the Kazungula Bridge Project (KBP) bankable

Criteria	Steps taken to make the KBP bankable
Pre-development	▪ The project was identified by Botswana and Zambia and screened in the 1990s. The project was documented as a national priority in both countries. ▪ SADC documents also identified the bridge as a regional priority project that would rectify a major bottleneck in the NSC and promote an unobstructed and free flow of traffic in the SADC region. ▪ The Governments of Botswana and Zambia requested the Government of Japan to support early-stage preparation of the project. Japan agreed and supported the development of a feasibility study through JICA in 2001. ▪ The AfDB also carried out a thorough assessment of the project and prepared an appraisal document in 2011, the results of which supported the funding of the project by AfDB. ▪ One-stop Border Posts that are part of the KBP are recommended in line with SADC's Protocol (1996) to reduce border delays among SADC nations.
Project definition	▪ The governments of Zambia and Botswana clearly defined the bottleneck at Kazungula crossing including the challenge of using ferries. ▪ They defined the potential of the project to promote corridor development along the NSC, and the social and economic benefits. ▪ With the support of JICA early project documents (such as the 2001 feasibility study) identified expected service outcomes in line with overall development priorities, project concepts, project boundaries and scope, technical options and demand projections.

Criteria	Steps taken to make the KBP bankable
Feasibility studies	▪ JICA commissioned a feasibility study by Nippon Koei and Oriental Consultant, which was published in 2001 and confirmed the technical and economic feasibility the project. ▪ The feasibility study assessed Without Bridge Case (fixing the existing ferry and associated facilities only) and With Bridge Case ▪ In the 2001 study, three of the project components; the bridge at Kazungula, one-stop border post and ferry improvement were individually evaluated. It was found that the bridge and the one-stop border are both economically feasible in high growth of traffic scenario with calculated Internal Rate of Return (IRR) of more than 12%, which are the official discount rates for both Botswana and Zambia. ▪ The feasibility study also stated positive economic attributes such as job creation schemes, injection of money into the local economy for the duration of construction, and expected tax revenues. ▪ New businesses in terms of direct service provision associated with the bridge, where stated in the feasibility study and included toll and bridge management, border clearance services, and small-scale trade and retail trade. ▪ It was also indicated that the bridge will link two primary tourism centres increasing business opportunities serving goods and services. ▪ An Environmental and Social Impact Assessment was carried out on the project. Special attention had to be paid to the existing national parks and wild animal protection areas nearby the project site, and the existing towns and villages on both sides of the Zambezi River. In order to minimise negative impacts on the ecology and human settlement, special consideration was made in the design of the bridge and access road in terms of their location, scale and structure. In addition to the above, measures to minimize the negative environmental impact during the construction work, including protections of water contamination, noise and vibration were proposed. ▪ A Project Management Joint Committee, responsible for arrangement of the project financial source(s), determination of the property ownership and the project implementation/ procurement method, and setting up of project management policy and maintenance strategy, and establishing an Environmental Management Sub-committee, was proposed in the feasibility study and established by the Governments of Botswana and Zambia. ▪ The AfDB also carried out a thorough assessment of the project and prepared an appraisal document in 2011.
Capacity of the technology	▪ As the main bridge, PC Extra-dosed type was selected for the reasons that it has superior points in construction costs, concrete works, economical design and environmental impact, compared with PC Box Girder and PC Cable-stayed bridge types.
Site acquisition and access	▪ There was a dispute with Zimbabwe, resulting in the country's refusal to give passage of the bridge through her territory. This led to design alterations and illustrates the challenge of multi-country projects. ▪ An agreement was eventually reached between Zambia, Botswana and Namibia to allow for the project to go ahead, excluding Zimbabwe
License, permits, and authorizations	▪ Acquisition of necessary licenses, permits and authorisations required to develop the project were obtained by the governments of Zambia and Botswana.
Shareholders' credibility **Public sector's reliability**	▪ The project appraisal document prepared by AfDB thoroughly examined the credibility and governance structures of both Zambia and Botswana. In some areas, such as procurement, the AfDB decided to use their own systems where they found that the existing systems did not match their funding criteria (refer to AfDB, 2011)

Criteria	Steps taken to make the KBP bankable
EPC contractor's credibility	▪ In 2015, Botswana and Zambia invited bids for the construction of Kazungula Bridge Project. Daewoo Engineering and Construction was selected to be the contractor of the project. ▪ Although concerns were raised about the technical evaluation of bids, which led to one of the financiers dropping out, Zambia and Botswana stated that Daewoo were technically qualified to do the work.
Financial structure	▪ A number of financing options were investigated including PPP financing with varying combination of public and private (equity and or debt) investment from 100% public to 100% private against varying scenarios of traffic and revenue generation. The feasibility study concluded that an attractive return on investment required an investment of approximately 20% of capital cost with 100% of revenue as private income, an unattractive option to the Governments. The financing of capital expenditure with 100% public funds was therefore recommended for the project. The study however recommended a PPP option to be considered in the medium to long term for operations and maintenance on the basis that, excluding capital cost, the financial return could potentially be attractive for private sector participation.
Insurance arrangement	▪ Details not available publicly.
Concession agreement	▪ N/A – the project was financed by MDBs ▪ A PPP option may be considered in the medium to long term for operations and maintenance

Sources: African Development Fund Project Appraisal (2011); JICA KBP Feasibility Study (2001); various articles

1.6.2 Silk Road Project, Azerbaijan

Background and objectives of the Project

The Republic of Azerbaijan is situated on the crossroad of major international arteries. The two main highway routes carrying international traffic are the 503km long East-West Baku – Georgian Border road (the "Silk Road") and the 521km long North-South section stretching along the coastal areas of the Caspian Sea to the Iranian Border. The Silk Road Azerbaijan is part of the Greater Silk Road, a system of trade routes connecting China to Europe. The main objective of the Silk Road Project Azerbaijan (SRPA) was to provide a continuous, reliable, and direct land transport service between Baku, the capital of Azerbaijan, and the north-west of the country towards the border with Georgia (Islamic Development Bank (IsDB), n.d.). The Project aimed at rehabilitation and reconstruction of the Azeri part of the Silk Road which features prominently as part of the Transport Corridor Europe-Caucasus-Asia Program (TRACECA) linking it with the Trans European Networks (TENs) which, among other benefits, also enhances international trade.

The TRACECA initiative was launched in May 1993 with the aim of developing a transport corridor along the ancient Silk Route to bring together the original eight TRACECA countries comprising five Central Asian republics and three Caucasian republics (IsDB), n.d.). The idea was that such a corridor would:

1. Strengthen the political and economic independence of the republics by enhancing their capacity to access European and World markets through alternative transport routes
2. Encourage further regional cooperation among the partner states,

3. Use TRACECA as a catalyst to attract the support of International Financial Institutions (MDBs) and private investors and

4. Link the TRACECA route with the TENs, focusing on improving alternative routes between Caucasus and Europe and ensuring good international trade relationships.

The Project was also necessary due to a long period of inadequate funding caused by competing priorities resulting in a significant maintenance backlog. In addition, a poor safety record, inefficient cross border and transit facilities and limited institutional capacity were also identified as the key sectoral challenges (IsDB, n.d.).

Project Design and Implementation Arrangements

The design of this project was considered to be quite complex as the length of road stretched from the eastern end of the country, along the Caspian Sea to the North Western end of the country, bordering with Georgia for a total length of 503km (IsDB, n.d.). The road design also called for multiple terrestrial conditions including road sections consisting of four lane – dual carriage and two lane single carriage, bridges and pedestrian lanes. The implementation of the Project was particularly challenging as the country had only recently gained its independence and had a relatively new Government, expectedly less-experienced with multi-lateral development and IFI setting (IsDB, n.d.). In addition, the scope and cost of the Project necessitated a large number of financing agencies, each with its own set of conditions.

The Project implementing agency was/is the Road Transport Services Department (RTSD) operating under the country's Ministry of Transport (MoT); the responsibilities of RTSD were taken over in February 2007 by AzerRoad Services (ARS) which continues to report to MoT.

Financing the Project

For the purposes of rehabilitation, the 503km long Silk Road was divided into 8 sections, each section jointly financed by a combination of multilateral and financial institutions including: IsDB, the World Bank, the European Bank for Reconstruction and Development, OPEC Fund, Kuwait Fund for Arab Economic Development, the Saudi Fund for Economic Development and the Government of Azerbaijan. The IsDB is party to co-financing three of the eight sections for a total length of 187km along with other development partners it successfully brought in (IsDB, n.d.).

Initial studies for the project started in 1992 when IsDB approved a Technical Assistance (TA) Grant for the preparation of a feasibility study and detailed design. The first road section financed by IsDB was approved in January 1997 and was considered to be the first International Financial Institution (IFI) intervention in the Azerbaijan's transportation sector after it gained its independence in 1991 (IsDB, n.d.). Being the first donor, IsDB played a catalyst role in attracting other partners to finance the Silk Road in this country.

Key Take Aways

The IsDB (n.d.) prepared a case study of the project and provided the following as the main lessons learned.

1. **Planning Timescales**: The Project experienced delays due to "exceptionally bad weather" conditions. As a consequence, the previously agreed timescales had to be extended to allow for the delays in execution of projects. Adverse seasonal weather conditions need

to be factored into implementation schedules. The recommendation for similar projects was to have contractual durations adjusted to the historic weather conditions.

2. **Covenant Adequacy and Monitoring**: Some of the covenants stipulated under the EBRD loan had not been fully achieved, particularly complying with the "hard-side" loan covenants (i.e. mandating the manner of investment execution, timescales and quality for the delivery of infrastructure) seems disproportionately easier in comparison to complying with the "soft-side" loan covenants (i.e. related to the institutional reforms). That should not be surprising given the considerable amount of change required by the institutional covenants. Lesson learned was that institutional capacity analyses are a key appraisal due diligence element and need to cover the entirety of a project intervention, i.e. also including envisaged institutional and sector reform agendas.
3. **Long Term Sustainability of the Project**: The IsDB Evaluation Team concluded that the long term sustainability of the Project is at risk from: (i) Inadequate road maintenance and (ii) lack of enforcement of axle load control on the road network. There seems to be less focus on project sustainability – in the case at stake – on asset maintenance, i.e. on sufficient and effectively used operation expenditures (OPEX). Sustainability of the investment needs to be enhanced through sufficient routine maintenance and repair. Road project designs should include, apart from ensuring the sufficiency of adequate maintenance resources per se, provisions for ensuring appropriate execution of maintenance work.
4. **Coordination among MDBs:** The Evaluation Review Report noted that the Project lacked good coordination among the MDBs and could have benefitted from potential synergies. The MDB landscape in Azerbaijan includes AsDB, EBRD, IsDB, World Bank, OPEC Fund, Saudi Development Fund and Kuwait Fund for Arabic Economic Development and possibly other International Financial Institutions (IFIs), and also involves a number of key Donors all of which are involved in the country's road sector, many of them were parties in the Silk Road rehabilitation. In multi-financier project participation, the success of loan execution and institutional reform is considerably enhanced through close coordination amongst these stakeholders, eventually with one party taking the lead in the coordination processes. Given the often notable differences between MDB mandates, project loan agreements, pertinent procurement rules and other differences, establishing of a coordinating forum, eventually led by the party with the highest leverage potential, ensures a better overall project outcome than a fragmented approach by each intervention party individually.

1.6.3 Kasomeno-Mwenda Toll Road, Zambia

Project Background

The Kasomeno-Mwenda Toll Road and associated One Stop Border Posts are located in the Democratic Republic of Congo (DRC) and Zambia. The project is currently undergoing its development cycle which has included the preparation of a pre-feasibility study (2017-2019), full feasibility bankable study (2019-2020) and fund raising (2020). Implementation of the project is expected to commence in April 2021 through a PPP regime with a 25-year concession given to the private sector after which the road and ancillary infrastructure will revert to the governments of DRC and Zambia. The project preparation studies were funded by the Development Bank of Southern Africa (DBSA) (Athari Advisory Group, 2020). The winning Concessioner and financier is

Groupe Europeen de Development Africa (GED Africa) together with another equity investor from Hungary, Duna Aszfalt Investments (Athari Advisory Group, 2020).

Figure 1-3: Location of the Proposed Kasomeno-Mwenda Toll Road

Source: Athari (2020)

The project entails the construction of a new road and associated border controls and toll plazas between Kasomeno in the DRC and Mwenda in Zambia (Athari Advisory Group, 2020). Key elements of the project include:

i. 182 km of new single carriageway road – around 96km of the road is situated in the DRC and 86 km in Zambia;

ii. Construction of a 345 metres cable-stayed bridge across the River Luapula;

iii. Construction of one-stop border posts on each side of the River Bridge with associated parking and warehousing facilities;

iv. Construction of toll plazas on both sides of the bridge;

v. Construction of four satellite toll plazas; and

vi. Provision of an access road to the proposed airport at Kasenga.

Scheme Costs

(1) The preliminary Capital Cost (CAPEX) and Operating Cost (OPEX) cost estimates for the baseline solution were USD 770 million and USD 970 million, respectively.
(2) The preliminary CAPEX and OPEX cost estimates for the Potential Southern Route – Option 1 are USD 541 million and USD 1,001 million, respectively.
(3) The preferred option was (2) for the potential southern Route with a total CAPEX and OPEX of US$1,541 million.

Environmental and Social Safeguards Assessments

A full Environmental and Social Safeguards assessment was undertaken together with a Resettlement Plan for the affected people. Some limited resettlement issues were raised on the side of DR Congo near the Luapula River.

Challenges

The project had a few challenges as outlined below:

Project Preparation- being a bilateral project (DR Congo and Zambia) meant that concessions for the Toll Road had to be negotiated for each country and this delayed project commencement by almost two years. In addition the Feasibility Studies took a while to prepare due to the flooding in Democratic Republic of Congo in the Kasenga area making accessibility impossible for the study team for about 3.5 months. Traffic and Hydrological Surveys had to be put on hold.

Resettlement Issues-the project scoping had greatly underestimated the impact of the road on village settlements. When the Environmental and Social Impact Assessment was carried out it revealed that at least 35 families would be to be resettled in the DR Congo area. A land resettlement plan for the affected persons was then drawn up in mitigation.

Key Take Aways

- Project preparation was funded by Development Bank Southern Africa which is a South African government owned bank with regional interests within SADC. Members of SADC – a number of which are also LLDCs - can take advantage of the bank.
- Road Pricing is proving to be a sustainable way of funding road infrastructure in Africa and a good way of attracting the private sector as development partners.

1.6.4 Case Study: Paraguay

Enabling Environment and New PPP Law

Paraguay is located in the heart of South America and the South Common Market Block. It is described as a country with one of the best investment climates in Latin America and the Caribbean (Tase, 2014). Paraguay has an open economic policy making it relatively easier for foreigners to conduct business in the country. The government has created incentives to attract foreign investment, including tax breaks, full repatriation of capital and profit, and grants equal rights for foreign and local industries.

Paraguay introduced a new PPP law which was enacted at the beginning of November 2013 as part of a government drive to develop an estimated US$10 billion worth of infrastructure in the country, including roads, ports, airports and power distribution networks (Ferrere, 2013). With the government unable to fund the majority of the infrastructure projects, partnering up with the private sector was Paraguay's way to kick-start development in a range of fledgling industries.

The law imposes a minimum capital threshold for projects of US$4.8 million, and has allowed for the creation of a PPP project unit to coordinate all related matters, although the Ministry of Finance will has final say on whether a project may be structured as a PPP (Ferrere, 2013).

Companies are also able to submit proposals to the government, which will conduct a feasibility study, and if accepted a public tender will be launched. If the party which initiated the process is not selected, it has the right to compensation for all expenses (Ferrere, 2013).

Any bidder awarded a project is required to establish a joint stock company within a period specified in the contract, in which the bidder must be the majority shareholder. The bidder may also be required to establish a trust. On the government's side, it also seeks to provide companies with certainty over their investments by setting up government-funded trusts to guarantee all outstanding agreements (Ferrere, 2013).

$1.47bn Road Concessions Developed under the New PPP Law of Paraguay

One of the major roadblocks which has confronted investors interested in developing Paraguay's natural resources is the fact that, often, there are no roads connecting those resources with the rest of the country (Ferrere, 2013). The PPP model has generated considerable interest among investors across Latin America, and its introduction in Paraguay has provided them with more of an incentive to invest in the country. Shortly after the legislation was announced, local newspapers reported that a series of meetings had taken place between the government and several companies from Spain, Brazil, Chile and Bolivia to discuss the country's prospects.

The first project since then was the award of a contract for the construction and operation of "Road 2" (between Asunción and Coronel Oviedo) and "Road 7" (between Coronel Oviedo and Caaguazú). The contract encompasses 170 km of roadways that will be widened, improved, operated, and maintained by the concessionaire, including the construction of 5 by-passes between the cities of Asunción and Caaguazú (Relieve, 2016). Maintenance of the corridor will substantially improve the standards of quality and will have an impact on greater driver safety and comfort (Relieve, 2016).

In 2019, the Road/Route 2 & 7 financing was completed with the sale of $457.6 million worth of zero coupon bonds at 5%. The Inter-American Development Bank stepped in with a $200 million loan to help round out the deal which was the first one completed under Paraguay's seven-year old PPP law (Finance, 2020).

In total the PPP law has seen the commencement of four other projects besides the one mentioned above. The second project is the development of the main roads Rutas 1 and 6 - a $500 million project. The third project is a $400 million project to underpin the integrity of the water supply system for the north portion of the capital, Asuncion. The fourth project is now being studied to build the first third of a light rail system in Asuncion with a $300 million cost. Finally, the fifth project under study is a $140 million waterway project on the Paraguay River, which forms a large portion of its eastern border with Brazil.

Key Take Away

The project demonstrates how creating an enabling environment, in this case by creating an enabling PPP law and enacting investment friendly policies, can greatly attract and facilitate investment.

1.6.5 Brief Case Study: New Limpopo Bridge between Zimbabwe and South Africa

Beitbridge border post in Zimbabwe is located across the Limpopo River from Messina border post in South Africa. Beitbridge is one of the busiest ports of entry in Southern Africa; thousands of pedestrians, vehicles and trains carrying goods and groceries cross the border daily. As of 2014, an average of 8,000 travellers were accessing the border per day increasing to around 20,000 during peak periods (Chronicle, 2014). A total of 2,100 buses, 14,000 to 15,000 haulage trucks and 25,000 private cars were also passing through the border on a monthly basis as of the same year (Chronicle, 2014).

A bridge was first constructed across the Limpopo River at the beginning of the 20th century. The old bridge had only one narrow path to facilitate the enormous amount of human and commercial traffic. Long queues were common and often caused severe safety hazards. For this reason, and the growing demand for transport of commercial goods between South Africa and the rest of the continent, it was clear that the old bridge was no longer appropriate[11].

The shareholders of a company called New Limpopo Bridge (PVT) Limited (NLB) identified the potential in building a new bridge over the Limpopo. The governments of Zimbabwe and South Africa welcomed the initiative[12].

The New Limpopo Bridge (NLB) project was one of the first Build Operate Transfer (BOT) projects in Africa. NLB ltd entered into a 20-year concession agreement with the Governments of Zimbabwe and South Africa and provided funding for construction of the Bridge project. The bridge was completed in 13 months[13]. The sheer volume of traffic passing through this bridge made it financially viable as it is the busiest border crossing in the Southern Africa region.

The bridge provides an essential link with strategic importance. It promotes trade and development primarily between Zimbabwe and South Africa but also facilitates trade between South Africa and other LLDCs namely Zambia and Malawi, and the hinterlands of developing countries such as the Democratic Republic of Congo (DRC) and Tanzania.

Since its commencement, the new bridge has operated successfully. As of 2016, it was estimated that a total of 10 million vehicles had passed through Beitbridge border post since 1994[14]. The border post also employs local workforce and is one of the most important employers in Beitbridge. However, due to numerous bureaucratic processes, the border post is still a bottleneck as service is slow resulting to hours of waiting.

Shareholders in the project included an Israeli consortium who were the main developers, Old Mutual, Ned bank and Sanlam.[15]. The project became the first Southern Africa Public-Private Partnership to reach the BOT transfer stage and is now under the ownership of the Zimbabwean Government after the BOT agreement expired in mid-2014. It was transferred at no cost to the Government.

[11] https://nlpi.net/group-overview/nlb/
[12] Ditto
[13] Ditto
[14] The Herald: https://www.herald.co.zw/zim-sa-work-on-new-limpopo-bridge-mou/
[15] https://constructionreviewonline.com/2014/07/zimbabwe-takes-ownership-bot/

Key Take Aways (Project Bankability)

- Bridges, owing to their natural monopoly of sorts (they are usually the only permanent crossing over a river), have good potential to attract private sector investment.
- Beitbridge border post is one of the busiest border posts in Africa. The traffic across the bridge was a key factor in making this project bankable. Project proponents should look for similar opportunities where traffic is high.
- Owing to the existence of the old bridge, it was also easier to accurately forecast future traffic volume and revenues i.e. traffic and revenues were predictable. This supports the common adage that private sector is more attracted to brownfield projects (even though the bridge was completely of new infrastructure, the old bridge provided a basis for analysis).
- PPPs, if structured right work properly and the recipient governments will retain the infrastructure and toll revenues on expiry of the concession.

1.6.6 Case Study: North–South Railway Line, Turkmenistan

Project Context

Railways play a major role in transportation in Turkmenistan. In 2011, 16.28 million tons of freight were moved by rail, with an average haul length of 563 kilometres (km) (ADB, 2018). The rail tonnage increased to 20.83 million tons in 2016 with an average haul length of 578 km. While road transport moved more tonnage (314.31 million tons in 2011 and 420.12 million tons in 2016), the average length of haul was only 26 km in 2011 and 30 km in 2016. Because major cities are far apart, the long-haul capability of railways in intercity transport is an important contributor to Turkmenistan's economy (ADB, 2018).

In October 2007, the Government of Turkmenistan signed a multilateral agreement with Kazakhstan and Iran to construct a north–south railway line to promote regional trade, cooperation, and integration (ADB, 2018). Under the agreement, Turkmenistan committed to connect with its neighbouring countries to the north and south through a new single track non-electrified railway line of 925 km between Uzen in Kazakhstan and Gorgan in Iran. The north–south railway line was aimed at developing and improving Turkmenistan's accessibility to Kazakhstan, countries on the Persian Gulf, the Russian Federation, and South Asia. It was designed and built to increase regional trade, contribute to sustainable economic growth in Turkmenistan, and develop an integrated and efficient railway system in the region. The railway was also designed to cut trade costs and make trade more efficient; the main advantage being its speed, which is about 10-12 days, whereas by sea it is about 23 days[16]. With the new rail line in place, the distance to transport goods from Central Asia to Persian Gulf ports was cut by about 680 km. The project also provides direct employment, supports small business development, and opened up opportunities for tapping coal, gold, and other minerals in areas along the route as well as transporting bulk goods such as oil, agricultural products and textiles (ADB, 2018).

The route aims to improve resource-rich Central Asia's access to markets in the Middle East and South Asia. Turkmenistan is the holder of the world's fourth-largest reserves of natural gas[17] and

[16] UN Economic Commission for Europe
https://www.unescap.org/sites/default/files/Konstantinos_%20Alexopoulos_7_8feb.pdf
[17] Reuters https://www.reuters.com/article/turkmenistan-railway-idINKCN0JH1Q820141203

hopes to ship textiles and products of its nascent gas processing industry along the new route, consistent with its strategy of economic diversification. Oil-rich Kazakhstan, Central Asia's largest economy and grain producer, plans to boost exports of wheat to Iran and other markets of the region[18].

Turkmenistan, Kazakhstan and Iran inaugurated the new railway in the year 2014. The 925-km railway was built jointly by the three Caspian neighbours. The line comprises two parts: the northern section, from Uzen (Kazakhstan) to Bereket (Turkmenistan), is 596 km long; and the southern section, from Bereket to Gorgan (Iran) is 338.5 km long. In Iran, the railway is linked to the national network making its way to the ports of the Persian Gulf (ADB, 2018).

Work in Turkmenistan commenced in Bereket in December 2007 and in Kazakhstan in July 2009. In May 2013, a 311 km Bereket – Uzen section of the railway was completed. In February 2014, 256 km long section between Bereket and Etrek was completed.

The initial carrying capacity of the railway route was 5 million tons of cargo a year and is designed to rise to 20 million tons annually by 2021[19].

Financing

The governments of Kazakhstan and Turkmenistan financed the construction of the tracks in each of their territories in the northern section of the railway. The Turkmenistan part of the southern section was constructed by the Government of Turkmenistan which received US371.2 million in financial assistance from the IsDB to construct 256.5km of new line and 69.1 km of axillary lines[20] as well as other infrastructure. The government of Turkmenistan also requested the Asian Development Bank (ADB) to finance the design, procurement, and installation of the power supply, signalling, and telecommunication systems for 311 km of the northern section, from Bereket to Hazar (formerly known as Buzkhun), once the tracks were laid using government funds (ADB, 2018). However, changes to the design reduced the length of the ADB-financed section from 311 km (Bereket to Hazar) to 288.2 km (Akyol to Hazar) (ADB, 2018). Following due diligence ADB approved a loan of $125 million to finance the project. The ADB loan agreement was made with the Ministry of Railway Transport (MRT) of Turkmenistan and became effective on 29 August 2011. The MRT is the borrower and the executing agency (ADB, 2018). The loan has a 25-year term, with a 5-year grace period.

Policy considerations

The project was ADB's first lending operation in Turkmenistan. At the time of the project appraisal, ADB had no country partnership strategy (CPS) for Turkmenistan. Instead, an Economic Report and Interim Operational Strategy for Turkmenistan, approved in 2002, guided operations (ADB, 2018). The interim operational strategy was aligned with the government's medium-term development strategy. The project was also aligned with ADB's Sustainable Transport Initiative Operational Plan launched in 2010, which acknowledged railways as a sustainable mode of transport (ADB, 2018).

[18] Ditto
[19] Reuters https://www.reuters.com/article/turkmenistan-railway-idINKCN0JH1Q820141203
[20] IsDB https://www.wto.org/english/tratop_e/devel_e/a4t_e/gr17_e/isdb_publication.pdf

The project was formulated in the immediate wake of Turkmenistan joining the Central Asia Regional Economic Cooperation (CAREC) program in 2010 and was consistent with CAREC's overall objective of regional connectivity. The project railway line was recognized in the CAREC Transport and Trade Facilitation Strategy 2020 as part of CAREC Corridor 6, connecting Europe, the Middle East, and South Asia through Central Asia (ADB, 2018).

Overall Assessment

According to ADB (2018) completion report, the project was found to be effective as its outputs were achieved. The following are some of the reasons.

- The intended outcome of an efficient, safe, and reliable railway transport network developed and operated in Turkmenistan with better connectivity with neighbouring countries, was met.
- With a recalculated EIRR of 9.62%, the project was found to be efficient.
- With the recalculated FIRR at 8.61% compared to the WACC at 3.33%, the project was found to be financially sustainable.
- The assessment of environmental, technical, and institutional sustainability, found that the project is likely to be adequate and sustainable.

Lessons

- **Project conceptualization.** The ADB (2018) completion report stated that the project had strong government backing and ownership and had clear objectives for the funding requirements of different parties. The government purposefully kept ADB's scope limited to the procurement of signalling, power supply, and telecommunication systems, for which international competitive bidding would add value to Turkmenistan, and where ADB's technical advice would promote innovation.
- **Project preparation and approval**. ADB aimed to synchronize the timing of its approval to the general timing of the government's efforts on the north–south railway project. The project preparation, supported by project preparatory technical assistance (TA), provided the government with an opportunity to understand ADB's due diligence requirements. Nevertheless, the project was approved with certain residual risks associated with it being the first for Turkmenistan. Special arrangements needed to be followed, for example, finalizing the terms of the loan after Board approval (ADB, 2018).
- **Project implementation**. On the part of ADB, the project provided the chance to fully understand how Turkmenistan's internal regulations and legislation affect project preparation and implementation. On the part of the executing agency, a key lesson involves the need for dedicated staff to be available for projects financed by international financing institutions such as ADB. This was not the case for the project, often resulting in scheduling conflicts between multiple assignments and lack of focus on project requirements. Agencies outside of the MRT had limited knowledge of ADB guidelines and procedures and were not sensitive to project schedules, often resulting in delays in implementation (ADB, 2018).
- **Program management unit (PMU).** ADB (2018) completion report recommended that a PMU be created for future ADB-financed projects. The PMU should be staffed with full-time experts dedicated to working in the implementation of the project. The PMU must be

adequately staffed and headed by a senior official of the MRT with direct access to the minister to report progress, seek guidance, and request intervention when needed.

1.6.7 Brief Case Study: The Addis Ababa Light Rail Project, Ethiopia

Throughout the developing world, local authorities have recognized the importance of a modal shift from private to public transport. However, Baku (Azerbaijan), Tashkent (Uzbekistan), Almaty (Kazakhstan), and Yerevan (Armenia) are the only major cities of LLDCs that have been operating high-occupancy urban metro or light rail systems for some time (UN-OHRLLS, 2017). As the largest and fastest growing capital city of any of the LLDCs, Addis Ababa (4.8 million inhabitants in 2014) embarked on the construction of a new metro system, and successfully inaugurated its first line in September 2015.

The Addis Ababa light rail project is a joint venture between the governments of Ethiopia and China. In the initial phase, the project has two lines, with a total length of 32 km and 39 stations, and benefits from an investment of US$ 475 million (Centre for Public Impact (CPI), 2016). The Addis Ababa light rail system is the first of its kind to be built in sub-Saharan Africa outside of South Africa, and it gives local commuters a way to escape some of the city's most serious traffic jams.

In 2007, Ethiopia's capital, Addis Ababa, had two main forms of transport: buses supplied by the state-owned company, Anbessa; and the 'blue donkeys', blue-and-white minibus taxis (CPI, 2016). The government sought to find a public transport solution that did not add to the traffic congestion on the capital's already crowded roads. The national and city government gave the problem serious consideration. A steering committee was set up in December 2007, the Ethiopian Railways Corporation (ERC) took charge in March 2008, contracts for its construction were signed in September 2009, and it began running light rail services six years later.

The project was 85 % financed by the Export-Import Bank of China through a loan agreement signed with the Chinese government in June 2011, built by the China Railway Eryuan Engineering Group, and provides capacity for 15,000 passengers per hour in each direction (CPI, 2016).

Objectives of the project are to:

- Provide an alternative means of public transport to the city's road-based system.
- Speed up passenger journey times.
- To provide a more environmentally-friendly transport option.

The opened line runs for 18 km from the industrial areas in the south of Addis Ababa to the centre of the city. A second, east-west, line of the same length is also now operational. The two lines, are able to carry 60,000 passengers an hour when they are fully operational. Fares are 6 ETB (about US$0.30) per journey (CPI, 2016).

Challenges

A few challenges have since arisen with the project:

Severance-the construction of the light rail tracks and stations has led to severe severance issues as the road network has had to be reconfigured in many places resulting in the closure of some access points. This has meant that drivers have to follow more circuitous routes.

Shortage of Power-the electric power interruptions that are experienced in Addis Power mean that very often the light rail operations have to stop due to lack of traction power which results in severe delays and distort the train scheduling.

Rolling stock- there is a severe shortage of adequate rolling stock which results in the cancellation of some of the services when some of the locomotives are taken off the track due to breakdowns.

Key Take Aways / Lessons

- As with NLB project, a clear need / demand for the project was a key factor in making the project bankable. Addis Abba is a large growing city and it was estimated that Addis Ababa Light Rail Transit (AALRT) network had transported more than 29 million people in its first nine months according to the Ethiopian Ministry of Transport (MoT). On the whole the project is economically viable and receives a subsidy from the City Administration to also make it financially viable.
- Growing urban cities in LLDCs provide opportunities for investment.
- There was clear political support of the project and project proponents / champions were selected. The national and city government created a steering committee and the Ethiopian Railways Corporation (ERC) took charge of the project.
- Ethiopia leveraged Chinese financing which has become an attractive source of funding for infrastructure projects in Africa.

1.6.8 Brief Case Study: N4 Toll Road from South Africa to Mozambique (Transit Countries)

In 1996 the governments of South Africa and Mozambique signed a 30-year concession with a private consortium, Trans African Concessions (TRAC), to build and operate the N4 toll road from Witbank, South Africa to Maputo, Mozambique[21]. After the 30-year period, control and management of the road reverts to the governments. The contract was worth R3 billion (at 1996 estimates).

The N4 was financed from 20% equity and 80% debt[22]. The three construction companies who are the sponsors of the project contributed R331 million worth of equity with the rest of the capital provided by the South Africa Infrastructure Fund, Rand Merchant Bank Asset Management and five other investors. The debt investors include South Africa's four major banks: ABSA, Nedcor, Standard Bank and First National Bank; the Development Bank of Southern Africa; and the Mine Employees and Officials Pension Funds. The governments of South Africa and Mozambique jointly and severally guarantee the debt of TRAC and, under certain conditions, guarantee the equity as well[23].

At the time it was the biggest project finance deal in Southern Africa. The N4 faced demand risk – would cars pay to use the road when less well-maintained but free alternative routes existed?[24] Traffic volumes, which were dependent on increased regional trade and economic growth in Mozambique, have not been as high as the financiers projected. But TRAC has previously stated

[21] https://saiia.org.za/news/case-study-sa-mozambique-toll-road/#:~:text=THE%20governments%20of%20Mozambique%20and,road%20reverts%20to%20the%20governments

[22] Ditto

[23] Ditto

[24] South African Institute of International Affairs (SAIIA) https://saiia.org.za/research/case-study-sa-mozambique-toll-road-2/

that the traffic has been 'acceptable'. There was also considerable user payment risk in Mozambique as the poor communities were unable and unwilling to pay high toll fees[25]. TRAC cross-subsidised the Mozambican portion of the road with higher revenues from the South African side. It also provided substantial discounts to local users and public transport on both sides of the border.

Challenges

Some challenges include the following:

Overloading Issues- although one of the major concerns of the concessionaire was the potential damage caused by overloading, the concession agreement did not specify regulations of truck loads. In order to overcome this problem, the concessionaire began assisting both governments in establishing axle load control measures. The project which is operational since 2002 consists of a set of six traffic control centres, adequately equipped with measuring equipment to weigh axle loads.

Complaints from Commuters- complaints by commuters and other normal users, to the effect that a road that was previously free of charge becomes a toll road after upgrading. This subject was addressed by introducing much lower toll fees for these categories of road users.

Key takeaways / Lessons

- The commercial risk was shared between a range of partners. Cross-subsidisation (from the more affluent South African users) and substantial discounts for regular Mozambican users helped to reduce the user payment risk.
- The road facilitated further private sector investment in Mozambique, which in turn raised traffic volumes.
- The N4 toll road showed the viability of PPPs in the road sector where the users are willing and able to pay. The N4 has successfully reduced overloading of heavy vehicles, a major cause of road deterioration. It has also facilitated the growth of tourism in the region as well as other sectoral investments in Mozambique such as the Mozal aluminium smelter and the natural gas plants at Pande and Temane (Farlam, 2005).

1.6.9 Brief Case Study: Central Eastern African Railways

In December 1999, the Central Eastern African Railways (CEAR) consortium won the rights to operate the Malawi railway network after responding to a call for tender by the Privatization Commission of Malawi in the local and international press.

The PPP project was a full privatization project of Malawi Railways where the government issued the company a concession agreement for period of 20 years to buy off all movable assets and run the railway network (Zimbabwe Economic Policy Analysis and Research Unit (ZEPARU), 2016). The concession was renewable subject to parties being satisfied with the progress made during the initial 20 years. All non-movable assets such as the stations and building, rail line and houses were not sold in the first place but the concessionaire was allowed to use them and pay rent.

[25] Ditto

Under the circumstance that the concession was not renewed, all the movable assets were to be revalued and sold to the government. In terms of incentives given to the private sector, the government offered a source of funding to be used in the rehabilitation of the movable assets such as locomotive, wagons and rail lines through a government guarantee loan with the Office of the President and Cabinet. The role of the private sector in the PPP project was to run the day to day operations of the Malawi Railways and to bring in private sector business skills and expertise to improve the performance of Malawi Railways.

The CEAR was going to recoup its investments in the organization through the profit the company was going to be generating. The role of government in the PPP was to act as government controller to monitor whether all the terms and conditions agreed in the concession agreement were being adhered to. Investor's capital was used to finance the project (ZEPARU, 2016). The concession agreement was the main legal document guiding the PPP project, in line with the constitution of the country and all the law applicable in Malawi. The regulatory framework was laid down in the concession agreement between government and CEAR and the Privatization Commission and railways department in the Ministry of transport were the main regulators (ZEPARU, 2016). The institutions mandated with the management of PPPs conduct constant monitoring of operations and finances through operations and financial reports. Key personnel from investors of the project also undertake visits to monitor progress on the ground.

The legal framework for PPPs in Malawi is adequate (ZEPARU, 2016). The environment is also very conducive in terms of peace which results in very little disruption in operations. However, the economic environment has not been very conducive because of high interest rates and very volatile exchange rates which led to high exchange rate losses. There has been consistency and respect of contracts for the PPPs on the part of both government and the private sector resulting in the success of most of the PPPs project, with very few cancellations.

CEAR has, to date, been financially unsuccessful but it is expected that this will soon change owing to additional investments that have been made (Akins, 2017). The assessment of the accounts and forecast freight traffic by Malawi's National Transport Master Plan (Akins, 2017) suggests that CEAR is likely to be financially stable in the short term, profitable in the medium term and capable of helping to support the Malawi economy through enhancements to the Malawi rail network in the long term. The investment by Vale in building the west line from Moatize to Nkaya and the east line from Nkaya to Nacala, and smaller but still significant investments in the south from Nkaya to Limbe and north lines from Nkaya to Mchinji and Chipata, have arrested the historic decline of rail in Malawi (Akins, 2017). The financial arrangements put in place for the transit of coal should put the railways in Malawi on a sustainable financial footing for the next 15 years as long as CEAR invests the forecast financial surplus in sustaining and enhancing the whole network (particularly the north and the south lines) (Akins, 2017).

Among other issues that cropped up during the PPP project design and implementation which affected viability of the project was poor quality of the infrastructure, and this affected service delivery. This had not been anticipated at design stage. CEAR avoided the local banks and borrowed internationally because of low interest rate (ZEPARU, 2016). However, this opened up exposure to exchange rate risks. As a mechanism to ensure skills retention and technological transfer over the duration of the implementation of the PPP, all key positions are filled by the locals and international supervisors are employed to assist the locals to improve their work. After training, the locals then takeover from the international supervisors.

Challenges

Financial Viability-the project has not been financially viable to date but however recent projects show that it would be financially viable if CEAR invests the forecast financial surplus in sustaining and enhancing the whole network (particularly the north and the south lines).

Key Take Aways

- The legal framework for PPPs in Malawi is adequate. The environment is also very conducive in terms of peace which results in very little disruption in operations.
- The main policy intervention that can be recommended to improve the operational environment for PPPs is to manage the interest rates and local currencies.
- Projects can build local skills transfer by placing local staff in key positions.
- The railway was originally operating unsuccessfully (first 17 years), but when new lines were added that carried (transited) coal from Moatize to Nacala port in Mozambique, the railway is now forecast to be a success. Key, once again, is tying the project to a suitable source of traffic.

1.7 Exercises:

- A group exercise where participants are requested to select a project from a list of real-life projects that have been successfully implemented and are then requested to detail how they could make the project bankable.

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Module 2. **Identifying Funding Sources and Requirements for Bankable Infrastructure Projects**

2.1 Key Objectives of the Module:

- This module aims to inform participants of the various funding sources available for transport projects, as well as to apprise them of the requirements that need to be fulfilled to leverage them.

2.2 Available Sources of Funding for Transport Projects

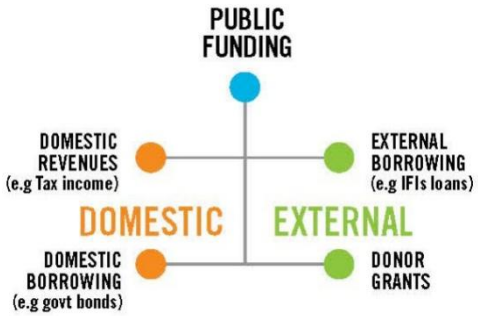
> "Analysis shows that the gap between what is invested in transport infrastructure in LLDCs and what is needed, could be as large as 2.3% of GDP. Closing this gap in the LLDCs will require not only enhanced resources from the public sector, private sector and international development partners as well as exploring new sources of financing, but also efforts to make better use of existing resources." **- UN-OHRLLS (2018)**

2.2.1 Public Sector Financing

Introduction

Worldwide, the majority of funding for infrastructure investment has been obtained from the public sector, particularly government budgets (Usubaliev, 2020). Public financing entails direct investment by government from within its budget (e.g., tax income) and domestic borrowing (e.g., government bonds). It also includes external borrowing (e.g., borrowing from international finance institutions (IFIs)) and donor grants (see **Error! Reference source not found.** below).

Figure 2.1: Sources of Public Sector Funds



Source: Review of Developments in Transport in Asia and the Pacific (United Nations ESCAP, 2013)

Traditionally, the public sector has been the principal source of transport infrastructure development financing. The United Nations (UN) Economic and Social Commission for Asia and

the Pacific (ESCAP) has estimated that among the Countries with Special Needs (CSN)[26], 65% of infrastructure projects are funded by government budgets, 15% financed by the private sector, 10% financed by loans and credits from Multilateral Development Banks (MDBs), and the remaining 10% is financed from Official Development Assistance (ODA).

A key advantage of financing transport projects through public sector funding is that it allows governments to maintain control of public assets. In sectors such as roads, which have a significant public good characteristic, the government will normally have an interest in retaining a certain amount of control in the operations and service provision; even while private participation is encouraged, the strategic interests of the nation are also maintained (Kaombwe, 2000).

Governments also may also seek to deliver subsidised services to specific groups on equity or other grounds, for example, where the minimum scale required for service provision is simply not financially viable with the service population (Chan et al 2009). And, as infrastructure can provide benefits to groups other than the direct users (such as the effect of public transport on road congestion and greenhouse gas emissions), the benefits of the investment may exceed the potential revenue from user charges (Chan et al 2009).

Where one person's consumption of a service does not affect the amount available to others and, moreover, people cannot be prevented from consuming the good (even if they refuse to pay for it), the service is a 'public good'. A private provider simply will not provide services the costs of which cannot be recouped in some way (Chan et al 2009).

Sources of Public Sector Funding

Owing to their large capital requirement, public infrastructure projects such as roads, railways and airports are often financed either by borrowing through debt or bonds, or by selling equity positions in a project. Equity investments come at substantially higher return expectations than debt, and therefore come at a higher cost. For this reason, projects are typically financed with a ratio of between 10-20% equity and 80-90% debt (Siemiatycki, 2018).

Major Banks and financial institutions typically provide debt financing to infrastructure projects, while bonds are floated on international capital markets. The interest rates are determined by the creditworthiness and rating of the issuer. The term for bonds and loans are commonly between 5-15 years (Siemiatycki, 2018).

As mentioned above, public sector funds can either be sourced domestically or externally. Regardless of which financing sources are drawn on to pay for the upfront construction of the transportation project, the project proponent must have sufficient revenue sources to fund the project and repay the initial investment. As shown in the table below, project proponents can draw on a wide range of revenue tools to pay for infrastructure, including user fees and general taxes.

[26] This includes Landlocked Developing Countries (LLDCs), Small Island Developing States (SIDS) and Least Developed Countries (LDCs).

Table 2.1: Potential Sources of Funds for the Public Sector

User fees	General Funds	Other Funding
▪ Transit fares ▪ Road tolls / airport passenger fees / other similar fees ▪ Congestion charge ▪ Parking levies ▪ Fuel levy / taxes	▪ Property tax ▪ Sales tax ▪ Personal income tax ▪ Hotel/recreation tax ▪ Vehicle registration fee ▪ Land transfer tax ▪ Land value capture ▪ Utility bill levy ▪ Billboard tax ▪ Advertisement revenue ▪ Indirect taxes paid to the government or other public agency	▪ Domestic / external debt ▪ Domestic pension funds ▪ Sovereign bonds ▪ Contractor finance ▪ Commercial Lenders

Challenges with Public Sector Funding

Public sector financing faces a number of challenges. Firstly, there are currently limited and often relatively dwindling funds available for the large amount of investment required to develop transport infrastructure. Transport investment typically requires up to 3% of GDP for developing countries, with a rather higher share for LLDCs. The OECD estimated in 2017 that global transport (roads including reconstruction, railway including suburban, port and airports) infrastructure needs were about US$ 2.7 trillion (Mirabile, Marchal and Baron, 2017). This was about 3.4% of GDP in 2017 prices. The Asian Development Bank (2017) estimated that meeting the transport development needs of its developing member countries would require about 2.6% of GDP between 2020 and 2030 but this excluded urban transport. In Latin America, the transport infrastructure investment needs between 2016 and 2030, including new investment and maintenance, ranges from 0.7% of GDP to 2.2% of GDP (based on GDP growth projections between 1.4% and 3.9%; this estimate includes road and rail only). World Bank assessment estimates suggest that for nine of the LLDCs in Sub-Saharan Africa, the average transport investment need was estimated at 4.8% of GDP, compared to the 3.0% average for the other Sub-Saharan countries[27] (Carruthers, Krishnamani and Murray 2008).

Public funds are not sufficient to cover the aforementioned investment requirements. This is partially because public funds have competing demands; governments are expected to also invest in other equally important sectors such as education, healthcare, power/energy and agriculture. Funds available from public sector are also dwindling in some LLDCs as a result of monetary policy reforms being implemented to bring about necessary macro-economic and financial stability. In addition, public deficits, increased public debt to GDP ratios and, at times, the inability of the public sector to deliver efficient investment spending, have in many economies led to a reduction in the level of public funds allocated to transport infrastructure development (UN-OHRLLS, 2018).

A number LLDCs still need to raise additional fiscal revenues in order to help meet their infrastructure gap. Tax mobilization remains low in spite of significant effort and recent reforms

[27] The nine countries were Burkina Faso, Chad, Ethiopia, Lesotho, Malawi, Niger, Rwanda, Uganda and Zambia.

in some LLDCs and the ratio of tax revenues to GDP also ranges considerably amongst the LLDCs (UN-OHRLLS, 2018).

Transport user charges are a widely used as a way of raising revenue that can be used to finance transport investment, and to free up some funds that might otherwise have been used on infrastructure maintenance to become available for investment in new infrastructure. Many LLDCs have implemented some form of charging users for the maintenance of transport infrastructure, but typically increases in charges in these schemes are not keeping pace with increases in costs (UN-OHRLLS, 2018).

Chan et al (2009) also reveal that immunity from market signals and commercial disciplines (including from capital markets), has resulted in high cost and poor quality services, a lack of innovation and sub-optimal investments when the public sector directly develops projects. From the early 1990s, the response has been a swing back to more commercial or fully private provision of much public infrastructure in order to promote productive efficiencies and innovation, albeit within regulatory frameworks designed to constrain misuse of market power.

Developing projects through public finance may also face the challenge of political interference. Changes in political leadership can overturn previous commitments to infrastructure projects. Projects may also be inefficiently developed or constructed because they have been offered only to the privileged elite or connected individuals who may not necessarily the best or requisite developers / contractors.

Recommendations

Depending on the circumstances of each LLDC, there are several ways that domestic financing could be increased. The main recommendations are to:

- Make better use of existing funds and make public investment more efficient. If LLDCs could reach best practice standards, this could increase the quantity of transport infrastructure that can be built with current funding and financial resources by up to 30% (UN-OHRLLS, 2018).
- Allocate greater share of public revenue to transport infrastructure, if possible.
- Make better use of road funds and transport user charges such as toll fees.
- Utilise non-user fees, such as for owners of land and property that is close to the new infrastructure, so that those who benefit from the investment also make contribution to its financing.
- Consider making infrastructure investment attractive to national institutional investors. LLDCs can complement fiscal revenues and diversify their source of domestic financing by issuing sovereign bonds and engaging institutional investors such as pension funds, insurers and sovereign wealth funds (this is elaborated in section **Error! Reference source not found.**).
- Consider structural reforms. Through structural reforms, LLDC governments can create a more favourable investment climate, build private sector confidence to invest and ensure that global savings are channelled into productive investments, including infrastructure.
- Improve the institutional processes on the selection and implementation of infrastructure projects.

Case Studies of Public Sector Funded Projects

Case Study: Dualization of the Beitbridge – Harare Road, Zimbabwe

The Beitbridge - Harare Road is the main route for trade between ports in South Africa and Zimbabwe, and countries north of Zimbabwe. It is located along the North - South Corridor and is an important trade route for the SADC region. The road serves as an international route for cargo and persons travelling between Tanzania, DRC, Zambia, Malawi, Mozambique and South Africa.

The road was built over five decades ago and has long been due for rehabilitation and widening. In 2018, Zimbabwe recorded an increase in road traffic deaths from 1,828 in 2017 to 1,986 in 2018. Of the 1,986 deaths recorded in 2018, more than 600 perished along the Beitbridge - Harare highway (Bhoroma, 2019).

Dualization of the Beitbridge - Harare - Chirundu[28] highway was first planned in the late 1980s, but the design and construction tender was only awarded to ZimHighways, a consortium of local construction companies, in 2002. The company failed to implement the project for over a decade after hyperinflation rendered the Zimbabwean dollar quotations valueless and the tender was cancelled.

In 2019, Zimbabwe decided to develop the project using its own public funds. According to the national newspaper, the Herald, the Zimbabwe National Road Administration (ZINARA) intends on channelling a large chunk of the funds it collects from toll gates into the rehabilitation of the Beitbridge – Harare road (The Herald, 2020). So far Zimbabwe has made progress and constructed a total of 132km out of 600km as of end of 2020 (Ntali, 2020).

Key lessons:

- Creating a stable and enabling economic environment is important for infrastructure development. GoZ's previous attempts to develop the Beitbridge - Harare road were hampered by inflation and an unstable currency.
- Governments should look internally. When the GoZ decided to undertake the Beitbridge Harare Road project using its own funds (toll funds), not only did it make progress (a total of 132km has been completed as of end year 2020 (Ntali, 2020)) but it realised that it will require US$650 million to undertake the project, implying savings of US$1,3 billion from what other project developers had indicated it would take. It is possible for governments to fund their own projects and although it may take longer, they could save money in the long run.
- By working with local contractors, the country has also been able to save foreign currency and according to the Ministry of Transport and Infrastructure Development in Zimbabwe, the foreign currency savings were about 60% (Sunday Mail, 2020).
- Using local companies and resources creates local employment and spurs local production and expertise.

[28] Harare – Chirundu road is north of the Beitbridge - Harare highway and leads to the border with Zambia at Chirundu.

Case Study: Miladinovci - Stip, Macedonia

The 53km Miladinovci - Stip highway connects North Macedonia's capital Skopje with the eastern part of the country and is therefore essential for regional development and the transportation of people and goods across the country. Unfortunately the presence of underground water on certain parts of the highway had led to failure and damage along several parts of the road. It was therefore necessary to find a solution to the risk and construct a new highway. The project also aimed to contribute to growth of the economy and the development of the eastern parts of the country along the Pan-European Corridor VIII (Xinhua, 2019).

The highway was structured in a way that it will be paid for by the citizens of Northern Macedonia; 10% as a share of the Public Enterprise for State Roads and 90% from taxpayers who will also repay a loan from China (MIA Agency, 2017). Officials from the government of Macedonia and the EXIM bank of China signed a loan agreement on November 26, 2013 wherein a loan would be provided to pay for 10% of the new motorway project.

The construction of Miladinovci-Stip highway section started in May 2014 and it opened for traffic in 2019.

Key lesson:

- The project was completed using a mix of public sector funds and a loan from China.

Case Study: Harry Mwaanga Nkumbula International Airport in Livingstone, Zambia

In 1989, Zambia created the National Airports Corporation Limited (NACL) to develop, manage and expand the nation's international airports. The Harry Mwaanga Nkumbula International Airport (HMNIA) is located in southern Zambia on the outskirts of Livingstone, close to the world famous Victoria Falls. HMNIA was built in 1952 and in 2000 it handled just 8,963 international passengers. However, by 2011, the airport was handling over 203,800 international passengers (VictoriaFalls24, 2012).

Given the significant increase in arrivals at HMNIA, the NACL through the government of Zambia earmarked over US$40 million in funds to build a new terminal at the airport and to upgrade the old one (Chanda, 2014). Construction of the new international terminal commenced in August 2010 and was managed by a local construction company, Flame Group. The new terminal was partially opened on August 21, 2013 to its first international passengers and all construction on the expansion was completed by end of 2013. In 2015, NACL announced another round of expansions to HMNIA with a US$50 million budget.

The international terminal has been expanded by three times the size of the old terminal, increasing the number of check-in and immigration counters. Airlines have also been equipped with bigger offices and there are now three VIP lounges. A viewing terrace and retail and duty-free shops have also been added to the terminal. There are features such as lifts, escalators, a banking hall, upper floor VIP and business lounges and an upper floor restaurant.

Key Take Away / Lesson

- Funds were sourced through the Zambia National Airports Corporation Limited who will make use increased revenue from airport user charges**.** Airport passenger charges can be

used for a similar purpose to road user charges to fund airport investments, and they usually generate enough revenue to amortize debt charges incurred.

- Developing projects close to tourism attractions, such as an Airport close to Victoria Falls, has a multiplier effect. The airport infrastructure development comes with other services such as hotels, hospitality, restaurants and taxi services that benefit from the development.

2.2.2 Official Development Assistance (ODA)

Overview

Official Development Assistance (ODA) is defined by the International Monetary Fund (IMF) (2003) as flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25% (using a fixed 10% rate of discount). By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries ("bilateral ODA") and to multilateral institutions / International Finance Institutions (IFI) such as the World Bank or African Development Bank (AfDB), or a development agency such as the United Nations (UN) (IFI's are explored in greater detail in Section 2.2.3).

The Addis Ababa Action Agenda on Financing for Development clearly identifies ODA and Other Official Flows (OOF) as relevant elements in the financing of sustainable development programmes (United Nations, 2015). Although these flows are relatively small when compared to domestic public resources or private flows, they still play an essential role since they frequently function as "seed funds" or catalysers of additional resource mobilisation in sectors or projects where other funding options are limited, or where investors are reluctant to participate (SDG Pulse, 2020). Furthermore, for some countries in vulnerable situations, official funds are frequently the only source of financing available (SDG Pulse, 2020).

International and regional financing institutions as well as donors, continue to be a significant source of infrastructure development funding for LLDCs. However just as is the case for public funds, availability of ODA funds for infrastructure development is limited. ODA assistance is largely directed to social services such as education and health, and other poverty alleviation programmes of direct benefit to the local communities. Furthermore, in addition to this competition for donor funds with other sectors, there is also intense competition among recipient countries.

About two thirds of ODA in LLDCs is from donor to recipient, and one third comes from the Multilateral Development Banks (MDBs). Apart from the traditional MDBs, several new MDBs have also recently entered the stage. ODA flows to LLDCs reached around US$ 25 billion in 2016, however infrastructure (water, transport and storage, energy, and communications) amounts to just around 22% of this amount (OECD/DAC, 2019).

Sources of Official Development Assistance

The sources of ODA can be classified into two broad categories. It can either be provided bilaterally from donor to recipient, or through an agency.

1. Bilateral transactions are those in which the donor directly funds the LLDC.
2. Multilateral Development Agencies are organisations such as the UN and the World Bank.

Challenges with Official Development Assistance

The commitment of developed economies under Sustainable Development Goals (SDG) target 17.2 is to dedicate 0.7% of their Gross National Income (GNI) to ODA to developing countries, including 0.15% to 0.20% exclusively to Least Developed Countries (LDCs). However actual ODA funds made available for developing countries have yet to reach half of this commitment in any year as of the year 2020, while those made available to LDCs fare relatively better, although reaching their target range only once since 2002 (SDG Pulse, 2020).

A challenge to ODA is the need to condition disbursement to performance indicators. There are situations where condition demands that recipient Governments monitor indicators such as inflation rate, and disbursement is made only after verification. Monitoring and verification of those conditions can take time and can delay the process of development (Ayoki, 2008).

Recommendations

- It is important to place increased focus on the quality of aid, instead of just the quantity. The Commitment to Development Index [29] is one such measure that ranks the largest donors on a broad range of their "development friendly" policies. It considers the quality of aid, in addition to the quantity.

Examples of transport infrastructure in LLDCs developed through bilateral ODA

Case Study: International Main Roads Improvement Project, Kyrgyz Republic

In 2014, the Japan International Cooperation Agency (JICA) signed a loan agreement with the Government of the Kyrgyz Republic in the capital city, Bishkek, to provide a Japanese ODA loan of up to 11.915 billion yen for assistance for the International Main Roads Improvement Project which began in 2018 and is expected to end in 2023. This project will provide improvements to a 47-kilometer interval on an international trunk roadway connecting Osh, Batken and Isfana in the southern part of the Kyrgyz Republic, and carry out disaster risk reduction measures (tunnel construction, falling rock countermeasures and landslide prevention) on an international trunk roadway connecting Bishkek and Osh, a core city in the south (JICA, Signing of Japanese ODA Loan Agreement with the Kyrgyz Republic: Strengthening the capacity to transport people and goods domestically and internationally, 2015a). These measures will improve the road transportation capacity and safety in the Kyrgyz Republic, thereby facilitating domestic and international transportation and contributing to economic growth (JICA, Signing of Japanese ODA Loan Agreement with the Kyrgyz Republic: Strengthening the capacity to transport people and goods domestically and internationally, 2015a).

The loan funds for this project will be allocated to public works, including road improvements, bridge replacement, tunnel construction, and falling rock and landslide measures, and to consulting services, including procurement assistance and construction supervision. Special Terms for Economic Partnership apply to the Japanese ODA loan for this project, and Japanese technology will be used for the disaster risk reduction measures and bridge portions of this

[29] The Commitment to Development Index (CDI), published annually by the Center for Global Development, ranks the world's richest countries on their dedication to policies that benefit people living in poorer nations.

project (JICA, Signing of Japanese ODA Loan Agreement with the Kyrgyz Republic: Strengthening the capacity to transport people and goods domestically and internationally, 2015a).

In the "National Sustainable Development Strategy of the Kyrgyz Republic (2013-2017)", the transport sector is set as one of the prioritized areas, and it focuses on ensuring access of the domestic market and the surrounding countries (JICA, 2015b). The rehabilitation of Osh-Batken-Isfana road, and disaster prevention measures in Bishkek-Osh road is positioned as one of the most urgent areas in the Strategy.

Japan's Country Assistance Policy for the Kyrgyz Republic identifies "maintenance of transport infrastructure and reduction of regional disparities" as a priority area. In the JICA Country Analysis Paper to Kyrgyz Republic, "development of transport infrastructure" was considered as priority issues (JICA, 2015b). The objective of the Project is consistent with these policy and analysis. JICA has implemented ODA Loan, Grant Aid, and Technical Cooperation projects to support the development and maintenance of roads and related structures. In fact, JICA is one of the leading donors in the road sector in Kyrgyz, along with the ADB.

Key Take Away / Lesson

- Japan has been a key financier of transport projects in LLDCs as is demonstrated by the above-mentioned project in Kyrgyz Republic but also by the Kazungula Bridge project that was detailed in Module 1.
- Kyrgyz Republic approached the government of Japan with the project after it was identified as a project in its strategic documents. Clearly defining the project and its needs is important for LLDCs before they approach financiers.

Case Study: Lusaka Decongestion Project, Zambia

Statistics indicate that Zambia has over 780,000 cars, with Lusaka accounting for 60% representing about 480,000 cars (DailyMailLtd, 2019). Unfortunately, while the population and number of cars have increased exponentially over the years, road infrastructure development has lagged behind. Given the current traffic jams, many have raised concern and fear on what the levels would be a few more years from now. The Zambian Government launched the US$389 million Lusaka Decongestion Project (LDP) aimed at decongesting the city by building and expanding roads, fly-over bridges and overpasses.

In 2017, Zambia received US$286 million from the Indian Government for infrastructure development to de-congest Lusaka City. The project, dubbed 'Decongesting Lusaka', will see the creation of a ring road that would start from the Great East Road, through Kenneth Kaunda International Airport to the Great North Road in Chisamba district. Apart from implementing phase two of the Lusaka L400 road project, the Indian government is also financially assisting with the development of street lighting, by-passes, construction of roads in Kasisi and other areas and putting up drainage systems among other things with the aim of beautifying Lusaka City (Lusakatimes, 2017).

The Project aims to expand roadway capacity through widenings and new fly-over bridges and overpasses to be constructed over three years by Afcons International, an Indian construction company.

Key Take Away / Lesson

- Developing countries have traditionally approached Western Countries for ODA assistance but the LDP proves that assistance can also be provided by other advanced countries such as India.

2.2.3 International Finance Institutions (IFIs)

Overview

An international financial institution (IFI) refers to an institution providing finances that has been established (or chartered) by more than one country. These are generally inclusive of national governments, although other international institutions and other organizations occasionally figure as shareholders.

IFIs provide national governments with loans, credits and grants with the goal of funding specific projects that focus on economic and socially sustainable development. IFIs also provide technical and advisory assistance to their borrowers and conduct extensive research on development issues. In addition to public procurement opportunities, in which multilateral financing is delivered to a national government for the implementation of a project or program, IFIs are increasingly lending directly to sub-national government entities, as well as the private sector (Canada, 2020).

It should be noted that there has recently been a deliberate move by IFIs towards leaving the commercially viable projects and operational functions to the private sector, in accordance with the thrust of the ongoing policy reforms. In what is termed a 'cascade' approach, financing for viable infrastructure projects is first sought from the private sector (Brettonwoods, 2017). This means that some projects that were in the past financed by IFIs, including railways, ports, airports and some road programmes, are now first proposed to be carried out by the private sector alone or in partnership with the public sector.

Categories of IFI's

The following are three broad categories of IFI's.

- **Multilateral Development Banks (MDBs).** There are eight large MDBs and several smaller ones. The larger MDBs are the World Bank (WB), the Islamic Development Bank (IsDB), the African Development Bank (AfDB), the Asian Development Bank (ADB), CAF–Development Bank of Latin America (CAF), the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), and the Inter-American Development Bank (IADB). With the exception of the World Bank and the International Development Association (its equivalent for lending to lower income countries at preferential rates) and the IsDB, they all represent some form of regional or special interest.
- **Regional Development Banks** such as the Asian Infrastructure Investment Bank (AIIB), Inter-American Development Bank, the Development Bank of South Africa (DBSA) and other regional focused banks. Many of the regional economic communities (e.g., SADC, Association of Southeast Asian Nations (ASEAN), Central Asia Regional Economic Cooperation Program (CAREC), Corporacion Andina de Fomento (CAF)) also have regional funding sources that can help with project preparation, including the search for project financing.

- **Multilateral financial institutions** such as the International Investment Bank (IIB) and the OPEC Fund for International Development (OFID) also provide funding for projects.

The following is a closer examination of the MDBs available for funding projects.

Global Bank

World Bank (WB)

The World Bank is the oldest and largest of the MDBs. The World Bank Group comprises three sub-institutions that make loans and grants to developing countries: The International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), and the International Finance Corporation (IFC) (Everycrsreport, 2020). The 1944 Bretton Woods Conference led to the establishment of the World Bank, the IMF, and the institution that would eventually become the World Trade Organization (WTO). The IBRD was the first World Bank affiliate created, when its Articles of Agreement became effective in 1945 with the signatures of 28-member governments. Today, the IBRD has near universal membership with 189-member nations. Only Cuba and North Korea, and a few microstates such as the Vatican, Monaco, and Andorra, are non-members. The IBRD lends mainly to the governments of middle-income countries at market-based interest rates (Everycrsreport, 2020).

IDA was created in 1960 to make concessional loans (with low interest rates and long repayment periods) to the poorest countries. IDA also now provides grants to these countries.

The IFC was created in 1955 to extend loans and equity investments to private firms in developing countries. The World Bank initially focused on providing financing for large infrastructure projects. Over time, this has broadened to also include social projects and policy-based loans (Everycrsreport, 2020).

Regional Development Banks

Asian Development Bank (ADB)

The Asian Development Bank (ADB) was established in 1966 and is headquartered Manila, Philippines (Everycrsreport, 2020). The bank admits the members of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP, formerly the Economic Commission for Asia and the Far East or ECAFE) and non-regional developed countries. From 31 members at its establishment, ADB now has 68 members. Its mandate is to aim for an Asia and Pacific free from poverty while fostering inclusive growth. The ADB's concessional lending facility, the Asian Development Fund (AsDF), was created in 1973. In 2017, concessional lending was transferred from the AsDF to the ADB, although the AsDF still provides grants to low-income countries (Everycrsreport, 2020). The ADB does not have a separate fund specifically for financing private-sector projects, and makes loans to private-sector firms in the region through its non-concessional window, however both public and private sector can both borrow from the Bank – 83% of disbursements in 2014 were to sovereign lenders (Raphaëlle Faure, 2015). The Bank provides loans, technical assistance, grants, guarantees and equity investments.

African Development Bank (AfDB)

The AfDB was created in 1964 and was for nearly two decades an African-only institution, reflecting the desire of African governments to promote stronger unity and cooperation among

the countries of their region (Everycrsreport, 2020). In 1973, the AfDB created a concessional lending window, the African Development Fund (ADF), to which non-regional countries could become members and contribute. In 1982, membership in the ADB non-concessional lending window was officially opened to non-regional members. Governments, private sector, national, sub-regional development finance institutions, public sector enterprises can borrow from the Bank – 76% of sovereign lending exposure in 2014 (Everycrsreport, 2020). The AfDB makes loans to private-sector firms through its non-concessional window and does not have a separate fund specifically for financing private-sector projects with a development focus in the region (Everycrsreport, 2020).

European Bank for Reconstruction and Development (EBRD)

The EBRD is the youngest MDB, founded in 1991 (Everycrsreport, 2020). The motivation for creating the EBRD was to ease the transition of the former communist countries of Central and Eastern Europe (CEE) and the former Soviet Union from planned economies to free-market economies (Everycrsreport, 2020). The EBRD differs from the other regional banks in two fundamental ways. First, the EBRD has an explicitly political mandate: to support democracy-building activities. Second, the EBRD does not have a concessional loan window. The EBRD's financial assistance is heavily targeted on the private sector, although the EBRD does also extend some loans to governments in CEE and the former Soviet Union (Everycrsreport, 2020). In 2014, 24% of loans, undrawn loan commitments and guarantees were to the public sector (Raphaëlle Faure, 2015).

European Investment Bank (EIB)

The EIS was established in 1958 and is headquartered in Luxembourg. Its mandate is to contribute to the balanced and steady development of the internal market in the interest of the European Union (EU). Operating on a non-profit-making basis, the EIB grants loans and give guarantees which facilitate the financing of projects in all sectors of the economy (Raphaëlle Faure, 2015). Eligibility criteria is EU member states. Public bodies, large corporations or small businesses in EIB member countries can borrow from the Bank. EIB also provides financing to projects in third countries that support the EU's external cooperation and development policies. Disbursed sovereign exposures: €38 billion ($50.4 billion). Sovereign-guaranteed exposures: €82 billion ($108.8 billion) (in 2014) (Raphaëlle Faure, 2015). Main instruments are loans, guarantees, microfinance, equity investment and blended finance. Typical terms and conditions of lending instruments Loans run from approximately four to 20 years. Loan rates vary from project to project according to specific aspects such as currencies borrowed, amount, duration and timing of disbursement. The EIB does not publish information on the financing terms and conditions of its loans, such as maturity, interest rates and grace period. This information typically forms part of the EIB's confidential relationship with its business partners (Raphaëlle Faure, 2015).

Inter-American Development Bank (IDB)

The IDB was created in 1959 in response to a strong desire by Latin American countries for a bank that would be attentive to their needs, as well as U.S. concerns about the spread of communism in Latin America (Everycrsreport, 2020). Consequently, the IDB has tended to focus more on social projects than large infrastructure projects, although the IDB began lending for infrastructure projects as well in the 1970s. From its founding, the IDB has had both non-concessional and concessional lending windows. The IDB's concessional lending window was

called the Fund for Special Operations (FSO), whose assets were largely transferred to the IDB in 2016. The IDB Group also includes the Inter-American Investment Corporation (IIC) and the Multilateral Investment Fund (MIF), which extend loans to private-sector firms in developing countries, much like the World Bank's IFC (Raphaëlle Faure, 2015).

Islamic Development Bank (IsDB)

IsDB's mandate is to foster economic development and social progress in member countries and Muslim communities individually as well as jointly in accordance with the principles of the Shari'ah. It aims to promote comprehensive human development, with a focus on the priority areas of alleviating poverty, improving health, promoting education, improving governance and prospering the people. Eligibility is members of the Organisation of Islamic Cooperation that contribute to the Bank and accept the terms and conditions defined by the IsDB Board of Governors. Both public and private sectors can borrow from the Bank for large and medium sized projects, and small enterprises in member countries. Over 90% of all financing is sovereign guaranteed (Raphaëlle Faure, 2015).

Banque Ouest Africaine de Développement (BOAD)

The BOAD exists to promote balanced development in member states and foster economic integration in West Africa (BOAD, 2021). Eligibility criteria: Members of the West African Economic and Monetary Union (WAEMU). WAEMU member countries, their communities and government institutions; agencies, businesses and private individuals contributing to the economic development or integration of member countries; countries of the sub-region which are non-WAEMU members, their agencies or businesses can borrow from the Bank (Raphaëlle Faure, 2015).

Central American Bank for Economic Integration (CABEI)

CABEI's mandate is to promote the economic integration and the balanced economic and social development in Central America (GCF, 2021). Eligibility criteria: Countries and public organisations with an international scope in accordance with the regulations established by the Board of Governors. Public financial and corporate private sector can borrow from the Bank (BCIE, 2021).

Development Ban of Latin America (CAF)

CAFs mandate is to promote sustainable development and regional integration by providing multiple financial services to clients in the public and private sectors of shareholder countries. Public and private sector (banks and companies) can borrow from the Bank. In 2014, 80% of the loan portfolio were to sovereign borrowers. The minimum amount of an A/B loan should be $50 million (Raphaëlle Faure, 2015). The maximum amount is based on the project and the capacity to attract investors within the framework of the norms set forth by CAF. Generally, CAF has to maintain a minimum of 25% of the total amount of an A/B Loan, by financing the A Tranche (Raphaëlle Faure, 2015).

East African Development Bank (EADB)

Established 1967, the EADB is headquartered in Kampala, Uganda. Its mandate is to promote sustainable socio-economic development in East Africa by providing development finance,

support and advisory services (EADB, 2021). Eligibility criteria: member states of the East African Community, or other institutions with similar objectives for purposes of strategic partnerships. Both foreign and local currency loans have a floating interest rate based on the EADB Reference Rate for each currency, plus a risk margin (Raphaëlle Faure, 2015). The margin depends on the perceived risk of the borrower. The Bank's Reference Rate is based on the average cost of funds per currency.

Development Bank of Southern Africa (DBSA)

Established in 1983, the Development Bank of Southern Africa (DBSA) is a development finance institution wholly owned by the Government of South Africa that seeks to accelerate sustainable socio-economic development and improve the quality of life of the people of the Southern African Development Community (SADC) by driving financial and non-financial investments in the social and economic infrastructure sectors (DBSA, 2021). Its key mandate is to deliver developmental infrastructure projects in South Africa and the rest of Africa. High on its agenda is the need to promote regional integration (DBSA, 2021).

Terms and Conditions of MDBs

The terms and conditions when borrowing from an MDB are very diverse and depend on the status of the borrowing country and the type of instrument. Terms can vary from a minimum maturity of five to 40 years, or a minimum grace period of between three and ten years. Interest rates are fixed for concessional windows (up to 2.81% for countries eligible in the blend window), but floating/variable for non-concessional windows (i.e., Libor+ contractual spread, but usually below 2% when the information has been published) (Raphaëlle Faure, 2015).

The table on the following page provides an overview of the MDBs and their terms and conditions. This information was largely compiled from a report by Raphaëlle Faure, Annalisa Prizzon and Andrew Rogerson for the publication *Multilateral Development Banks: A Short Guide (Overseas Development Institute, 2015)* and other public sources. This is followed by three figures that present the capital available from the listed MDBs, their instruments and their areas of focus, respectively.

Table 2.2: List of MDBs, their Mandates and Terms and Conditions

Bank Name	Mandates and mission statements	LLDC Eligibility	Instrument	Maturity (years)	Grace Period (years)	Interest / Other	Few project examples
WB: World Bank, including the: ▪ The International Development Association (IDA) (concessional window) ▪ International Bank for Reconstruction and Development (IBRD) (non-concessional window)	▪ End extreme poverty within a generation and boost shared prosperity	▪ All LLDCs	▪ Regular Credit	▪ 38	▪ 6	▪ No interest. 0.75 % service charge (Special Drawing Rights (SDR)).	▪ The CEMAC (Central African Economic and Monetary Community) Transport Transit Facilitation Project, Central African Republic and Chad,2007-2019 ▪ Lao National Road 13 Improvement and Maintenance, Lao PDR, 2018-Ongoing ▪ Trade Promotion and Quality Infrastructure, Armenia, 2014-Ongoing ▪ Santa Cruz Road Corridor Connector Project (San Ignacio - San Jose), Bolivia, 2017- Ongoing
			▪ Blend	▪ 25	▪ 5	▪ 1.25% interest. ▪ 0.75 % service charge (SDR).	
			▪ Hard term lending	▪ 25	▪ 5	▪ 1.08% interest. ▪ 0.75 % service charge (SDR).	

Bank Name	Mandates and mission statements	LLDC Eligibility	Instrument	Maturity (years)	Grace Period (years)	Interest / Other	Few project examples
IBRD	▪ Same as above	▪ All LLDCs	▪ Flexible loan, variable and fixed spread and development policy loans	8 to 15/20	▪ N/A	▪ 6-month Libor, plus contractual spread of 0.5%. ▪ Front-end and commitment fee of 0.25% each.	▪ PY Transport Connectivity, Paraguay, 2016-Ongoing ▪ Urban Transport Project, Turkmenistan, 1997-2001 ▪ Azerbaijan Highway 3 Additional Financing, Azerbaijan, 2016-Ongoing ▪ Southern Africa Trade and Transport Facilitation Project, Tanzania, 2013-2020
			▪ Special Development Policy Loan	▪ 5 to 10	▪ 3 to 5	▪ 6-month Libor plus a minimum of 2%. ▪ Front-end fee of 1% of the principal loan.	
ADB: Asian Development Bank, including the ▪ Asian Development Fund (ADF) (concessional window) and ▪ Ordinary Capital Resources (non-concessional window)	▪ Eradicate poverty in Asia Pacific	▪ All the Asian LLDCs: Afghanistan, Bhutan, Kyrgyz Republic, Lao PDR, Mongolia, Nepal, Uzbekistan and Kazakhstan.	▪ Libor-based loans	▪ Varies	▪ N/A	▪ Floating 6-month Libor rate; contractual spread and maturity premium fixed	▪ Enhancement of the Safety and Reliability of the National Road Network, Tajikistan, 2020-Ongoing ▪ New Deepwater Port for Nauru, Nauru, 2018-Ongoing ▪ Elevated Walkways in Manila, Philippines, 2020-Ongoing
			▪ Local currency loan	▪ Varies	▪ N/A	▪ Floating or fixed rate, contractual spread and maturity premium fixed.	

Bank Name	Mandates and mission statements	LLDC Eligibility	Instrument	Maturity (years)	Grace Period (years)	Interest / Other	Few project examples
							▪ Preparing the Land and Maritime Transport Projects, Papua New Guinea, 2019-Ongoing
Asian Development Fund (ADF)	▪ Same as above	▪ Same as above	▪ Group A (ADF-only): Project loans	▪ 32	▪ 8	▪ 1% during grace period; 1.5% beyond grace period. ▪ Equal amortisation; no commitment fee.	▪ Hairatan-Mazar-e-Sharif Railway connecting Afghanistan to Uzbekistan, 2009-2011 ▪ The East–West Highway Improvement Project, Azerbaijan, 2005-2010 ▪ Expressway Connectivity Investment Program – Facility, Sri Lanka, 2012-Ongoing ▪ Solomon Islands: Transport Sector Flood Recovery Project,2014-2018
			▪ Group A (ADF-only): Programme loans	▪ 40	▪ 8	▪ 1% during grace period; 1.5% beyond grace period. ▪ Equal amortisation; no commitment fee.	
			▪ Group B (Blend)	▪ 25	▪ 5	▪ 2%. Principal repayment at 2% per year for the first 10 years after the grace period and 4% per year thereafter;	

Bank Name	Mandates and mission statements	LLDC Eligibility	Instrument	Maturity (years)	Grace Period (years)	Interest / Other	Few project examples
						▪ No commitment fees.	
			▪ Emergency assistance loans	▪ 40	▪ 10	▪ 1%. Principal repayment at 2% per year for the first 10 years after the grace period and 4% per year thereafter; ▪ No commitment fees.	
AfDB: African Development Bank (non-concessional window) and ▪ the African Development Fund (AfDF) (concessional window)	▪ Promote sustainable economic growth and reduce poverty in Africa	▪ All African LLDCs: Botswana, Burkina Faso, Burundi, CAR, Chad, Eswatini, Ethiopia, Lesotho, Malawi, Mali, Niger, Rwanda, South Sudan, Uganda, Zambia and Zimbabwe	▪ Loans	▪ 20	▪ 5	▪ Interest rate variable and reflects the direct market cost of funds. ▪ Commitment charge on disbursement balance: 1%.	▪ The Nacala Road Corridor Project - Phase II, Zambia, 2010-2017 ▪ Tanzania - Transport Sector Support Programme (TSSP), 2019-Ongoing ▪ Ethiopia-Sudan railway study, 2020 ▪ Enfidha Airport Project, Tunisia, 2009-Ongoing
AfDF	▪ Same as above	▪ Same as above	▪ Loans	▪ 30 to 40	▪ 5 to 20	▪ None for Development	▪ North-South Corridor

Bank Name	Mandates and mission statements	LLDC Eligibility	Instrument	Maturity (years)	Grace Period (years)	Interest / Other	Few project examples
						Fund countries; ▪ 1% for blend, gap and graduating countries. ▪ Service charge commitment fee: 0.75% per annum on outstanding balance; ▪ 0.50% per annum on undisbursed amount.	Regional Connectivity-Kazungula Bridge, Zambia and Botswana,2014-2021 ▪ Lake Tanganyika Transport Corridor Development Project Phase I: Rehabilitation of Bujumbura Port, Burundi and Zambia, 2019-Ongoing ▪ Mtwara road corridor provides connectivity from Southern Tanzania to Zambia, 2004-Ongoing ▪ North-South Corridor (North section) Reinforcing connectivity in the Great Lakes region, Burundi, Rwanda, Zambia and Malawi, Ongoing
			▪ Technical Assistance	▪ 50	▪ 10	▪ None for Development Fund countries; ▪ 1% for blend, gap and graduating countries. ▪ Service charge commitment fee: 0.75% per annum on outstanding balance; ▪ 0.50% per annum on undisbursed amount.	

Bank Name	Mandates and mission statements	LLDC Eligibility	Instrument	Maturity (years)	Grace Period (years)	Interest / Other	Few project examples
EBRD: European Bank for Reconstruction and Development	▪ Foster the transition towards open market-oriented economies and private and entrepreneurial initiatives in central and eastern European countries committed to the principles of multiparty democracy, pluralism and market economics	▪ The following European and Asian member countries are eligible: Armenia, Azerbaijan, Mongolia, Kazakhstan, Kyrgystan, Tajikistan, Turkmenistan, Uzbekistan, Moldova	▪ Loans	▪ 1 to 15	▪ N/A	▪ Fixed or floating rate.	▪ Khatlon Public Transport, Tajikistan, 2017-Ongoing ▪ Expansion of Warsaw Metro, Poland, 2020-Ongoing ▪ Rehabilitation of M05 Kyiv-Odessa Road, Construction of Lviv Bypass, Ukraine, 2020-Ongoing ▪ Krakow Urban Transport Project, Poland, 1998
IADB: Inter-American Development Bank (Data in this document refers to IADB only, and not to the IADB Group, which comprises the IADB and the Inter-American Investment Corporation)	▪ Promote the economic and social development of the developing member states, individually and collectively	▪ Countries in Latin America and the Caribbean. This includes Bolivia and Paraguay	▪ Flexible financing facility	▪ 20 to 25	▪ 12.75 to 15.25	▪ Libor-based.	▪ Integral Structuring of the Concession of the Airports of La Ceiba, Roatán and San Pedro Sul, Honduras, 2020-Ongoing ▪ Support of the digitalization of the Ministry of Public Works and Communication
			▪ Development sustainability credit line	▪ 6	▪ 3	▪ Libor-based.	

Bank Name	Mandates and mission statements	LLDC Eligibility	Instrument	Maturity (years)	Grace Period (years)	Interest / Other	Few project examples
							s and the Development of Sustainable Urban Mobility Master Plans, Paraguay, 2020-Ongoing ▪ Program to Rehabilitate and Maintain Agro-industrial Corridors, Paraguay, 2020-Ongoing ▪ Airport Infrastructure Program. Phase I, Bolivia, 2013-Ongoing
IsDB: Islamic Development Bank	▪ Foster economic development and social progress in member countries and Muslim communities, individually as well as jointly, in accordance with the principles of the Shari'ah	▪ IsDB member countries ▪ LLDCs that are eligible are: Afghanistan, Azerbaijan, Burkina Faso, Chad, Kazakhstan, Kyrgyz Republic, Mali, Niger, Tajikistan, Turkmenistan	▪ Concessional loans under ordinary capital resources	▪ 15 to 25	▪ 3 to 7	▪ Service fee up to 1.5%	▪ Bokoro - Arboutchatak Road Project, Chad, 2009-2011 ▪ Trans-Saharan Road Project, Nigeria-Niger-Algeria, connecting Mali, Chad and Tunisia, 2019-Ongoing ▪ Reconstruction and Upgrade of
			▪ Islamic Solidarity Fund for development loans	▪ 15 to 30	▪ 3 to 10	▪ No interest rate applied in compliance with Islamic ▪ Finance. Service fee varies	

Bank Name	Mandates and mission statements	LLDC Eligibility	Instrument	Maturity (years)	Grace Period (years)	Interest / Other	Few project examples
		, Uganda, Uzbekistan				from 0.75 to 2%	▪ Road in Surkhandarya Region (M39) Project, Uzbekistan, 2010-2016 ▪ Bereket-Etrek railway line that extends between Turkmenistan and Iran, 2009-2014
BOAD: Banque Ouest Africaine de Développement/West Africa Development Bank	▪ Promote economic development in member states and economic integration across West Africa	▪ West African LLDCs: Mali, Niger and Burkina Faso	▪ Not Publicly Available (NPA)*	▪ NPA *	▪ NPA *	▪ NPA*	▪ Modernization of the Niamey airport and construction of the Tillabéri airport, Niger, 2019-Ongoing ▪ Construction the Dakar-Saint Louis Coastal Highway, Senegal, 2018-Ongoing ▪ Burkina Faso's 2017-2019 priority road maintenance programme, Burkina Faso, 2017-2019

Bank Name	Mandates and mission statements	LLDC Eligibility	Instrument	Maturity (years)	Grace Period (years)	Interest / Other	Few project examples
							▪ Lomé-Cotonou Road Rehabilitation (Phase 2) and Coastal Protection (Benin-Togo) Project, Benin and Togo, 2016-Ongoing
CAF: Development Bank of Latin America (formerly known as Corporación Andina de Fomento)	▪ Promote sustainable development and regional integration	▪ Latin American LLDCs: Bolivia, Paraguay	▪ NPA*	▪ NPA *	▪ NPA *	▪ NPA*	▪ N/A ▪ Sanitation and Urban Infrastructure Program of the Juazeiro do Norte Municipality, Brazil,2020-Ongoing ▪ Metro de Quito Subway, Ecuador, 2021-Ongoing ▪ Puerto Indio Access Road, Paraguay, 2020-Ongoing ▪ Transportation Sector Program, Bolivia,
EADB: East African Development Bank	▪ Promote sustainable socio-	▪ East African LLDCs: Ethiopia,	▪ NPA*	▪ NPA *	▪ NPA *	▪ NPA*	▪ Eagle Air, Uganda, 2013-2019

Bank Name	Mandates and mission statements	LLDC Eligibility	Instrument	Maturity (years)	Grace Period (years)	Interest / Other	Few project examples
	economic development in East Africa	Rwanda, Burundi, Uganda and South Sudan.					▪ Tropical Air, Tanzania,
PTA: Eastern and Southern African Trade and Development Bank, or the Preferential Trade Area Bank	▪ Finance and foster trade, socio-economic development and regional economic integration across member states	▪ Member LLDC's: Zimbabwe, Zambia, Eswatini, Ethiopia, Rwanda, Burundi, Uganda and South Sudan.	▪ NPA*	▪ NPA *	▪ NPA *	▪ NPA*	▪ RwandAir Limited, Rwanda, 2011-2018 ▪ Lake Turkana Wind Energy Project, Kenya, 2016

Source: Multilateral Development Banks: A Short Guide (Overseas Development Institute, 2015); Author's research

* The terms and conditions for BOAD, CABEI, CAF, EADB and PTA are either not publicly available, or agreed on case-by-case bases. EIB also has to comply with the confidentiality requirements of private borrowers

2.2.4 IFI Funding Mechanisms for Transport Projects

There are several financial instruments that can be used to support the development of transport projects through IFIs, namely; (1) Grants, (2) equity, (3) Debt / Loans, (4) Asset Backed securities, (5) Guarantees and Insurance and (6) Results Based Financing (Zahran and Ezeldin, 2016). Each of these is explored briefly below.

- **Grants**: Grants are a form of financial support offered by IFIs to reduce financing burden on governments. Grants involve no fiscal return for the funding agency. These grants aim to decrease initial costs of infrastructure facilities by offering governments a non-refundable financial support. This eventually decreases the price of the end product for customers (Zahran and Ezeldin, 2016). Moreover, grants do not encourage developers to create specific revenue from their projects for repayment. Grants are considered the simplest to implement among other financing techniques as they do not involve extensive due diligence on the financial outcomes of the projects, on the other hand, the project has to meet the desired objectives of the grant.
- **Equity:** Equity funding is considered a long-term investment presented by the funding agency. In this case, the funding agency invests an amount of money in a high-risk projects aiming to generate revenue from executing the project. Equity funding most commonly targets new technologies and projects/companies with a higher potential of growth. It is aimed that the return from the project/company is high due to the high risk associated with this type of funding. To avoid such a high risk, it is preferred that the supported project/company is in a well-developed financial market which facilitates the exiting process. Therefore, such funding mechanism may not be valid in most of the developing/low-income countries.
- **Debt/Loans:** Debt/loans are a form of financial support where financial institutions provide governments with an amount of money for their projects. Government repay this amount through instalments over an agreed period after adding an agreed interest rate. Most commonly the interest rate added by IFIs is lower than commercial banks interest rates and the return period is longer (Zahran and Ezeldin, 2016). This eventually decreases the cost of financing infrastructure projects. In addition, it increases credibility of governments when applying for long-term financial support from commercial banks. Debts/loans is considered the most commonly used financing mechanism. The obligation on debtors to repay instalments incentivises the success of projects to generate sufficient revenues.
- **Asset-backed securities**: Asset-backed securities is a form of financial support which is given to governments while being backed by the future cash flows of already available projects. In this case, repayment is secured by expected cash flows, which is considered equivalent to bond offering. This type of financing is used in expanding or refinancing projects that are already generating positive cash flows. This reduces the risks of not returning the borrowed amounts which in-turn reduces the cost of finance. The use of asset-backed securities involves highly detailed due diligence to ensure that current and future projects are going to generate sufficient cash flow for securing finds and debt repayment.
- **Guarantees and insurances**: Guarantees and insurances are not considered direct financing techniques; however, they offer protection for financiers in markets with high risks. This enables governments, having unstable market conditions, to get financing at acceptable costs. In both cases of guarantees or insurances, the guarantor or insurer agrees to cover

or share any costs or losses associated with the target project in return for a fee or premium. In case of guarantees, the guarantor offers the guarantee for the financier against the performance of the borrower. This means that the guarantee would cover a portion of any losses occurring to the financier. Commonly, the portion of losses covered by the guarantor decreases, as losses increase in order to encourage the financier to take corrective actions against occurring risks. In case of insurance, the financier expects to receive the proceeds of insurance payout as a protection against the performance of the borrower (Zahran and Ezeldin, 2016). It insures against any losses occurring due to unexpected conditions that may affect the outputs of the project. Both guarantees and insurance require extensive due diligence for all involved parties and the design of the project which may require a large database of relevant risks and their associated effects.

- **Results Based Financing**: Results Based Financing links the payment of funds to the delivery of pre-agreed outputs, so the borrower receives the agreed payment for finishing specific stages in a project/program. This transfers all risks associated with these projects from funders to borrowers. It also incentivises borrowers to deliver their projects according to the agreed schedules and outputs. The borrower starts by pre-financing the projects and payments are made only after it delivers the agreed outputs or services. This process commonly involves a third party for verifying that the agreed outputs were reached (Zahran and Ezeldin, 2016).

Error! Reference source not found. to 2.4 below provide an overview of the funding mechanisms used by various MDBs.

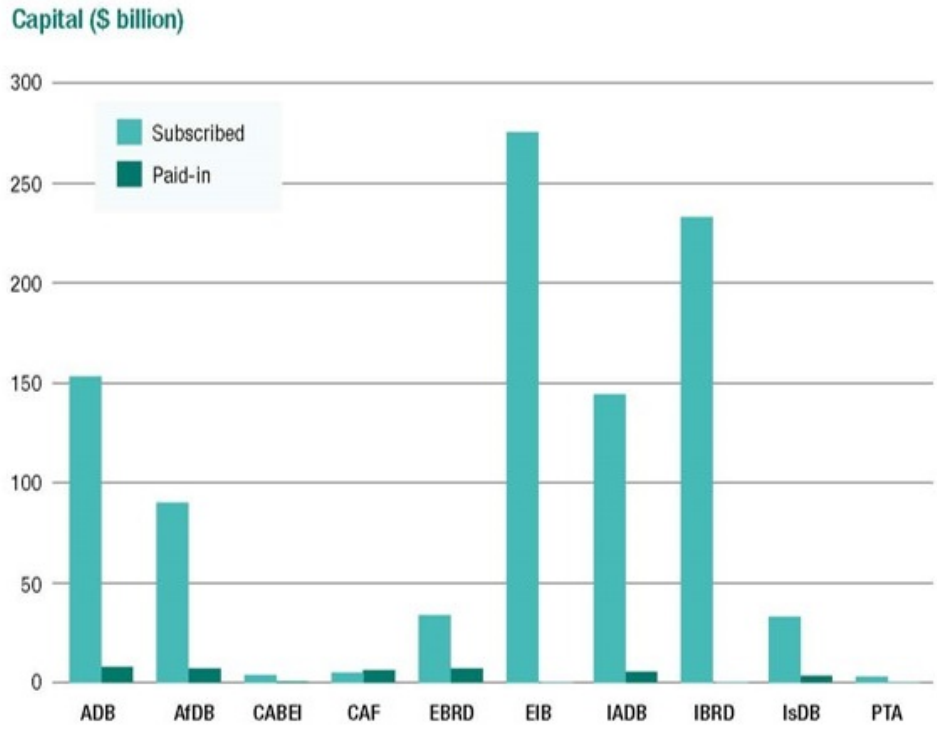
Figure 2.2: MDB Sector focus

Total annual operations allocated to specific sectors (%)

MDB	Economic Infrastructure	Financial sector	Productive sector	Social development and infrastructure	Share of top 2-4 sectors*
ADB	62			16	78
AfDB	58		7	9	74
AfDF	47		7	20	74
ADF	41			38	79
BOAD	63	9			71
CABEI	41	28		11	79
CAF	24	45	9	15	92
EBRD	66		32		98
EIB	41	33	11		85
IADB	31		13	49	93
IBRD	37		10	46	93
IDA	27		11	40	78
IsDB	74		3	18	96

Source: Multilateral Development Banks: A Short Guide (Overseas Development Institute, 2015).

Figure 2.3: MDB Capital Available



Source: Multilateral Development Banks: A Short Guide (Overseas Development Institute, 2015).

Figure 2.4: Instruments used by MDBs

MDB	Grants	Loans	Lines of credit	Technical assistance	Guarantees	Equity
IDA	■	■		■	■	
IBRD	■	■		■	■	
ADB	■	■		■	■	■
ADF	■	■		■	■	
AfDB	■	■	■	■		■
AfDF	■	■		■	■	■
EBRD		■			■	■
EIB		■			■	■
IADB	■	■		■	■	■
IsDB		■	■	■		■
BOAD		■				■
CABEI		■	■	■	■	■
CAF		■	■	■	■	■
EADB		■				■
PTA		■	■		■	

Source: Multilateral Development Banks: A Short Guide (Overseas Development Institute, 2015).

Recommendations for LLDCs

- MDBs / IFIs should be one of the first sources of financing considered by LLDCs when developing transport infrastructure projects, in particular at the regional level. They often have more favourable interest rates and terms, and are able to finance almost all stages of the project development cycle.
- Many of the MDBs also have regional integration funds, typically used to support lending for corridor projects, that LLDCs should take advantage of.

  One example is the Asian Development Bank's Regional Cooperation and Integration Fund established in 2007 (ADB, 2021). It's ongoing "Regional: Enhancing Road Safety for Central Asia Regional Economic Cooperation Member Countries (Phase 2)" project which started in 2020 will directly benefit eight LLDCs- Afghanistan, Azerbaijan, Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan and Uzbekistan. The fund will provide with technical assistance to support and enhance road safety initiatives. The aim is to tackle the issue of road crashes in the Central Asia Regional Economic Cooperation (CAREC) countries[30] (ADB, 2021).
- MDBs may specifically support projects that meet specific regional integration criteria such as involving three or more countries, producing spill over benefits across country boundaries, showcasing regional ownerships and promoting regional policy harmonization.
- New MDBs such as the Asian Infrastructure Investment Bank which has capital of US$ 100 billion, equivalent to two thirds that of the Asian Development Bank and about half that of the World Bank, aims to address the infrastructure financing gap in Asia and in those parts of the world that connect to it through trade routes and corridors.
- Adopt the principles of bankability for MDBs that stress that financing from MDBs or IFIs and OECD members be based on the principle of governance – transparency, accountability, inclusiveness, equity and the rule of law. These conditions are required by traditional development organisations from all their partner countries since they need to be accountable to their taxpayers and shareholders (OECD / ACET 2020). This requires institutional capability.
- For MDBs / IFIs, weight is placed on social considerations and financial soundness and cost-effectiveness, but they may have other specific goals such as creating regional transport / trade corridors, opening up the skies to more air traffic, or other specific agenda that would make them consider projects bankable.

Case Studies of IFI Funded Projects

Case Study: World Bank Road Project, Paraguay

Paraguay is a land-landlocked country reliant on increasing external trade for future economic development. Good road infrastructure is a vital ingredient of expanding trade by reducing logistics costs. As of 2005, road sector management was seen as ineffective at delivering the required results. The main road agency, responsible for 10% of the national investment budget

[30] These countries are Afghanistan, Azerbaijan, the PRC, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan

in Paraguay, lacked capacity, especially in planning and strategic management. It favoured new investment over maintenance of existing roads, leading to deteriorating road conditions and higher costs to users (The World Bank, 2018). In addition, the needs of rural communities were not being met; insufficient resources were devoted to upgrading poor quality roads in remote areas, thus constraining access to services and opportunities (The World Bank, 2018).

In response to these challenges the Paraguayan government engaged the World Bank to finance the Paraguay Road Maintenance Project which was rooted in a road management strategy addressing the interrelated requirements of increased resources for the road sector and better allocation of those resources between new investment and maintenance.

According to the Independent Evaluation Group (IEG) (2017), the project had three components:

1. Strengthening Strategic Planning and Road Management (US$7.42 million) (IEG, 2017). This component aimed at developing the institutional capacities of the Ministry of Public Works and Communication (MOPC) for managing the road network.

2. Improvement and Maintenance of the Paved Road Network (US$73.47 million) (IEG, 2017). This component aimed at stopping the deterioration of the priority road network composed of international and regional corridors through increased use of private sector participation in road maintenance activities through performance-based contracting.

3. Improvement and Maintenance of the Unpaved Road Network (US$26.34 million) (IEG, 2017). This component aimed at the rehabilitation and conservation of the unpaved road network that connect to the national road network and secondary roads connecting rural communities and providing access to the most excluded rural communities in three departments (San Pedro, Caaguazú and Caazapá).

The World Bank, through the International Bank for Reconstruction and Development, provided a loan in the amount of US$74 million toward the US$107 million total project cost. An amount of US$930,000 was provided through a Policy and Human Resource Development grant to assist in the preparation of the project (The World Bank, 2018). The World Bank worked closely with the Inter-American Development Bank (IADB) to introduce output-based maintenance through level-of-service contracts, which enhanced the impact of the road maintenance reform and supported sustainability efforts. The IADB financed an additional 629 kilometres of improvements, and the International Labour Organization provided technical assistance.

The project closed over four years behind schedule. This was due to a combination of factors including, delays in project effectiveness with the project declared effective only in January 2008 although targeted for January 2007 due to the length of time taken to secure the necessary approvals and legal authority for the government to commit to the loan, cost overruns associated with Performance-based Roads Maintenance contracts (GMANS) as well as implementation delays due to the weak capacity of the implementing agency exacerbated by impact of changes in government administration (IEG, 2017).

Successes:

- Successful completion of 623 kilometres of road maintenance contracts based on level of service.
- A 93% compliance rate for all level-of-service indicators for the maintenance contracts.

- A new integrated road toll system covering the most trafficked roads.
- Creation of a road strategic planning unit, including a five-year investment plan.
- Implementation of a new communication strategy, including a governance and accountability improvement program.
- Introduction of an enhanced road monitoring system, including regular road inventories and traffic counts.
- Traffic increased by 7% annually on average during the life of the project, well beyond the expected 2.5% increase. As a result of improved roads and regular road maintenance, however, road users experienced the benefits of lower operating costs (per kilometer costs decreased by about 40% in the project areas, according to reports) and reduced travel times. Public transport service in the three project departments is more frequent, and residents enjoy better access to services and opportunities, thanks to the new multiuse centres.

Key lessons:

- Close coordination between funding partners. The World Bank worked closely with the Inter-American Development Bank (IDB) to introduce output-based maintenance through level-of-service contracts, which enhanced the impact of the road maintenance reform and supported sustainability efforts. The IDB financed an additional 629 kilometers of improvements, and the International Labor Organization provided technical assistance in developing the microenterprise program that helped establish road maintenance capacity in San Pedro, Caaguazú, and Caazapá.
- Performance Based Contracting (PBC) can improve and sustain road maintenance. The experience of this project, which introduced PBC for the first time in Paraguay demonstrated that such contracting can be successfully introduced in low-capacity environments with proper planning and addressing of constraints (IEG, 2017).
- Efficiency of the local main road agency and local partners. The Ministry of Public Works and Communication played a vital role in all aspects of project implementation. The National Indigenous Institute helped elaborate the plans proposed by indigenous peoples and for the development of the multiuse community centers.
- Sectoral governance and transparency programs can play an important role in strengthening of road planning and management. The initiatives taken through the Government and Transparency Improvement Plan (IGAP) impacted on road management and proved effective in monitoring contracts.
- Introduction of laws to aid development. Five laws were passed during the project execution phase. These included - the Transit and Road Safety Law in 2014, the Road Classification Law in 2016, the creation of the Road Planning Directorate (DPV) in the Ministry of Public Works and Communication (MOPC) in 2007, the toll revenue ministerial direction and the ministerial directive to create the transparency department (DTPC) in February 2007 (IEG, 2017).

Case Study: Hairatan and Mazar-e-Sharif Railway, Afghanistan

Following decades of civil war and political strife throughout its provinces, Afghanistan's transport network is in poor condition and is a major impediment to the country's reconstruction and growth. An efficient, reliable transport network that supports trade and humanitarian relief

is vital for the country's development. Accordingly, the Afghanistan National Development Strategy, 2008–2020 provides for efficient, sustainable road and rail networks to be constructed as a supplementary transport mode for bulk goods between Central and South Asia (The Asian Development Bank (ADB) , 2013)**.**

Hairatan, a northern trading post on the border with Uzbekistan, serves as the gateway for half of Afghanistan's external trade, while Mazar-e-Sharif is Afghanistan's fourth-largest city and major trading centre in the north. Already suffering from severe bottlenecks because of poor infrastructure, Hairatan had become more overwhelmed over the past few years due to security concerns in southern and eastern areas of Afghanistan, which were cutting off international trade and the delivery of much needed materials and aid through those borders. Overburdened and under-resourced, Hairatan required a railway link to Mazar-e-Sharif to facilitate the movement of goods into and throughout the country. In response to Hairatan's issues and in line with the national development strategy, the Government of Afghanistan requested that ADB provide funding to construct a 75km railway line between Hairatan and Mazar-e-Sharif. The line is an extension of the existing line from Termez in Uzbekistan to Hairatan. The link aimed to complement the Kabul–Mazare-Sharif ring road in transporting bulk and non-perishable cargo. Further, by strengthening Afghanistan's rail links with Uzbekistan, the project also hoped to promote regional cooperation and trade by complementing Central Asia Regional Economic Cooperation (CAREC) corridors that connect Central Asia to South Asia, the Caucasus, and the Middle East (ADB, 2013).

The project was supported by the ADB which decided to meet most of the cost through a grant. The Afghan government and Uzbek government signed a memorandum of understanding between their respective governments and the ADB at the seventh annual CAREC Ministers' Conference in Baku in November, 2008 (ADB, 2013). This set out plans to expand trade and economic opportunities by developing railway transport between Uzbekistan and Afghanistan, including transit freight traffic.

In the memorandum, the Afghan government highlighted the importance of developing a line between Hairatan, Mazar-i-Sharif and Herat, and requested technical and financial assistance from ADB in order to prepare a pre-feasibility study. Uzbekistan agreed to co-operate with the study, which would be supervised by a Project Working Group comprising representatives from both countries.

Uzbekistan and Afghanistan had recently signed the Uzbekistan-Afghanistan Boundary Railway Agreement, the Freight Transportation Rules for the Uzbekistan-Afghanistan Railway, and Rules for Passenger Transport and Freight Accounts for the Uzbekistan-Afghanistan Railway.

In 2009 ADB provided a technical assistance grant of US$1.2m to fund a feasibility study for two railway lines, running from Hairatan to Herat, and from Shirkhan Bendar on the border with Tajikistan through Kunduz and Mazar-i-Sharif to Herat (ADB, 2013). The Afghan government provided an 'in-kind contribution equivalent to $60,000', and its Ministry of Public Works was the executing agency.

According to ADB only half the roads between Afghan provinces are serviceable throughout the year, and the network is 'inadequate, inefficient and, in some places, unsafe'. Railways would provide 'a more reliable and cost-effective option for moving people and goods, and can help Afghanistan unlock its significant mineral, industrial and agricultural wealth.'

ADB awarded Concept Clearance for the Hairatan – Mazar-i-Sharif project on 9 July 2009, and fact-finding was carried out on 9-18 August (ADB, 2013).

On 30 September 2009 ADB announced it would provide the Afghan governments with a US$165m grant to cover most of the US$170m cost, leaving the Afghan government to fund the final US$5m for land acquisition, resettlement, and taxes. The agreement came into effect on 3 November 2009 (ADB, 2013).

During the first year of its operation, an impressive 4 million tons of goods were transported on the Hairatan–Mazare-Sharif link, strengthening the local economy, increasing regional trade, and helping Afghanistan begin to redefine its role in the region. Today, this rail link still runs smoothly, and the socioeconomic benefits, already significant, continue to accrue.

Key Take Away / Lessons

- **IFI support:** ADB supported both the project preparation and construction of the project. IFIs are still one of the most significant investors in infrastructure development in LLDCs.
- **Coordination of multiple government agencies:** For projects in which several agencies are involved in decision making, it is important to establish an executive committee comprising representatives of the concerned agencies, and chaired by a high-level government champion. Such a committee could facilitate the provision of overall guidance, ensuring expeditious approvals from various agencies. In addition, in places where security is a major concern, it could ensure that project implementation is uninterrupted by establishing sustained security arrangements.
- **Intensive donor involvement:** Implementing a project of the magnitude of the Hairatan–Mazar-eSharif Railway Project within a strict time frame was challenging. However, this was achieved through the close coordination and involvement of donors. ADB provided strong supervision from headquarters and the Afghanistan and Uzbekistan resident missions. Any matter requiring ADB's internal approval was expedited, and funds were released through a fast-track process.
- IFIs can support projects with grants.
- **Coordination with neighbouring countries**: The project was supported by neighbouring Uzbekistan. Uzbekistan agreed to co-operate with the study, which would be supervised by a Project Working Group comprising representatives from both countries.
- **Legal and regulatory agreements**: Uzbekistan and Afghanistan signed the Uzbekistan-Afghanistan Boundary Railway Agreement, the Freight Transportation Rules for the Uzbekistan-Afghanistan Railway, and Rules for Passenger Transport and Freight Accounts for the Uzbekistan-Afghanistan Railway before embarking on the project which provided for a framework for the project.

2.2.5 Commercial lenders

Commercial lenders include commercial banks, mutual companies, private lending institutions, hard money lenders and other financial groups. Commercial lenders specialize in hard money and bridge loans, often those that close quickly. Commercial banks have always had an active role in project finance transactions. Commercial banks can provide project financing because they are able to evaluate complex project financing transactions and to assess and assume the construction and performance risks usually involved in such financings (Forrester, 2001).

The primary objective of commercial lenders is to maximize profits with minimal risk, which leads them to seek high returns for granted loans and sufficient guarantees.

Difference between commercial lenders and International Finance Institutions (IFIs)

Commercial lenders differ from IFIs in the following ways.

- Commercial lenders have higher interest rates than IFIs.
- Owners and shareholders of IFIs are generally governments or other international institutions whereas commercial lenders are often individuals or private institutions.
- IFIs are established by more than one country whereas commercial lenders are often national banks, or regional banks operated autonomously.
- IFIs take a long-term view with respect to an investment and have a stronger appetite for risk. They are prepared to finance projects which commercial lenders are not. IFIs are also often prepared to provide longer tenors of loans whereas commercial lenders prefer shorter loan tenors.

Challenges with Commercial lenders

The size of local commercial banks is small relative to the levels of financing required for large infrastructure projects. Most LLDCs have a largely poor population therefore, there is a lack of sufficient financial resources that enable significant savings. Additionally, commercial banks have a limited capacity to provide long-term infrastructure financing as a result of the asset-liability mismatch between long-term financing required for infrastructure and short-term deposits. Long term resources can originate from customers' long-term deposits or from resources provided by equity markets or through bond issuances. The lack of experience of local commercial banks in project financing also contributes to the low capacity of local banks to support projects with long-term financing.

Case Study: Lekki-Epe Express Toll Road, Nigeria (a transit country)

In 2008, the Lekki-Epe Express Toll Road, which reached financial close in was able to mobilize a 15-year loan from Stanbic's IBTC-Nigeria in local currency for NGN 2 billion (US$13.4 million) at a fixed interest of 13.9 percent and with a moratorium on principal repayments of four years (Shendy, Kaplan, & Mousley, 2011). This deal was also supported by other local banks, namely: First Bank, United Bank for Africa, Zenith Bank, Diamond Bank, and Fidelity Bank which provided a total loan value of NGN 9.4 billion ($60.6 million) for a tenor of 12 years.

2.2.6 Private Sector Financing

Overview

The private sector is involved in infrastructure development funding through direct / indirect investment and Public Private Partnerships (PPPs). This section covers direct / indirect investment while PPPs are covered in more detail in Module 4. Direct private finance comes directly from the project investor, while indirect finance comes through an intermediary, typically investment funds, ranging from pension and insurance funds to specific infrastructure investment funds and sovereign wealth funds.

Despite the low private sector participation in infrastructure financing in LLDCs - out of a total of more than US$ 87 billion of private finance made available to developing countries by official interventions between 2012 and 2015, less than 7% went to LLDCs (Raphaëlle Faure, 2015) - private infrastructure investment in LLDCs has been more prevalent in transport infrastructure development such as airports due to the potential revenue that can be generated from those sectors. There are however numerous other opportunities to increase private sector investment especially as demand for investment in transport is increasing and LLDCs expand their transport infrastructure to try and achieve global density and quality standards.

Sources of Private Sector Funding

The principal sources of finance for private sector developers of infrastructure projects are as follows.

- Loan financing from lenders or financing institutions;
- Financing from own investment or equity funds;
- Financing from other partner investors or shareholders such as from the capital markets;
- Large corporations or contractors; and recently
- Indirect private infrastructure investment from institutional investors such as pension funds, insurers and sovereign wealth funds.

Loan financing from domestic lenders or international financing institutions

The private sector can provide funding for projects by obtaining loans from domestic lenders or international financing institutions. In this regard, the funds are provided for projects where there is a guarantee of repayments with interest. Such guarantee is generally provided by governments since most infrastructure projects are undertaken by government institutions.

Private equity and hedge funds

Private equity and hedge funds tend to seek equity investments in medium to high-risk projects, and in return seek high returns. They thus favour investing in infrastructure projects during the construction phase of the project, when there is a high level of risk and potential reward. Once invested in a project, equity investors will actively manage the delivery of the scheme to mitigate risk. Private equity investors and hedge funds often have quite short time horizons, and they aim to realize their return and exit the investment within 3-5 years by reselling their position to other investors.

Contractor finance

Many of the largest global contracting firms now have the financial capacity to make equity investments in large infrastructure projects, typically in the range of 5-10% of the total capital cost of the project. The inclusion of contractor capital is designed by the project sponsor as a pay for performance mechanism to incentivise the builder to deliver the project efficiently and meet their obligations. Contractors are often repaid some or all of their investment in the project through milestone payments from government, and they will usually look to sell their share in the project once their role in project delivery is complete.

Pension funds

Institutional investors such as pension funds, insurers and sovereign wealth funds, due to the longer-term nature of their liabilities, represent a potentially major source of long-term financing for illiquid assets such as infrastructure. Over the last decade, these investors have been looking for new sources of long-term, inflation-protected returns. Recent asset allocation trends show a gradual globalization of portfolios with an increased interest in emerging markets and diversification into new asset classes.

Canadian pension funds were the first to recognize the compatibility of returns on infrastructure assets with their own revenue objectives, but have now been followed by those in several other countries. They have strong teams and fairly low return requirement.

They tend to focus on a few large assets that are kept for the long periods needed for them to mature to provide the needed financial returns, whereas the fund managers have a much shorter time perspective.

Given the perceived high risk of infrastructure investment in developing countries, it could be more productive (that is, lower risk premiums might be sought) for LLDCs to approach their infrastructure investment via indirect sources (such as pension funds) before seeking direct investment in specific projects.

Canada's biggest pension plans, which include the Canada Pension Plan Investment Board (CPPIB) and Ontario Teachers' Pension Plan, pioneered a strategy of directly investing in infrastructure, funding roads, bridges, rail, airports, utilities and pipelines as an alternative to bonds and equities (Reuters, 2016).

Pension-funded infrastructure projects are a fairly new concept especially in LLDCs where pension funds have not normally been used for transport projects. However, the concept has been proved by Canadian pension funds which have been involved in development of infrastructure projects. An example of how pension funds in even relatively small LLDCs can invest in infrastructure comes from Bhutan. The case study is presented at the end of this section.

Sovereign Wealth Funds (SWFs)

These have followed a similar pattern of evolution as pension funds–relatively slow to appreciate the compatibility of infrastructure assets with their own investment objectives and also slow to mature into developing their own direct investment teams. The most active SWFs in infrastructure are those from Middle East, China and Singapore.

SWFs have a rapidly expanding value of assets under management (AUM), which reached US$ 6.51 trillion by 2016, over double the aggregate assets held in 2008 (US$ 3.07 trillion) (Preqin 2016). The long-term stable yields offered by infrastructure investments can help explain their appeal to SWFs and their ability to withstand illiquidity, making them particularly suited to the asset class.

In addition, many funds have an explicit mandate to help develop local economies and infrastructure investment. The proportion of SWFs investing in infrastructure has increased steadily to reach 62% by 2016. This is the same proportion as those that invest in real estate, and together these two asset classes are the most commonly targeted by SWFs.

SWFs are typically larger than other private investing institutions and have greater assets available for infrastructure investment. The average AUM held by SWFs investing in infrastructure is US$ 116 billion, compared with US$ 25 billion for other long-term liability investors such as pension funds. As a result, SWFs are more likely to have a dedicated allocation to the asset class; 75% of SWFs that invest in infrastructure do so from a separate infrastructure allocation, compared with only 36% of other long-term liability investors.

Although SWFs are themselves akin to financial intermediaries, they are more likely to invest directly in infrastructure projects. Due to their larger AUM, SWFs typically have the investment expertise and resources required to make direct investment in infrastructure projects. They are less reliant on the diversification provided by infrastructure fund managers within the context of their overall portfolio. Forty-two percent of SWFs invest in infrastructure solely through direct holdings, while a further 49% combine direct and indirect investments. By contrast, 79% of other long-term liability investors access the asset class solely indirectly, with only 3% investing exclusively through direct holdings.

Like pension funds, Sovereign Wealth Funds (SWFs) are a fairly new concept in LLDCs. However, the concept has been proven in countries such as India. The National Investment and Infrastructure Fund (NIIF) in India is a collaborative investment platform focused on Indian infrastructure with best-in-class governance and a strong team with Indian and international experience in infrastructure investing (NIIF, 2021). With USD 3 billion commitment from the Indian government along with commitments from other institutional investors, NIIF has the ability to operate at scale whilst providing long term and patient capital. It intends to be a key channel of investment into Indian infrastructure with a focus on transportation (roads, ports and airports), energy, urban planning and other infrastructure and allied segments.

Athaang Infrastructure is the NIIF's proprietary roads platform. In 2020, the NIIF acquired the Devanhalli Tollway which is a strategic arterial 22 km six lane toll road in the state of Karnataka, connecting Bengaluru city and its airport. The road, part of NH44 (erstwhile NH7), with an operational history of over six years, is well poised to cater to the growing needs of Bengaluru City and the Airport and will benefit from the growth potential of Bengaluru as a metropolitan (NIIF, 2021).

Investment Arms of Insurance Companies

Because of relatively low risk, resilient performance and link to macro indicators, insurance companies also have come to understand the advantages of infrastructure assets. Insurance companies, especially life insurers, are facing challenging times. The long-term nature of insurance companies, especially life insurers and the general low and even negative yield environment for Government bonds puts life insurers under pressure to seek alternative investment options to generate the guaranteed rates needed by their policyholders. The investment objectives of insurance companies are very similar to those of pension funds, but they have been much slower to realize the correlation between their objectives and the benefits available from infrastructure investments.

Some invest only their own funds while others have some set up fund management platforms that also manage funds from third parties. In 2014, insurance companies had about US$ 362 billion invested in infrastructure assets, about one third of which was controlled by specific infrastructure managers

Challenges and Recommendations for Private Sector Funding

In order for a project to attract financing from the private sector it must prove viable or Bankable. From the private sector perspective, bankability refers mainly to financial returns and determining whether the project will be profitable for an investor. The costs and benefits of the project, and hence the profitability and potential financial returns of the project are key aspects of bankability for private investors. These factors, together with the potential risk-return ratio often determine private sector interest. Project proponents need to carry out detailed risk analysis - to assess whether all the risks (commercial and political) will be satisfactorily covered; financial analysis - to demonstrate adequate cash flows; and economic analysis - to demonstrate acceptable rates of return to the project, in order to attract the private sector.

The willingness of institutional investors and the private sector in general to finance major investment projects in any given country is also heavily influenced by the perceptions of the country's investment climate and the broad suite of policy settings and institutions that underpin a country's economy and political processes. Through structural reforms, governments need to create a more favourable investment climate, build private sector confidence to invest and ensure that global savings are channelled into productive investments.

The role of institutional investors in long-term financing is also constrained by the short-termism increasingly pervasive in capital markets as well as structural and policy barriers such as regulatory disincentives, lack of appropriate financing vehicles, limited investment and risk management expertise, transparency, viability issues and a lack of appropriate data and investment benchmarks for illiquid assets.

In addition, LLDCs should adopt effective legal and regulatory frameworks including laws for private sector operations. A well-defined policy for investment funding and private involvement in infrastructure projects—combined with associated legal instruments, procurement policies, and regulatory procedures—can improve the attractiveness and bankability of infrastructure projects.

Case Studies of Private Sector Funding Sources

Case Study: New Bugesera International Airport, Rwanda

The newly proposed Bugesera International Airport (BUI) is located 25km southeast of Kigali and has a connecting rail line proposed. It is designed and will be implemented with an aim of generating socio-economic development in Kigali, and other parts of the Eastern Province. The airport is further aimed at sustaining the development of Rwanda's aviation sector by backstopping the growth of RwandAir with new facilities and training opportunities (The East African, 2016).

The development of the new airport was necessary because the pre-existing airport Kigali International Airport (KGL) was unable to support the air travel needs of Rwanda due to rapid development within Rwanda and the country's ongoing economic growth. Passenger traffic at KGL had been growing rapidly. In 2004, the airport served 135,189 passengers but this had increased to 710,000 in 2016 (The East African, 2016). KGL was designed to handle only 400,000 passengers per year and it does not have space for expansion. Therefore, proposals for a new airport were put forward to replace KGL to accommodate the additional passenger traffic. KGL will remain operational for military purposes (The East African, 2016).

A private company, Mota Engil Engenharia was initially selected as the key contractor for the project and later was awarded a 25-year concession to complete construction, finance and maintain and operate the airport. Mota-Engil is a majority shareholder in the Bugesera Airport Company Limited (BAC) and has had previous experience of constructing new infrastructure developments across Africa.

Mota-Engil agreed to provide the $418 million to fund the first phase of construction. Commercial operations were expected to begin in 2018. In August 2017, construction began. The projected cost is now US$828 million (The East African, 2016). Mota-Engil, through its subsidiary Mota-Engil Africa is the main contractor and was providing 75% of the funding. The Rwandan company called Aviation Travel and Logistics (ATL), is providing the remaining 25% of the funding. ATL will also provide ground handling services at the airport. The new airport's construction was prepared in 2010 and only got underway in 2017 before undergoing a redesign process in 2019 to accommodate the country's expected growth plan (Airline Geeks, 2020). The mandatory redesigning of Bugesera Airport led to a fall out between the government of Rwanda and Mota Engil in 2020 and Mota-Engil was replaced by Qatar Airways. Qatar Airways has agreed to take a 60 per cent stake in the airport whose construction is now estimated to cost $1.3 billion up from $825 million, while the government of Rwanda retains 40%. Mota Engil had already started constructing the airport but did not have the resources required to fully fund the redesign (The East African, 2019).

Key lessons:

- Utilise funding from well-known contractors in the region. Although they later dropped out, Mota-Engil has experience of constructing infrastructure developments across Africa. Governments should try to identify similar companies that have carried out significant projects in their region and attract them to finance and/or develop projects in their country.
- Several redesigns and changing of plans of the airport indicate that there may not have been enough time spent at the project planning stage in terms of adequate forecasting of the needs of the country and costs of the project. This is an important stage in the project planning process.

Case Study: Pension Funds in Bhutan

Bhutan is a landlocked country extending from the southern foothills bordering India, to the north bordering China (Usubaliev, 2020). Its Hydro Power Corporation Limited was incorporated in May 2008 as the vehicle for development of the run-of-the-river 126MW Dagachhu Hydroelectric Project in southwestern Bhutan.

The Dagachhu project is a joint venture among Druk Green (the national operator of hydropower stations) as the majority equity partner with a 59% stake, Tata Power Company of India (the holder of the power purchase contract) with 26% and the National Pension and Provident Fund (NPPF) of Bhutan with the remaining 15% stake (Usubaliev, 2020). The project is funded in a 60:40 debt equity ratio with the Asian Development Bank providing a loan of US$ 51 million for the civil works; RZB of Austria providing a loan of €41m for the electro-mechanical works; and NPPF providing a loan of US$ 9 million (Usubaliev, 2020). Asian Development Bank (ADB) also provided a loan of US$ 39m to the Government to meet the financing gap of the project. The cost of the

project on completion was about US$ 200 million and it started producing electricity in 2015 (Usubaliev, 2020).

Key lesson:

- The lessons from the Bhutan project to other LLDCs are that with the support of the national government, multilateral development and commercial banks and the financial participation of the suppliers and users, a project with a demonstrable long-term reliable revenue stream can be attractive to national pension fund managers. Similar approaches can be applied in the transport infrastructure sector.

2.3 Requirements Required by Project Funders

Module 1 details the requirements / criteria that should be met for financiers to fund a project. There are a number of factors or criteria that influence whether a project will be funded - these can be social, economic, financial, technical, environmental, legal and administrative factors and, in most cases a combination of all the aforementioned.

The basket of actions that governments / project proponents can take to develop bankable projects and qualify for funding can be categorised into the two broad areas of focus as presented in Module 1:

- **Creating an enabling environment** (Economic and political environment; Legal and regulatory environment); and
- **Project preparation** (Feasibility studies; financial structure; third party risk allocation; and contract arrangement).

Error! Reference source not found. below highlights typical requirements for funders by the funding source.

Table 2-3: Typical Requirements for Funders by the Funding Source

Source of funds	Typical Requirements
Public	▪ Responds to national priorities and considers citizen's needs and concerns. ▪ Emphasis may be placed on social returns, employment, developmental potential as well as financial soundness and cost-effectiveness. ▪ Tendency to fund flagship high-profile projects that are used as a tool for geopolitical strategic interests by politicians.
Private	▪ Proof of profitability / financial returns: The costs and benefits of the project, and hence the profitability and potential financial returns of the project are key aspects of bankability for private investors. ▪ Risk-return ratio often determine private sector interest. ▪ Availability of detailed feasibility studies. ▪ A Rock-Solid Solid Project Business Plan. ▪ Favourable policies (enabling economic, legal and regulatory environment). ▪ Clear investment structure.
IFI / ODA (Donors)	▪ Project should be located in a developing country. ▪ Sometimes requires membership of the IFI. ▪ Availability of detailed feasibility studies. ▪ Project should be technically sound. ▪ Project should have good prospects of being profitable. ▪ Project should benefit the local economy.

Source of funds	Typical Requirements
	▪ Be environmentally and socially sound, satisfying the IFI's environmental and social standards as well as those of the host country.

2.4 Public Private Partnerships (PPPs)

The PPP Knowledge Lab defines a PPP as a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance. This means that it is a contractual relationship between a government and a private business venture. The business venture delivers and funds public services using a capital asset thereby sharing the associated risks.

Various aspects of PPPs, including advantages and disadvantages, types, and case studies, are covered in detail in Module 4.

2.5 Other New / Innovative Funding Mechanisms

Innovative funding refers to a range of non-traditional mechanisms to raise funds for development (Girishankar, 2009). The following are some types of innovative funding.

2.5.1 Climate Change funds

Climate change funds aim to facilitate greater investments in developing member countries to effectively address the causes and consequences of climate change, by strengthening support to low-carbon and climate-resilient development (NDCP, 2020). An example is the Green Climate Fund (GCF) which is the world's largest dedicated fund helping developing countries reduce their greenhouse gas emissions and enhance their ability to respond to climate change. It offers a variety of climate financing options that help developing countries mitigate the effects of climate crisis and help populations adapt to the changing climate. Examples of projects which could be funded include environmentally friendly transportation modes such as biking and walking, greenways, bus lanes and subways.

How LLDCs can access GCF funding

To access GCF funding, organisations go through the process of accreditation, project preparation, funding and implementation. National Designated Authorities (NDAs) are government institutions that serve as the interface between each country and the GCF. They provide broad strategic oversight of the GCF's activities in the country and communicate the country's priorities for financing low-emission and climate resilient development. As well as nominating Direct Access Entities (DAEs) to receive direct access finance, they manage the pipeline for submitted proposals and provide guidance and quality control.

Two types of an Accredited Entity (AE) can apply for project funding:

- Direct Access Entities (DAEs), which are sub-national, national or regional organisations nominated by developing country NDAs or focal points.
- International Access Entities (IAEs), which are United Nations agencies, multilateral development banks, international financial institutions and regional institutions. They do

not need to be nominated nationally and can be accredited based on expertise on climate change and related issues.

To be accredited, AE organisations must meet GCF fiduciary standards, environmental and social safeguards and gender considerations. In addition, the organisation's strategic focus should align with GCFs eight strategic impact areas for the delivery of major mitigation and adaptation benefits. The GCF Secretariat and the Accreditation Panel aim to decide within six months whether to recommend an application to the triannual GCF Board meetings.

Once accredited, the AE develops and submits project concept notes for feedback from the GCF. It then submits a full funding proposal to the GCF, including all the technical specification documents. This then undergoes a rigorous review process by the GCF Secretariat and the Independent Technical Committee. A final decision is made in the triannual GCF Board meetings (Tanner, et al., 2019).

Climate Funds in LLDCs

Climate funds have been little used by LLDCs and even less by them for transport projects. Overall, less than 5% of Global Environment Facility (GEF) and 16% of the Climate Investment Fund's funding has gone to transport projects (Kopp, Block, & Limi, 2013). However, access to these funds can be increased by carrying out the following.

- Climate funds can be applied for projects that help countries and cities address two trends: the rising urban demand of goods and services, and the rising consumption of resources, and help reduce global environmental degradation.
- Projects that encourage all aspects of urban sustainability, including access to services like public transport and clean water supply; green buildings and other interventions designed to mitigate greenhouse gases and air pollution emissions; resource efficiency; waste management; ecosystem and biodiversity protection, and climate resilience.

2.5.2 Global Innovation Fund

According to its website[31], the Global Innovation Fund 'focuses on solving any major development problems in low- or lower-middle income countries as it seeks solutions that can scale up commercially, through the public/philanthropic sector, or through a combination of both in order to achieve widespread adoption' (GIF, 2021). An example of a project under this fund is the 720,000 investment in the 'Where Is My Transport' project, South Africa (Vries, 2017). The project's open data platform makes mass transportation in African cities more accessible, more efficient, and safer for poorer people since it provides governments and transit operators with an open data platform for the integration of formal and informal transit data, thereby enabling third-party apps to provide commuters with real-time transport information (Vries, 2017).

2.5.3 Other International Funds

- The Africa Growing Together Fund (AGTF), co-financed by the African Development Bank (AfDB) and the People's Bank of China.
- The South-South Cooperation which provides more of technical assistance and project preparation than investment. Under it, one of its arms is the South-South Climate

[31] https://www.globalinnovation.fund/who-we-are/about-us/

Cooperation Fund, used to finance initiatives in developing countries to combat climate change.

- The Silk Road Fund which promotes increased investment in countries along the Belt and Road Initiative, an economic development initiative primarily covering Eurasia.
- China Africa Industrial Capacity Cooperation Fund Company Limited (CAICCF), which supports infrastructure development, particularly in the transit sector.

Table 2.4: Non Traditional International Funds that can be utilised by LLDCs

International Fund	Available Funding	LLDC Eligibility	LLDCs that have already used the funds for transport projects
The Africa Growing Together Fund (AGTF) ▪ Co-financed by the African Development Bank (AfDB) and the People's Bank of China.	▪ $200m (£119m) annually	▪ All African LLDCs: Botswana, Burkina Faso, Burundi, CAR, Chad, Eswatini, Ethiopia, Lesotho, Malawi, Mali, Niger, Rwanda, South Sudan, Uganda, Zambia and Zimbabwe	▪ Central Africa Fibre-Optic Backbone Project (CAB) – CAR Component, Central African Republic, 2017-Ongoing ▪ $50 million co-financing of the Msalato International Airport in Tanzania (neighbour to LLDCs: Rwanda, Burundi, Zambia, Malawi and Uganda), 2019-Ongoing
The South-South Cooperation	▪ NPA	▪ All LLDCs in the Global South (Asia, Central America, South America, Africa and the Middle East). Therefore, all LLDCs except Bolivia and Paraguay	▪ Early warning systems in Mozambique, Uganda and Zambia, these will assist in preventing transport infrastructure damage ▪ Supported cooperation between Armenia and Kyrgyzstan in jointly developing a Disaster Risk Reduction (DRR) strategy,2018
The Silk Road Fund	▪ US$ 40 billion was pledged as initial capital for the Fund; this has since been increased to US$ 124 billion	▪ Countries along the Belt and Road Initiative: Ethiopia, Uganda, Armenia, Azerbaijan and Laos	▪ None was specifically for LLDCs, but two of the transport projects, the Mombasa to Nairobi High Speed Railway and the China Pakistan Economic Corridor Project (linking Kashgar in China to Gwadar port in Pakistan) both promises to open up access to LLDCs (Uganda for the former and Afghanistan and Tajikistan for the latter).
China Africa Industrial Capacity Cooperation Fund Company Limited (CAICCF)	▪ US$ 10 billion	▪ All African LLDCs: Botswana, Burkina Faso, Burundi, CAR, Chad, Eswatini,	▪ NPA

International Fund	Available Funding	LLDC Eligibility	LLDCs that have already used the funds for transport projects
		Ethiopia, Lesotho, Malawi, Mali, Niger, Rwanda, South Sudan, Uganda, Zambia and Zimbabwe	

2.5.4 Sources of infrastructure financing from China

China has increased its financing of transport projects in LLDCs in recent years, particularly through its 'One Belt, One Road' initiative.

There are various new financing sources involving Chinese financing and funding. These new bilateral sources of finance are already being accessed by some LLDCs; for example, Ethiopia has taken out more than US$ 3.5 billion in loans from Chinese sources to finance three large transport projects. China as a source of finance has the potential to make a major contribution to closing the LLDCs' transport infrastructure gap.

Silk Road Fund

The Silk Road Fund is a state-owned investment fund of the Chinese government to foster increased investment in countries along the Belt and Road Initiative, an economic development initiative primarily covering Eurasia. At its creation in December 2014 US$ 40 billion was pledged as initial capital for the Fund; this has since been increased to US$ 124 billion. As of May 2017, the Fund had financed 15 projects for a total of US$ 6 billion. None was specifically for LLDCs, but two of the transport projects, the Mombasa to Nairobi High Speed Railway and the China Pakistan Economic Corridor Project (linking Kashgar in China to Gwadar port in Pakistan) both promises to open up access to LLDCs (Uganda for the former and Afghanistan and Tajikistan for the latter).

Given the aims of the Belt and Road Initiative to enhance connectivity, the LLDCs should be prime candidates for its funding.

China Development Bank (CDB) and China EXIM Bank (C-EXIM)

Two of China's policy banks, the China Development Bank (CDB) and the China-EXIM Bank (C-EXIM), already hold more assets than the combined sum of the assets of the Western backed multilateral development banks, with more than US$ 1.8 trillion, compared to the MDBs with just over US$ 700 billion. Although comprehensive data is not readily available, a recent estimate was that loans of more than US$ 675 billion for infrastructure, mainly transport and energy projects in developing countries have been made by China Development Bank and China export Import bank since 2014, and that the current lending rate is of the order of US$ 70 to 80 billion per year (Dollar 2017).

These banks provide concessional and non-concessional (in the case of the C-EXIM) finance throughout the world, including LLDCs. The Chinese state has full ownership of the Bank and implicitly guarantees its debt, enabling it to provide low interest rates and long-term loans that are competitive with those of the MDBs.

For some countries in Latin America and Africa, the CDB is the largest single source of development bank finance (UN-OHRLLS, 2018).

Case Studies of Projects funded by China

Case Study: Boten-Vientiane Railway, Laos

The Lao-China railway (also known as the Boten-Vientiane railway) is part of six international economic corridors under China's belt and road initiative (BRI) (World Bank, 2020). As part of the BRI, the Vientiane-Boten railway connects Lao Peoples Democratic Republic (PDR) with not only China (and eventually Singapore) but also the entire BRI network. The China-Laos Railway is a strategic docking project between the China-proposed Belt and Road Initiative and Laos' strategy to convert from a landlocked country to a land-linked hub. Laos is the only landlocked country in Southeast Asia.

It is stated that when the China-Laos Railway puts into operation, the travel time among provinces and cities of Laos will be greatly shortened, personnel exchanges will be faster, travels will be more convenient and comfortable.

The cost of the project is estimated at $5.95 billion. The Laotian government holds 30% of the joint company while China holds 70%. The initial investment stipulated is $2.38 billion, requiring contributions of $715 million from Laos and $1.67 billion from China. Laos will finance $250 million of its share from the national budget ($50 million a year over the five-year construction period) and borrow the remaining $465 million from the Export-Import Bank of China at 2.3% interest with a five-year grace period and 35-year maturity (Janseen, 2017).

After the completion of the China-Laos Railway, a logistics corridor with large-capacity and low-cost will be formed, which will effectively reduce the import and export costs of equipment and materials necessary for the development of various agricultural, industrial and mining products, lower down the transportation and circulation cost of finished product, simulate production, and expand exports. It will further facilitate the comprehensive development of mineral resources, forestry, hydro-power and other resources in Laos, as well as the development of foreign trade. At the same time, it will also stimulate the development of tourism, increase the fiscal revenue of Laos and the income of related employees and promote the development of national economy in Laos.

Key lessons:

- Importance of introducing new laws which aid development and create a more favourable investment climate. The Lao People's Democratic Republic (Lao PDR) issued a new law in 2019 to promote local and foreign investments in railway infrastructure development through various schemes, including public-private partnerships and other concession agreements (GMS, 2019). The law requires railway developers to conduct a feasibility study and survey; draft rehabilitation and repair plans; and ensure displaced people are compensated fairly and given better living conditions. This law guided railway development and ensured integration of its rail services with regional and global networks.
- Setting up a joint special-purpose entity in the form of a joint company. The Laos-China joint company was set up in June 2015 with the responsibility of project management, land concession, construction as well as fare collections.

- Preparedness for relocation compensation. The Lao government requisitioned 3,832 hectares of land for the project with about 4,411 families negatively affected by the project (Lindsay, 2019). According to the vice minister at the Lao Ministry of Public Works and Transport, Rattanamany Khounnivong, the government had already spent the money it set aside for compensation – about US$156 million and would have to borrow another US$150 million from China in order to finish the compensation process (Lindsay, 2019). It is important to plan for the compensation at the planning stage and to ensure that funds are directed to the displaced individuals in order to avoid disgruntlement.

Case Study: Addis Ababa-Djibouti Railway, Ethiopia and Djibouti

The Addis Ababa-Djibouti Railway modernisation project is the first cross-border electrified railway in Africa. The railway line is a 753 kilometre (km) electrified single-track standard gauge line between Ethiopia´s capital Addis Ababa and the Port of Djibouti, with 45 stations in total. The new standard gauge line runs parallel to and replaces the abandoned one-meter gauge railway, which was built more than 100 years ago (Global Infrastructure Hub, 2020).

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 (UN ESCAP, 2021). It runs from Addis Ababa/ Sebeta through the two large Ethiopian cities of Adama and Dire Dawa and links industrial parks and dry ports.

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 (UN ESCAP, 2021).

Implementation

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. ERC and Djibouti´s Minister of Equipment and Transport signed commercial contracts with the two Chinese contractors CREC and CRCC respectively. In the same year, they formed a consortium to operate the entire railway line for six years (UN ESCAP, 2021). 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.

Financing

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 (UN ESCAP, 2021).

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.

In effect of some repayment risks, the Chinese banks have restructured the Ethiopian debt and extended the repayment period from 15 to 30 years (UN ESCAP, 2021).

Key lessons:

- It is important to carry out thorough and detailed transport forecasts. Although future transport patterns cannot be entirely predicted, it is important to consider the possibilities and have a strategic plan in place. The project has faced some financial risks, associated with lower traffic volumes than predicted in the transport forecast.
- Currency structures should be constant. In this case, the project's debt was structured in US Dollar yet construction and operation cost as well as revenues were granted in Ethiopian Birr. This was not favourable as currency exchange rates fluctuate and this would have led to imbalances. The project debt and the construction, operation and revenue costs should be structured in uniform currency.

Case Study: Passenger Terminal Upgrading of Addis Ababa Bole International Airport, Ethiopia

Regarded by many as the gate to Africa, Addis Ababa Bole International Airport is one of the busiest passenger transit stations on the continent, receiving tens of thousands of tourists and transit passengers every day. In 2018 Addis Ababa surpassed Dubai as the top transit hub for long-haul passengers to Africa. Under this condition, the existing terminal passenger handling capacity has long been unable to meet the ever-increasing needs. The Ethiopian Government then launched a new airport terminal expansion project to double the airport's annual handling capacity to 22 million passengers, making it the biggest in Africa (Tadesse, 2020).

The 345-million-US-dollar project was fully funded by China's Exim Bank. China Communications Construction Co. (CCCC) signed a contract for the construction of the Bole International Airport Terminal Expansion project in 2012 and started the construction in 2015. The expansion project, which was fully completed at the end of 2020, has two contract sections called Contract I and Contract II.

1. Contract I was the expansion of Terminal 2 - a complex and multi-system integration project with a total area of 118,000 square meters.

2. Contract II consists of the expansion of Terminal 1, construction of a new VIP Terminal and associated work.

The expanded terminal features state-of-the-art airport facilities, elegant and spacious check-in, arrival and departure halls, various duty-free shops and restaurants, taking the entire passenger experience to a whole new level.

The project fund for Contract I is a concessional loan fully funded by the Export-Import Bank of China while the fund for Contract II is a preferential loan of which 85% comes from the same bank and 15% from the Ethiopian Government. The project comes as the national carrier is adding flights between Addis Ababa and Chinese cities by increasing its weekly passenger and cargo flights to 50, up from 35 (Tadesse, 2020), to five destinations in China: Beijing, Shanghai, Hong Kong, Chengdu and Guangzhou.

Key Take Away / Lessons

- China is becoming an increasing reliable source of funds for infrastructure development in LLDC.

Case Study: Victoria Falls Airport Expansion, Zimbabwe

Victoria Falls International Airport (VFIA) is one of the main airports in Zimbabwe. The airport is located 18km away from the town of Victoria Falls and mainly serves the tourism industry, handling long distance flights from the Americas, Europe and Asia. VFIA is operated by the Civil Aviation Authority of Zimbabwe.

In 2012, China's Exim Bank provided a $162 million concessional loan to Zimbabwe for the expansion of its Victoria Falls airport (AidData, 2017). The loan has a 20-year maturity period, with an interest rate of 2 percent. The total cost of the project is reported by most outlets to be $150 million, although some later reports indicated the price of the expansion was $202 million. The project began in April of 2014, which included extending the current runway and building a second 4,000-meter-long runway, a 100,000 square meter tarmac, a 20,000 square meter new terminal, and a parking lot (AidData, 2017).

Key Take Away / Lessons

- China’s Exim Bank supported both the project preparation and construction of the project. China is increasing playing a greater role in infrastructure development in LLDCs.

2.6 Exercises:

- Participants are requested to detail how they could make transport projects from their countries become project bankable and how they will be funded.

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Module 3. How to Establish and Sustain a Business-Friendly Environment in the Country to Promote Investment towards Transport Infrastructure

3.1 Key Objectives of the Module

- To equip participants with knowledge on how to establish and sustain legal, regulatory, and institutional environments that promote investment towards transport infrastructure and services implementation.

3.2 Developing Investment Friendly Laws, Regulations and Policies

3.2.1 Creating Enabling Environments that Promote Transport Connectivity

Efficient transport connectivity and resilient transport infrastructure are important means through which LLDCs can build up their productive capacity, attract investment including foreign direct investment, compete in international markets, and support social development and climate action. However, the lack of an enabling environment for investment in infrastructure from a policy, legal, and regulatory framework perspective is noted as one of the significant challenges in implementing efficient transport projects.

In Module 1, it was highlighted that creating an enabling environment - be it economic, political, legal, regulatory, policy, or institutional - is vital to making transport projects bankable. “Upstream” preparation such as creating enabling legislation, designing investor-friendly regulations, reforming project-relevant institutions, setting clear policy, and building capacity within government agencies forms an important base for attracting lenders or investors for projects and attaining bankability. The lack of a basic legal and regulatory enabling environment can stall project development as can a weak policy environment.

The following presents some actions that can be taken to create an enabling environment for infrastructure development and in particular, to attract investment in the transport sector.

3.2.2 Developing Policies that Promote Investment in Transport

Good transport policies are transparent and consultative. Nearly all transport policies, plans, and systems impinge upon a wide range of users and community groups therefore consultation with key stakeholders and the general public is not only desirable but essential to gaining all the information and perspectives needed for good policymaking (Amos, 2008).

Financers want to know about the policies of a country because policies affect decisions concerning the allocation of resources, the management and regulation of existing transportation activities, and the structure of the transport system (for example is there a deliberate policy to incentivize/involve the private sector in transport development).

To promote investment in transport infrastructure, governments should consider policies which do the following:

- Define public and private sector roles in transport delivery;

- Improve the performance of state-owned enterprises;
- Encourage private sector participation;
- Preserve the value of public assets;
- Set standardized transport prices;
- Foster competition and strengthen regulation;
- Make transport more inclusive;
- Promote transport safety;
- Develop a sustainable transport system that is friendly to the environment;
- Fight corruption;
- Improve governance of the transport sector, including:
  - Transport planning,
  - Transport management and operation,
  - Transport data and monitoring, and
  - Transport funding;
- Improve regional and continental connectivity, which is particularly important for LLDCs.

Policy forms the basis for legislation. Policies are frequently, though not exclusively, incorporated into laws and other legal instruments that serve as a framework for developing planning interventions, and are thus a good starting point for creating an enabling environment for investment.

Tenets of Good Transport Policies

Transparency

Transparent regulations governing transport infrastructure investment are essential to provide a stable framework for investment and encourage private sector participation, particularly through Public Private Partnerships (PPPs). Ensuring policy transparency also helps fight corruption in the provision of transport infrastructure, for example through transparent public procurement.

Non-Discrimination

Ensuring non-discrimination can help drive foreign investments. Governments, for instance, can create legal incentives for foreign investments and allow foreign investors to establish enterprises within a country.

Policy Harmony

Policy harmonization between different departments, ministries and governments that would be involved in the development of a project is also important. Harmonization is important at local level e.g. similar policy/regulation between different political units within a country, but also at international level e.g. harmonization of national customs laws and policies of states along a particular transport corridor.

A Consistent Policy Orientation

Transport infrastructure projects typically take several years to be developed and are often politically sensitive. As such, they are vulnerable to government change which could result in a position reversal regarding any previous agreements. This is particularly concerning for private investors who face considerable entry costs when entering a market. For example, private operators have to carry out full due diligence of the legal and fiscal environment and are unlikely to do so if the policy direction of the government is unclear. Against this backdrop, the development of a national strategy for PPPs could mitigate such political risk by building wide support and a long-term vision for the sector.

Focus on Financial Sustainability

Offering efficient transport systems comes at a cost throughout the project cycle from project planning stage, construction, operation, and maintenance. To avoid the common situation of having dilapidated infrastructure, governments should focus on ensuring that their transport policies take cognisance of financial sustainability – be it through user pays principle, greater efficiency, greater involvement of the private sector or other policies that promote financial sustainability of projects.

Focus on Environmental Sustainability

Sustainable transport systems make a positive contribution to the environmental, social and economic sustainability of the communities they serve. More sustainable forms of transport, such as public transport, require a significant amount of upfront investments. However, the benefits outweigh the costs: sustainable transport enables the reduction of congestion, reduces environmental degradation, accidents and other costs, and helps increase employment and generate more value for the economy. Governments can reap the large benefits of sustainable transport by pursuing two core aims, namely: Pushing demand away from private motorised transport, and Pulling demand towards public and other forms of sustainable transport.

The two aforementioned aims can be realised by the so-called “Avoid-Shift-Improve” strategy which contains a wide range of policy options that collectively:

- **Avoid** or reduce the number of journeys/length of trips taken;
- **Shift** to (or preventing the shift away from) more environmentally efficient forms of transport; and
- **Improve** vehicle and fuel technology to improve environmental efficiency.

Encourage Private Sector Participation

Governments have a central role to play in mobilising private investment in the transport sector by establishing reform agendas that deliver “investment-grade policies”. An integrated framework with clear and stable transport policies, sound investment policies, and targeted and innovative tools is essential to overcome barriers to private sector investments in transport.

Mobilisation of private capital through the expanded use of blending mechanisms, including PPPs, mixing of grants and loans, and financial guarantee instruments, needs to be a joint effort by governments, interested private companies and financial institutions. This type of financial arrangement is necessary because developing countries require massive increases in both public

and private sector financing in order to meet the infrastructure investment needs over the next decade (European Commission, 2015).

The private sector's role in transport infrastructure development has grown as a result of deregulation of formerly state-owned monopolies, and the move to joint projects with the private sector characterises many public investment choices. Given the limited fiscal space that reduces the scope for financing infrastructure development from public resources, the private sector is now increasingly seen as an additional, often complementary, source of finance. However, the scope for such co-financing arrangements is limited by administrative and procedural conditioning (European Commission, 2015).

3.2.3 Developing Supportive Legal and Regulatory Frameworks

An enabling legal and regulatory environment is one which provides but is not limited to:

- Promotion of peace and stability;
- The rule of law;
- Good governance with accountability and transparency;
- Property protection;
- The absence of corruption;
- Non-discrimination;
- Availability of justice or recourse;
- Fair arbitration;
- Efficient policing; and
- Enforceable contracts.

An ideal legal and regulatory framework is one in which autonomy, accountability, transparency and predictability exist. Having a solid legal and regulatory framework is important for lenders and for private sector participation. The lack of a well-developed legal and regulatory framework increases the level of risk to investors because they may fall victim to monopolies, conflicts of interests, contract issues and other such challenges. It also encourages investors to rely on special situations and political relationships rather than their merits as a means for securing and implementing contracts.

A good legal and regulatory framework should include the following aspects:

- An independent and fair judiciary.
- Legislation against informal payments.
- Enforceability of contracts.
- Clear laws on land ownership / property rights.
- Clear laws / regulations on resettlement and compensation.
- Effective policing and law enforcement capacity.
- Trade facilitation regulations.
- Economic regulation that deters anti-competitive practices.
- Autonomous regulatory agencies with independent funding and professional staff.

- Harmonisation of policies, standards and guidelines within the country and internationally (e.g. harmonisation of policies / regulations at border crossings between countries).
- Facilitate private sector participation.
- Speed-up project development.
- Increase transparency in infrastructure investments.
- Comply with international conventions.

For LLDCs, efficient cross-border traffic flow may require many changes in the existing laws and practices related to matters such as recognition of driving and vehicle licenses from other countries, insurance and liabilities of goods in transit, waybills, customs/border control clearance procedures, information systems, safety standards, and labour laws and practices. It is therefore important that there is legal and regulatory harmonisation between countries involved in the cross-border project.

Changes in laws may also be required for matters related to technical specifications of vehicles and other equipment to permit traffic from one country to another. Reforms may also be needed in existing legal institutions. Many laws and rules can be obsolete or require changes in view of the changing environment; for example, regulatory standards on vehicle, fuel and emission control, financial and other incentives for the promotion of sustainable development measures, and recognition of electronic documents to facilitate fast paperless transactions or payment of fees.

3.2.4 Developing Strong Institutions

Institutional strength in transport development and implementation is vital to attract financers. Governance capacity and human capital within institutions, organisational experience and co-ordination among ministries is critically examined by financiers.

Several institutions are involved in the transport sector development as follows: ministries of transport/infrastructure development; PPP units; financial institutions; procurement regulatory authorities; ministries of finance and economic development; project sponsors/developers; community groups; and many others.

Each of the above institutions has a key role to play. Many barriers to transport development are institutional in nature. Deficiencies in present institutions, particularly laws, regulations, rules, and governance institutions outlining how organizations function and conduct their dealings with other organizations and stakeholders can be barriers to transport projects development.

The lack of technical skills, transport sector management skills, and good governance can also be a significant challenge in institutions within the transport sector particularly in developing countries. Financers want to know that there is human resource capacity and skills within ministries / departments in order to build / implement a project; and due to the multi-sectoral nature of infrastructure development, they also want to see a collaborative effort to successfully implement a project. In addition, financers are looking for the availability and implementation of transparent procurement rules and procedures, and procurement authorities or departments with a clean track record.

To improve institutional performance, LLDCs should improve the transfer of knowledge and experience among themselves on institutional, economic and social aspects and build capacity.

Building Capacity

Reforms in transport sector governance institutions are needed in most developing countries, including LLDCs. It is not uncommon to see that the mandates of transport development agencies, as may be specified in their legal statutes or administrative orders, can be often contradictory as well as over- and under-lapping. The laws may require the agencies to coordinate with other relevant agencies but may not mention any definite means (institutional mechanism) for that purpose; or whatever mechanism is specified is not effective to deal with complex multi-sectoral issues handled by multiple agencies.

In order to assume the changing role of the public sector, revitalization of the existing organizations should focus on capacity building, developing a culture and institutional mechanisms for cross-sectoral policy formulation and collaboration between organizations, allocation of resources, and access to new technology (especially related to applications of ICT), etc. A successful bankable project requires having people with the right skills, knowledge and availability to deliver the project and ensure its longer-term sustainability.

Countries should: review skills and staff against their objectives; train new/ available staff through more on the job trainings; and secure the required resources for capacity building.

Along with the reforms and revitalisation of existing organisations, setting up of new ones especially regulatory bodies, and reform of existing regulatory regimes may also be required to facilitate greater involvement of the private sector, public participation, competition, and to protect social interests at large.

3.3 Examples of Investment Friendly Policies

3.3.1 Case Study: Botswana

Botswana has received international recognition in being politically stable, governed through the rule of law and participatory democracy, accountable, and one of the least corrupt countries in Africa according to Transparency International (2019). The country continues to be awarded high ratings by Transparency International through its Corruption Perception Index, Ibrahim Index of African Governance, and the World Justice Project. These attributes are critical for the promotion of economic growth and quality of life and provide a suitable basis for investment.

Investors and lenders are also attracted to the country because of the following investor friendly policies / regulations / laws:

- Botswana is among the most stable and transparent countries in Africa.
- Foreign exchange controls were abolished in 1999 which guarantees free repatriation of profits, dividends and capital.
- Access to Southern African Development Community (SADC) market of over 292 million people, Europe and the USA through various instruments:
  - The country is a member of SADC and the organisation's headquarters is located in Gaborone, Botswana.
  - The country is a member of the Southern African Customs Union (SACU), which allows movement of goods amongst South Africa, Swaziland, Lesotho, Namibia and Botswana free of customs duty.

- The country has duty free and quota-free access to Europe.
- The African Growth Opportunities Act enables Botswana to export to the USA on a liberal basis.

- Investors have access to double taxation avoidance agreements with South Africa, United Kingdom, Sweden, France, Mauritius, Namibia, Zimbabwe, and Russia.
- Protection of foreign investment through the Constitution which prohibits nationalisation of private companies.
- Botswana is also a Signatory to the World Bank's Multilateral Investment Guarantee Agency (MIGA) and to bilateral investment treaty in 1997 with the Overseas Private Investment Corporation (OPIC), which provides guarantees for US private investors.

The Kazungula Bridge Project (KBP)

Botswana's legal and regulatory environment including being signatory to regional bodies such as SADC has helped the country to improve transport connectivity. One illustrative example is the Kazungula Bridge Project (KBP) which was largely completed by the end of the year 2020. The estimated total project cost is USD 259.3 million. The African Development Bank (AfDB) covers from the African Development Fund (ADF) window an equivalent to 31.5% of the total project cost. The balance is shared between Japan International Cooperation Agency (JICA) (57.5%), Governments of Botswana and Zambia (9.2%) and EU-ITF Grant (1.8%).

AFD (2011) documents reveal that the legal and regulatory frameworks in place were one of the many aspects of the project that the external financiers assessed. AfDB examined the two countries' commitment to regional cooperation within SADC; assessed their procurement systems (which were found to be lacking in some aspects, therefore AfDB's systems were used); stressed the need for harmonized transport policies and programs between the two countries; and many other factors.

3.3.2 Case Study: Kazakhstan

The Intergovernmental Agreement on Dry Ports

The Intergovernmental Agreement on Dry Ports was opened for signature at Bangkok on 7 and 8 November, 2013 and entered into force on 23 April, 2016. As of 1 February, 2020, 14 ESCAP member States are Parties to the Agreement (UNESCAP, 2013). The Intergovernmental Agreement on Dry Ports is aimed at promoting and developing dry ports of international importance as one of the means to establish an international integrated intermodal transport and logistics system within Asia as well as between Asia and its neighbouring regions.

The Agreement provides a uniform definition of a dry port of international importance, identifies the network of existing and potential dry ports of importance for international transport operations and offers guiding principles for their development and operation.

Annex I to the Agreement contains a list of existing or potential dry ports in Economic and Social Commission for Asia and the Pacific (ESCAP) member States which should be brought into conformity with the guiding principles for the development and operation of dry ports as per Annex II to the same Agreement. Successful experiences have already taken place in a number of countries including in Kazakhstan, where road and rail-linked facilities have been inaugurated at Khorgos at the border with China (UNECE, 2013).

Road and Rail-Linked Facilities at Khorgos at the Border with China

The Khorgos Gateway is one of the most ambitious projects in China's Belt and Road (BRI) initiative, connecting Kazakhstan to China. It is the biggest dry port in Central Asia, handling cargo for trains instead of ships (Birimzham, 2020). It is set to play an important role in global trade, as production moves westward in China and markets in Iran and South Asia open up, reviving the use of rail and road. Kazakhstan – and Khorgos – will be the natural transit corridor on the new Silk Road.

Trains today can carry goods from eastern China to Western Europe in about two weeks, cutting delivery time by up to two-thirds compared with container ships, and at a fraction of the costs required in shipping via air. The potential is likely to be bigger once new technologies, such as driverless cars, trucks, and trains make it possible for overland vehicles to operate around the clock, reducing time and costs against the backdrop of booming e-commerce globally (Birimzham, 2020).

Agreements such as the Intergovernmental Agreement on Dry Ports have led to the increased development at Khorgos. Future Free Trade Agreements between Kazakhstan and Singapore, the Eurasian Economic Union, of which Kazakhstan is a member, China, ASEAN member countries, and European Union member countries will help to fuel this growth as well. The Khorgos Gateway received its first trains in the autumn of 2015 and has been handling about 150,000 teu of containers as of 2019. The figure is expected to rise to 500,000 teu by 2023.

That Kazakhstan shares a 1,780 km border with China puts the country in good stead of offering an alternative or supplementary land route to maritime shipping for cargo from China, Japan and South-east Asia, to Europe – serving as a central station of sorts on an overland New Silk Road. With the completion of Chongqing Connectivity Initiative, South-east Asia will also be able to access to Eurasian market more easily, and vice versa. The Khorgos Gateway is now Kazakhstan's main port along the trans-Eurasian network, which includes cities like Chengdu, Suzhou and Zhengzhou in China and Duisburg, Warsaw and Hamburg in Europe.

Enabling Environment

Since its independence in 1991, Kazakhstan has made significant progress toward creating a market economy and has achieved considerable results in its efforts to attract foreign investment. As of January 1, 2019, the stock of foreign direct investment in Kazakhstan totalled USD 160.4 billion (U.S. Department of State, 2019). In just 28 years (1991-2010), the country attracted over $320 billion of foreign direct investment (FDI) (Sartbayev, 2020). The largest international trade corridors pass through the country thanks to the consistent efforts on infrastructure development and active involvement in the Belt and Road Initiative.

Investors are attracted to the country because of the following friendly policies:

- Twelve Special Economic Zones have been established offering tax incentives.
- KAZAKH INVEST supports investment projects as a one-stop shop.
- The Astana International Financial Centre (AIFC) has introduced English common law principles to the Central Asian region.

- The Government continuously works to improve the investment climate. This primarily includes judicial reforms, digitalization, optimization of public services and the permit system, among other initiatives.
- Modernisation of the current legislation. For instance, the Government has recently approved a draft amendment to the AIFC Constitutional Law, which enables AIFC bodies to adopt acts regulating labour relations and procurement procedures.

In July 2018 the Government of Kazakhstan officially opened the Astana International Financial Center (AIFC), an ambitious project modelled on Dubai, which aims to offer foreign investors an alternative jurisdiction for operations, with tax holidays, flexible labour rules, Common Law-based legal system, separate court and arbitration center, and flexibility to carry out transactions in any currency.

3.3.3 Case Study: Moldova

According to the 2020 World Investment Report by UNCTAD, FDI inflows to Moldova amounted to USD 589 million in 2019, up from USD 308 million of the previous year (UNCTAD, 2020). The total stock of FDI was estimated at USD 4,8 billion in 2019. The bulk of FDI comes from other EU countries.

Investors are attracted to the country because of the following friendly policies:

- Moldova has signed comprehensive double taxation agreements with 50 countries, of which 48 are in force. The Double Tax Treaties may provide for more favourable tax regimes than those provided by the local legislation.
- Investment climate - Foreign and domestic investors are treated equally under the Moldovan legislation and the legal framework is the same for foreign investments.
- According to the Moldovan Constitution, the state must ensure the inviolability of foreign investments. The Government is keen to establish coordinated policies and well-balanced legislation in order to stimulate both domestic and foreign investments.
- The legal framework for the protection of foreign investments consists of the Law on investments in entrepreneurial activity and international bilateral treaties for the facilitation and mutual protection of investments. These ensure that investor interests are protected.
- The law prohibits discrimination against investments based on citizenship, domicile, residence, place of registration, place of activity, state of origin or any other grounds. The law provides for equitable and level-field conditions for all investors. It rules out discriminatory measures hindering the management, operation, maintenance, utilization, acquisition, extension or disposal of investment.
- Investment promotions: The country has many promotion opportunities for foreign investors. The European Union in connection with the European Bank for Reconstruction and Development (EBRD) is promoting such investment opportunities through Moldovan banks.
- The country has seven Free Economic Zones where local and foreign investors may carry out entrepreneurial activities under a preferential regime, i.e. benefiting from special guarantees and facilities (tax, customs, regulatory, immigration, etc.) As a result of the actions taken since the launch of their activity, the total volume of investment in free

economic zones amounted to 285.3 million US dollars, of which in 2016 - 55.2 million US dollars were invested. The total volume of net sales of industrial production in that period amounted to 4.5 billion lei or 10.4% more than the previous year. The total volume of investments in the International Port, during its entire period of activity, as of October 1, 2016, amounted to 67.9 million US dollars, including 4 million US dollars for the management period (Tatiana Faina, 2020).

The Marculesti International Free Airport

The Marculesti International Free Airport, a former military air base, was established in 2008 as a free enterprise zone for a 25-year period to develop cargo air transport. Airport management is also interested in turning Marculesti into a regional hub for low-cost passenger airlines (Stopfakes, 2017).

In October 2010, within the Transport Corridor Europe-Caucasus-Asia (TRACECA) project, a business plan was presented in Brussels for creating an international logistics centre in Marculesti. It was planned that in the first stage in 2012-2014 investments would reach €10mn, in the second stage in 2015-2018 – €4mn, and in the third stage in 2019-2022 – €2.7mn. Some of the funds would have been used to install proper lighting for night flights, to repair the runways, refurbish the airport, buy 10 new planes and open a training school for pilots (IntelliNews, 2019).

In 2019 representatives of the Sichuan Ruifeng Investment Management Group (China) discussed plans to invest in the Moldovan air transportation sector with officials from Moldova's ministry of economy. The representatives applauded the Moldovan government's support for foreign investors and were also attracted to Marculesti international airports to its geographical position which gains it the potential to become a very important centre contributing to the exchange of goods between Europe, Asia, Africa and the Middle East (IntelliNews, 2019).

3.3.4 Case Study: Bus Rapid Transit in Curitiba, Brazil

Background

Curitiba is widely acknowledged to have pioneered bus rapid transit (BRT) as an affordable solution to transport problems in developing cities (Federal Environment Agency in Germany (FEA), 2012). It also demonstrates best practice in informed policymaking, with a high degree of political awareness of, and commitment to, non-car oriented transport planning principles.

A bus rapid transit system was introduced to Curitiba in 1974, as part of a package of reforms to transport and land-use planning, replacing a chaotic system of unregulated paratransit routes. It resulted in a 2.36 % annual increase in bus patronage, and a drop in road traffic of 30% over its first 30 years of operation (FEA, 2012).

Of particular note is that the system is financially self-sufficient: routes are competitively tendered and require no operating subsidies. Key to these initiatives was the three-time mayor of Curitiba, Jaime Lerner. The elected policymaker used his academic background in urban planning to shape the city's urban development strategy in the early 1970s, maximising the benefits of the federal funding made available (FEA, 2012). In particular, an early decision was made to reject an underground metro or tramway in favour of a more extensive high capacity BRT network (FEA, 2012).

Description of Strategy

A total of five dedicated expressways were constructed, at a cost of 200 000 US-$ per km, which is at least 100-fold cheaper than an underground metro (FEA, 2012). The key corridors are served by distinctive red bi-articulated vehicles, offering a maximum crush-loaded capacity of 270 passengers (FEA, 2012). These are complemented by a number of feeder and orbital bus routes (see table below), forming a comprehensive network that maximises accessibility across the city.

Table 3.1: Curitiba BRT and bus network.

Route type	Description
Red	▪ Express buses on thirteen radial routes, using 65 km of dedicated expressways on arterial roads
Orange	▪ 340 km of feeder routes
Green	▪ 185 km of inter-district orbital routes
Silver	▪ 'Speedy buses' to/from surrounding areas
Yellow	▪ Radial routes complementing the red lines
White	▪ Inner orbital 'circle line'

Community groups were involved in participatory planning at the network planning stage, helping to inform the location of stops and route design. Today's public transport network comprises 340 routes on a total network length of 1 100 km, summarised in the table above (FEA, 2012). The system is fully integrated: only one flat fare ticket is required for a journey, regardless of distance and transfers. Smartcards have been in use since 2003. Passengers pay before boarding at covered terminals, offering a high quality waiting environment. In addition, school children and pensioners travel free. The system's speed and simplicity has contributed to its commuter trip modal share of 75%. It has been estimated that 28% of users would switch to the car in the absence of the expressways and other priority measures (FEA, 2012). Private companies own the vehicles and are paid a route-specific fee per kilometre, with the municipality taking revenue risk. Fares are kept low, such that inhabitants spend only 10% of their income on transport.

As mentioned above, the system requires no operating subsidy. High density development has been permitted along the key bus corridors, providing the volume of passengers required for economic self-sustainability of a dense network of high frequency services (FEA, 2012).

Applicability

This integrated approach to urban expansion and public transport provision can be implemented in other rapidly expanding cities. Indeed, Quito in Ecuador opened the first phase of its trolleybus-based system in 1996, inspired by the Curitiba experience (FEA, 2012). Infrastructure costs are relatively low, operating costs can be reduced by competitively tendering routes, and vehicle capital costs are borne by successful bidders. Sufficient travel demand can be generated by concentrating development along radial bus corridors, and by providing complementary feeder services. By leaving revenue risk with the tendering authority, fares can be regulated to optimise the balance between cost recovery and maximising accessibility to opportunities for the poor. The re-allocation of road space from cars to buses on the dedicated sections sends a clear signal that public transport has high status as a priority mode in rapidly motorising transition

economies, as well as cutting journey times and increasing reliability relative to conventional buses and the private car.

Key Take Away

- Seek independent academic and/or consultancy advice to make a more informed decision as to the most appropriate rapid transit mode for your city and/or for new corridors.
- Coordinate development along existing or planned high capacity rapid transit corridors, which should have dedicated road space and other priority measures such as traffic signal actuation.
- Design the system to function as a network, with simple 'one journey, one ticket' paper or smartcard ticketing, and optimised connections between feeder and trunk services at interchanges.
- Retain control and planning – routes, timetables and fares – in the hands of public agencies. By benchmarking the economic performance of operations, an informed decision can be made whether to offer day to day operations to the private sector by competitive tender. Contracts can include penalties for poor performance by operators and/or incentives to grow patronage.
- Ensure capacity keeps pace with demand, especially in rapidly motorising cities where a high quality, uncrowded alternative is required to dissuade car ownership and peak time car-use.

3.3.5 Case Studies: Russia and India

The following case studies of 2 transit countries are extracted and summarised from *Railway Reform: Toolkit for Improving Rail Sector Performance (2017)* prepared by the PPIAF supported by the World Bank. They present some best practice in the development of railway development particularly through railway reforms.

Russian Railways

The dissolution of the Soviet Union caused economic dislocations that had catastrophic consequences for the rail industry and between 1990 and 1995, freight traffic plunged by 52% and passenger traffic by 30%. To compensate for the overall losses, the railways raised freight tariffs, which depressed freight traffic even further. Freight modal share declined, while the rail share of loss-making passenger traffic increased from 40 to 49%. These significant traffic declines without corresponding operational reforms reduced both asset and staff productivity. Investment in new equipment and maintenance declined, with new equipment deliveries falling by over 30%. As assets and infrastructure deteriorated, the number of track-kilometers subject to speed restrictions increased by about 30%. Clearly, railways could not maintain their pivotal role in the economy without reforms.

A railway reform plan (Edict Number 426, 1997) was formulated and had following the major objectives: Stabilize quality and safety; Preserve a pan-Russian institution and ensure economic development; Ensure system interoperability; End cross-subsidies; Improve tariff-setting supervision; Increase transparency of financial flows in the industry; Reduce system costs; and Meet demand for transport services.

Decree Number 448 (1998) refined these goals, adding: end cross-subsidies, improve tariff-setting supervision, and increase transparency of financial flows in the industry. In order to achieve these goals, the railway reform strategy needed to leverage financing from the private sector. Government regulation and market mechanisms needed to create a favorable environment for private sector participation and increased competition in the railway sector.

The railway reform had three phases: Separation of Regulations and Operations; Separating Functions; and Establishing a Joint-Stock Holding Company and Developing Competition, and later on passenger service reform.

Freight transportation underwent the most significant reforms, and market performance results were impressive. Between 1995 and 2009, freight turnover improved by a dramatic 87% before succumbing to the effects of the 2008 global economic crisis. RZD saw an increase in demand for new rapid transit trains, with the highest passenger traffic increase seen on the Mosco-Smolsnek route and the Moscow-Belgorod route. Passenger turnover on rapid transit trains grew 25% to 2.5 billon passengers per km in 2015.

Conclusion

Lessons learned from the Russian experience in restructuring state-owned railways are as follows.

- Typically, crisis is the best driver for reforming the railways. Government agreed to embark on a restructuring process only after a few years of financial crisis forced it to confront the fiscal implications of railways operations and management.
- Restructuring is a long process. Russia approached reforms gradually, leaving RZD as the dominant party. Reforms have taken over 15 years, the years between 2000 and 2010 were the most active, which is longer than was originally planned, but progress was steady. As a result, reforms succeeded in expanding rail freight traffic, expanding market share, reducing freight rates, restoring operational productivity, and attracting private capital to profitable sector elements such as high-value freight.
- Introducing private companies into provision and maintenance of rolling stock may prove beneficial. In Russia it brought more than $50 billion of capital to the railway sector, freeing up RZD's capital for the improvement of freight services.

Indian Railways

India has one of the largest and busiest railways in the world run by Indian Railways (IR). Traffic growth has underpinned management initiatives to attain steady and significant improvements in staff productivity and equipment utilization. Nevertheless, IR was historically not notably innovative in using modern rail technology, nor in transforming to more commercial management structures, nor focused on service quality or market-responsiveness. Instead, when seeking commercial focus, it tended to create semi-autonomous enterprises that bypass its own structures (The World Bank, 2017).

Improvements stemming from a Transformation Strategy led to the modernization and overall improvement to customer relations and a shift toward market-oriented decision-making. Capital expenditure – intended to increase average speeds, build high-speed rail lines, expand the broad gauge network, and revitalize the sorely neglected rail freight industry (most notably the Dedicated Freight Corridor (DFC) program) – was increased. Under the strategy, PPPs are

intended as the main mode of delivery for various projects, most notably DFCs and high-speed passenger rail development. Indeed, in 2014, Government opened up the sector to PPPs in a series of rail activities previously limited to the public sector, including: construction, operation and maintenance of suburban corridors, high speed rail, DFCs, rolling stock, railway electrification, signaling, freight terminals, passenger terminals, infrastructure in industrial parks, industrial connections and rapid transit.

The liberalization of the market (not to be understood as privatization) aimed to promote competition by allowing the entry of new operators, but will only be possible if there exists an adequate regulatory body that protects all stakeholders. The need to establish an independent regulator in order to advance the industry further cannot be stressed enough. Beyond the measures that have since been taken, the truth remains that government policy functions should be separated from commercial operations, non-core activities should be spun off, and commercial management on lines of business and market segments should be refocused. IR continues to house many activities outside what would be considered core functions, and should critically evaluate their impact on operating a financially stable and customer-focused railway business.

Since the 1989 Railway Act, India's economy has been modernized and transformed by more open international trading relationships, greater reliance on market forces, a stronger role for the private sector, and greater competition in trade and services.

Conclusion

Lessons learned from the Indian experience in restructuring state-owned railways are as follows.

- Government policy functions should be separated from commercial operations, non-core activities should be spun off, and commercial management on lines of business and market segments should be refocused. IR continues to house many activities outside what would be considered core functions, and should critically evaluate their impact on operating a financially stable and customer-focused railway business
- The Ministry of Railways' Indian Railway Board (IRB) policies have established corporatized entities to manage selected railway business segments outside the full bureaucratic and public service framework of ZRs. These are crucial in mobilizing financial resources as well as implementing projects
- The Indian experience does little to contradict the theoretical structural weaknesses of the monolithic railways structure. The overall degree of private sector participation in India's rail sector is currently low by international standards, and it will be interesting to monitor the success of the newly minted PPPs as they mature. In practice, these PPPs should reduce the industry's monolithic nature.

3.4 Key Messages

- The lack of a basic legal and regulatory enabling environment can stall project development as can a weak policy environment.
- Good transport policies are transparent and consultative.

- Tenets of good transport policies include transparency, non-discrimination, policy harmony, a consistent policy orientation, focus on financial sustainability and focus on environmental sustainability.
- An ideal legal and regulatory framework is one in which autonomy, accountability, transparency and predictability exist. Having a solid legal and regulatory framework is important for private sector participation.
- To improve institutional performance, LLDCs should improve the transfer of knowledge and experience among themselves on institutional, economic and social aspects and build capacity.
- In order to assume the changing role of the public sector, revitalization of the existing organizations should focus on capacity building, developing a culture and institutional mechanisms for cross-sectoral policy formulation and collaboration between organizations, allocation of resources, and access to new technology (especially related to applications of ICT), etc.
- A successful bankable project requires having people with the right skills, knowledge and availability to deliver the project and ensure its longer-term sustainability.

3.5 Exercise

- Participants to share existing policies and regulations from their countries / regions that they believe are business-friendly.

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Module 4. **Public-Private Partnerships for Infrastructure Development to Improve Transport Connectivity**

4.1 Key Objectives of the Module:

- To inform participants of how to use and promote Public-Private Partnerships (PPP) for infrastructure development to improve transport connectivity.

4.2 Introduction to Public Private Partnerships (PPPs)

4.2.1 What is a PPP?

The PPP Knowledge Lab[32] defines a PPP as a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance. This means that it is a contractual relationship between a government and a private business venture. The business venture delivers and funds public services using a capital asset thereby sharing the associated risks.

PPPs, if implemented well, can help overcome inadequate infrastructure that constrains economic growth, particularly in developing countries. Infrastructure investments are known to accelerate much-needed growth in developing countries and reduce income disparities. But poor infrastructure is often a reflection of several constraints governments face, for example, insufficient public funds, poor planning, weak analysis underpinning project selection, or corruption. Infrastructure assets are also often poorly maintained (WBI 2012).

PPPs can help overcome some of these challenges by mobilising private sector resources, helping improve project selection and on-time and on-budget implementation, and ensuring adequate maintenance. Although initially restricted to public infrastructure in the form of roads, railways, power generation, or water and waste treatment facilities, PPPs have increasingly moved into the provision of so-called “social infrastructure,” such as schools, hospitals, and health services.

4.2.2 Rationale for Supporting PPPs

The rationale for PPPs is based on the claim that PPPs have the potential to close the infrastructure gap by leveraging scarce public funding and introducing private sector technology and innovation to provide better quality public services through improved operational efficiency (World Bank Group (WBG) (no date (n.d.)). Improving the provision of infrastructure and social services through higher levels of efficiency and quality contributes directly to growth and poverty reduction.

[32] The PPP Knowledge Lab was launched in the year 2016 with the goal of making resources on PPPs more accessible to the PPP community and filling a gap in knowledge around infrastructure and PPPs. Emboldened with this goal, the world’s top multilateral development agencies came together to create a central platform of comprehensive information on PPPs.

The Public Sector Finance Perspective of PPPs (WBG, n.d.)

Contrary to intuition, PPPs generally do not provide additional resources for the public sector. Governments can finance their public infrastructure investments just as well as private firms. Only when governments are credit constrained and thus cannot borrow may private finance be superior. When governments do not have credit constraints, the primary effect of private finance in PPP arrangements is that the investment becomes more affordable within annual authority budgets and better matches user benefits, allowing governments to realize infrastructure investments earlier (WBG n.d.).

PPPs mobilize private sector resources to cover the capital expenditure costs up front (or at least most of it) and make the public sector pay during delivery of the services, either through availability payments or usage payments (shadow toll) or a combination thereof. Only if PPPs introduce fees for actual end users do they effectively increase total government revenues and funding. Hence the primary advantage PPPs may offer over traditional public procurement is potential efficiency gains that privately led construction and maintenance may bring, partly offset, however, by higher capital costs of the private investor. The assessment of public sector liabilities triggered by a PPP project is hence of utmost importance. These can amount to substantial direct liabilities, for example, up-front viability gap funding to make projects more commercially viable and the referred usage payment, or contingent liabilities, such as guarantees on particular risk variables, for example, to buffer the traffic demand risk for the private party, compensation payments for uninsurable force majeure, or termination payments.

4.2.3 Types of PPPs

There are several different types of public-private partnership contracts, depending on various aspects such as the type of project (for example, a road or an airport), level of risk transfer, investment level and the desired outcome. Some types of PPPs include:

- **Build-Own-Operate (BOO):** BOO projects can be likened to the actual privatisation of a facility because often there is no provision of transfer of ownership to the host government. At the end of a BOO concession agreement, the original agreement may be renegotiated for a further concession period.
- **Build-Operate-Transfer (BOT):** The facility is paid for by the investor but is owned by the host. The investor maintains the facility and operates during the concession period.
- **Build-Own-Operate-Transfer (BOOT):** Ownership of the facility rests with the constructor until the end of the concession period, at which point ownership and operating rights are transferred free of charge to the host government.
- **Build-Transfer-Operate (BTO):** The private sector finances a facility and, upon completion, transfers legal ownership to the public sector. The agency then leases the facility back to the private sector under a long-term lease. During the lease, the private sector operates the facility.
- **Design-Build-Finance-Operate (DBFO):** The private sector partner finances the project and is granted a long-term right of access of about 30 years. The DBFO partner is given specified service payments during the life of the project.

Figure 4.1: Various types of PPPs

Public-Private Partnership (PPP)					
Contract Type	**Design-Build-Finance-Operate (DBFO)**	**Build-Transfer-Operate (BTO)**	**Build-Operate-Transfer (BOT)**	**Build-Own-Operate-Transfer (BOOT)**	**Build-Own-Operate (BOO)**
Construction	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector
Operation	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector
Ownership	Public Sector	Private Sector during construction then Public Sector	Private Sector during Contract then Public Sector	Private Sector during Contract then Public Sector	Private Sector
Who pays?	Users or Offtaker	Users or Offtaker	Users or Offtaker	Users or Offtaker	Users or Offtaker
Who is paid?	Private Sector	Private Sector	Private Sector	Private Sector	Private Sector

Source: https://youssef-serghini.weebly.com/types-of-ppp.html

4.2.4 Advantages of PPPs as a source of financing project

According to a Canadian report (Government of Quebec, 2004), PPPs present numerous advantages both for the public partner and the private partner. The private partner is likely to get access to new sectors and achieve more business activity, enjoy better margins and get more long-term revenues.

PPPs are advantageous because of the following.

- Improved service quality through the use of contracts and the public partner is able to specify the level of service quality required to be offered to the public. The private sector may also have special expertise and technology that will result in improved service quality.
- May lead to higher quality and timely provision of public services.
- Lower project costs may be incurred since PPP projects usually encompass a wide range of activities – design, construction etc., all in one project rather than being separated into its different parts. Therefore, better overall solutions are possible to accomplish and the chance to exploit scale economies increases.
- Risk sharing in that PPP projects are often designed so that each specific risk associated with the project is borne by the partner best suited to handle this risk. For example, since PPP projects typically give the private sector a greater responsibility for project design, construction, service obligations and financing, there is a net transfer of risk from the public sector to the private sector. Likewise, the public sector would then take care of aspects such as political issues and regulations.
- If the public sector is unable to finance all the projects that are considered to be socio-economically beneficial then the private sector can participate in the financing of some projects, thereby ensuring earlier and quicker construction.
- PPPs are seen as an instrument that combines the relative strength of government and private provision in a way that responds to market failure but minimizes the risk of government failure. Private sector actors in PPPs can use their management skills and capacity for innovation to improve efficiency and quality standards.

- Efficiency gains play an important role in increasing value for money through PPPs. Governments pay a fee to the private partner for the services provided (for example, in terms of usage fees and availability payments), which the private sector uses to pay operating costs and interest charges and to repay debt and return on equity. In cases where efficiency increases offset the higher financing costs of the private sector, the PPP may have a higher value for money and hence be the preferred option for the government. Such efficiency effects may include improved analysis during project selection, better planning, on-time and on-budget implementation, improved construction expertise, and adequate maintenance (WBI 2012).
- PPP projects presume long-term commitment from all parties, which may create locking and reduced flexibility.

If implemented well, PPPs can therefore help overcome inadequate infrastructure, which constrains economic growth, particularly in developing countries. PPP's should however be implemented thoughtfully considering the potential challenges presented in the following sub-section.

4.2.5 Challenges with PPPs in Transport

It is worth nothing that private sector engagement in infrastructure projects is not traditionally a natural fit because PPPs bring together parties with such diverging interests and end goals. While the Principal-Agent incentive theory (i.e. the principal (often government) introduces a set of incentives in order to increase the agent's (private sector) efficiency), conflicting interests can still exist:

- The agent could act contrary to its instructions because the principal's instructions are not in their interests, for example by increasing profit margins despite cost-effectiveness being in the principal's best interests (also known as moral hazard).
- The principal could select an ill-suited agent (adverse selection), which causes problems with project implementation.
- The private sector could be more experienced and have superior knowledge of terms and conditions from previous projects (knowledge asymmetry), compared to the government entity, which has limited PPP experience. This asymmetry could result in reduced access to information as the private sector's engagement in project delivery and operations grows.

Therefore, mitigating against such outcomes in order to enhance congruency of goals involves the publication of best practices guidelines and manuals, making use of knowledgeable transaction advisors and ensuring that costs to the public sector are market related. Additionally, devising a robust monitoring regime can also assist in mitigating 'shirking' during the project implementation.

Some critics have also noted that there is a tendency towards over-engineered and legally complicated agreements because PPPs are risky undertakings. PPPs are thus criticised for their high transaction costs, the long-term and rigid nature of contracts, the difficulty in finding private investors to partners with, and the increased difficulty for local firms and financiers to participate in PPP projects.

4.3 PPPs in Transport

PPPs can be an effective way to build and implement new transport infrastructure or to renovate, operate, maintain or manage existing facilities. In both hard (physical) and soft (operations) infrastructure areas in need of intervention in LLDCs, PPPs can be a beneficial way to solve critical transportation problems. PPPs can play a role in all modes of transport – be it aviation, road, rail, inland water ways or other and this module reviews use of PPPs in aviation, road, and rail sectors.

4.3.1 Aviation/Airport PPPs

Overview

Airports provide access to and interlink regional, national and international markets. Investment in airport infrastructure is essential to economic development, job creation, attracting foreign investment and creating new commercial opportunities for the local economy. Traditionally, airports were owned, managed and operated by the public sector but there has been a worldwide trend towards private sector involvement with varying degrees of private ownership and management, including the use of PPP models (PPP Knowledge Lab, n.d.).

Starting in the mid-nineties, a wave of ownership and management reform of airports took place in many countries around the world. For Governments, private sector involvement represented an effective way of updating infrastructure and improving services without expending fiscal resources. At the same time, airports were no longer seen as public utilities but as commercial enterprises, presenting new opportunities for funding development. When done right, private investment in airports can root out inefficiency, introduce customer-oriented management styles, and introduce a business-like approach to billing and collection (PPP Knowledge Lab, n.d.).

Aeronautical and non-aeronautical revenues

Airport revenues can be separated into two distinct sources: aeronautical and non-aeronautical. Aeronautical revenues, also known as air-side revenues, are all those associated with the essential services provided by an airport, namely the provision of runways and taxiways (landing fees), the provision of a parking stand at the apron (aircraft parking fees), the provision of a boarding bridge (boarding bridge fees) and the facilitation of a terminal building (passenger facility/service charge).

Non-aeronautical revenues, also known as land-side revenues, can be further divided in two subgroups: commercial revenues (from the rental of spaces or collection of royalty payments from retailing, duty free shops, food and beverage, aircraft parking, advertising, etc.) and ancillary revenues (collected as access charges to service providers at the airport, such as in-flight catering companies, ramp handling companies, fuelling companies, rental of spaces to airlines, etc.).

Each of these revenue streams require varying degrees of regulation. Aeronautical services are the most heavily regulated. While strict regulation limits the potential for improved efficiency of aeronautical revenues, these fees are generally US dollar based, making for valuable foreign exchange revenues. By contrast, non-aeronautical revenues face regulation depending on the service. Generally, commercial services are the least regulated given that market forces act as a regulator. That said, some of these services, like parking, can be considered a public access issue and as a result are regulated carefully. Ancillary services are also generally subject to some type

of regulation in order to ensure that the access costs are capped, as they are transferred to the airlines (PPP Knowledge Lab, n.d.).

Given the complexities of the revenue landscape, regulation must be well defined and provide investors with a clear expectation of how fees and charges will evolve throughout the term of their involvement. This will include the definition of regulatory targets and the criteria for adjusting fees and charges year after year. Regulation may assume that commercial activities will compensate for the overall airport expenses (single till regulation) or that only the aeronautical revenues shall support the airport operation and development (dual till regulation) (PPP Knowledge Lab, n.d.).

Cost to users

In many airport PPPs, reforms and upgrades of facilities and services will also mean an increase in fees and charges to airlines, passengers, and cargo. When developing regulation, the expectations of private investors for return on investment should be balanced against the concerns of the users regarding cost.

In an effort to attract investment, some governments may allow the private partner to increase fees and charges prior to any reforms. This encourages bidders to increase their offers for the acquisition of shares or decrease government concession fees, transferring the benefit of lower sale prices or concession fees from the user to the government. Curbing the desire to protect users from higher fees and charges is a challenging equilibrium for the government when designing the deals.

Delivering the infrastructure: monitoring and contract compliance

In an airport PPP, it is crucial that a monitoring system is put in place to ensure the concessionaire carries out the agreed-upon reforms, upgrades, and tasks. Typically, the investments that are the responsibility of the private sector within the PPP agreement fall into two categories: those necessary to comply with the international standards and recommended practices dictated by the International Civil Aviation Organization (ICAO) and those necessary to accommodate growth, assuring an optimum level of service (PPP Knowledge Lab, n.d.).

A monitoring body that oversees the provision of the infrastructure according to the agreement must be in place on day one of a PPP. The body must be financially independent and technically empowered, with the authority to oversee and enforce the compliance of the contract.

The success in the effective monitoring of the contract will depend on the institutional strength of the country and the relative power of the airport operator vis-à-vis the regulator. In some cases, providing too much power to one single operator has led to regulatory capture, diminishing the positive results of the PPP.

Models

There are several PPP models that can be applied for airport projects. Therefore, the critical question for any government considering an airport PPP is: which PPP structure is possible under the given circumstance, and which is able to achieve the best outcomes for the key stakeholders— the public sector, the private investors, and the public in general?

Choosing the appropriate PPP structure will always depend on a number of factors, including the project objectives, financing requirements, the market realities, the ability of the government to manage and supervise, and the political and regulatory landscape. The scope of a given PPP project must also be well determined by a government (e.g., full scope would include airside, landside, and commercial developments, as opposed to only airside or one of several terminals).

PPPs can also vary in terms of ownership, investment, management and operations. The traditional model is complete government control over ownership, investment, management and operations, and public ownership remains common in many parts of the world. Private sector involvement in the airport sector can take a number of forms, with contract duration and risk burden for the private sector gradually increasing from model to model as the private sector becomes more involved. Although not exhaustive, this section illustrates the types of PPPs commonly used in the airport sector.

Management Contracts

Management contracts allow private sector skills to be brought into service design and delivery, operational control, labour management and equipment procurement. However, the public sector retains the ownership of facility and equipment. The private sector typically assumes specific responsibilities related to a service, and it is typically not asked to assume commercial risk. The private contractor is paid a fee to manage and operate services. Normally, payment of such fees is performance-based. Investment decisions remain with the public sector, however limited risks and responsibilities can be transferred to the private sector (e.g., performance risk). The operator can also take on even greater risk (e.g., risk of asset condition and replacement of equipment).

Management contracts tend to be a good option in countries with minimal PPP experience, or where legal and regulatory frameworks are still being developed. However, they typically include only a very limited commitment of the private partner, rarely involve any form of investment, and are therefore generally of short duration. The management contract implies less private involvement/control, and has been implemented in a few countries with relative short duration. Many of these contracts have not been renewed at their expiration and some have been transformed into concessions.

Concession

A concession grants a private concessionaire the responsibility for operations and maintenance, as well as financing and managing required investments of the asset over the concession period. Ownership generally remains with the government or public authority, and rights and responsibilities are reverted back at the end of the concession term. A concession contract typically implies the “user pays” whereby the concessionaire generates revenue directly from consumers (e.g. through non-aeronautical revenues, fees, etc.). Concession contracts, unlike management contracts, tend to be output-focused, i.e. delivering the actual service (the concessionaire determines how best to achieve this with agreed performance standards). Given that the private concessionaire has much more influence and power to optimise revenue generated in the concession, and concessions typically have longer fixed durations, a more significant contribution is expected from the private concessionaire. Often, an important upfront investment for the construction is required. Also, a direct initial payment or high on-going

concession fees to a government granting a concession are possible modalities that define an airport concession scheme.

In a much narrower sense, there are also small commercial concession arrangements, such as in-terminal (e.g., retail) concessions. Once considered just ancillary services serving the travelling public, they have gained popularity as airports are often able to substantially increase non-aeronautical revenues while improving passenger satisfaction. The main types of in-terminal concessions are food and beverage, convenience retail, speciality retail, duty free, advertising, and other services (e.g., ATMs, foreign exchange kiosks, salons, business centres, etc.). In-terminal hotels and fitness centres have also emerged as in-terminal concessions in some of the largest airports.

Divestiture

Divestiture is the most extreme form of private involvement and entails the sale of assets or shares of a State-owned entity (e.g., the airport company) to the private sector. This can be partial (where the government retains some partial ownership) or full divestiture (where the private sector has complete control over the investment and operation and management of the asset). Unlike concessions, divestiture offers the private sector full ownership of the assets and the transfer is considered permanent.

In general, airports around the world are publicly owned, or have at least a mixed, public-private ownership structure. Globally, approximately 80% remain in public hands, while the remaining 20% is mixed and fully private share. Nevertheless, the share of privately held airports may rise in the future, as some cash-strapped governments have recognised their airport network as an opportunity to raise capital and satisfy international borrowers.

The Government Role

One clear statement on the role of governments in PPP comes from ICAO (2016) guidance materials which clearly stipulate that: When considering the commercialization or privatization of airports and air navigation service providers (ANSPs), States should bear in mind that they are ultimately responsible for safety, security and economic oversight of these entities.

It is important to note that, in a PPP arrangement, despite increasing private sector involvement, the government maintains primary responsibility to meet and comply with all relevant obligations according to the Convention on International Civil Aviation (Chicago Convention), its Annexes, and related air services agreements.

A PPP should be seen as a delivery tool to achieve certain objectives, rather than an end in itself. A government must first define the project objectives and determine if they can and should be met through public funds or if they necessitate private sector involvement. The decision should be taken in consideration of business needs, the public interest, and value for money.

Case Studies (Examples of Private Sector Participation in Airports Development and/or Operations)

Case Study: Zvartnots Airport Expansion Project, Armenia

Project Background

In March 2010, the Board of Directors of the Asian Development Bank (ADB) approved a direct loan of $40 million to Armenia International Airports (AIA) for the Zvartnots Airport Expansion Project (Phase 2). The funds were used to finance the construction of a new landside terminal building and installation of equipment and facilities to supplement the air-side concourse which was built during phase 1 of the modernization program (ADB, 2013). Co-financing for phase 2 also consisted of $40 million from the European Bank for Reconstruction and Development (EBRD) and €15 million from Deutsche Investitions-und Entwicklungsgesellchaft (DEG) (ADB, 2013).

AIA was established in May 2002 to implement a concession agreement between Armenia and Corporacion America. AIA is currently 100% owned by American International Airports (AmIA, also the sponsor), a Delaware-registered holding company created in 2002 with the aim of conducting airport-related activities (ADB, 2013). AmIA operates out of New York.

Key Project Features

As a result of the concession agreement granted in 2001, AIA was given the exclusive right to administer and operate Zvartnots International Airport (ZIA) and its related property and equipment and conduct all business for a period of 30 years plus any extension required to ensure a 20% internal rate of return. AIA was required to prepare a master plan in 2003 and update it every 5 years (ADB, 2013). Phase 2 of the project included a new land-side terminal building to replace the existing terminal (built during Soviet times) and complement the air-side concourse built in phase 1.

AIA negotiated and awarded a single-source services contract to Europort for the project design and implementation. It included management, supervision, and coordination of all design, works, equipment, and materials supply contracts. AmIA has a long-standing relationship with the company, having used it to construct and/or manage multiple airport projects in Latin America from 2003 to 2013.

Private Sector Development

Armenia is dependent on air transport for a significant portion of the cross-border movement of passengers and goods because of a limited railway system, restricted use of the southern border in times of extreme climatic conditions, and lack of road network infrastructure. ZIA is the country's main international airport and serves the vast majority of passenger and freight traffic between Armenia and the Caucuses, Russia, and Europe. The combination of operational improvements and capital expenditure associated with phases 1 and 2 of the project has resulted in significant benefits at ZIA for its clients, partners, contractors, and employees. This has resulted in consistently increasing passenger, plane, and cargo traffic, which has continuously exceeded the expectations at the appraisal stage. To further improve operations, AIA is working closely with the government and regulators to open Armenian skies to allow operators to compete for landing and take-off slots on a competitive basis. Since commencement of commercial

operations of the new terminal in October 2011, up until June 2013 ZIA had served 140,000 passengers, 1,550 aircraft movements, and 980 cargo tons per month on average, which compares favourably with the projections at appraisal stage of 125,000 passengers, 1,390 aircraft movements, and 900 cargo tons per month (ADB, 2013).

Within Armenia, the privatisation of ZIA and the ongoing success of both phase 1 and phase 2 of the project has played a demonstration role and encouraged the government to pursue similar undertakings in other sectors, such as water and sewerage, within the capital Yerevan and regional areas of Armenia. AIA's positive governance behaviour—such as timely audited financial accounts, transparent reporting, open engagement with the government and regulators, and sympathetic support for residents requiring relocation from the airport apron— provides a benchmark for private sector operators in Armenia (ADB, 2013).

Case Study: Skukuza Airport, South Africa

Skukuza Airport is the only commercial airport in the Kruger National Park, located near Skukuza, in the Mpumalanga province in South Africa.

Skukuza Airport is managed by the Skukuza Airport Management Company, in conjunction with South African National Parks (SANParks). In 2013 SANParks announced that they have appointed Skukuza Airport Management Company to improve the airport's runway, buildings and to operate the airport for the next 10 years (ICAO, 2015). In return of the investments made for improvements, Skukuza Airport Management Company can levy airport charges. Skukuza Airport Management Company, a PPP comprising regional airline SA Airlink, Lion Sands and Federal Air and SANParks, the South African National Parks Company, was formed to oversee the refurbishment and enhancement of Skukuza Airport's runway and terminal buildings to enable airline services (ICAO, 2015). Skukuza Airport Management Company took over the operation of the Skukuza airport on 1 September 2013, and commenced with the alterations and improvements essential to bring the airport to the international standard required to allow the operation of scheduled passenger services on airline category aircraft (ICAO, 2015).

Case Study: Maya Maya Airport (Brazzaville), Antonio Agostinho Neto International Airport (Pointe Noire), Oyo Ollombo Airport, Congo

In December 2009, the Congolese Government signed a concession contract with the international EGIS Group which was awarded with the tasks of developing, operating and maintaining the following Congolese airports: Brazzaville Maya Maya Airport, Antonio Agostinho Neto International Airport and Oyo Ollombo Airport (opened in March 2013) for a period of 25 years (ICAO, 2015).

Since April 2011, the above-mentioned airports management has been conducted by the concessionaire AERCO (Aéroports de la République du Congo), a privately held Company with Government participation. Egis Avia (through its subsidiary SEGAP, jointly owned with the Marseille Provence Chamber of Commerce) and Egis Projects will be the majority shareholders and reference technical partners of the concessionaire AERCO. EGIS Group brings with it a vast range of experience in areas such as project financing and development, engineering, infrastructure and service operations. Egis is 75% owned by the French "Caisse des Dépôts" and 25% owned by Iosis Partenaires, (a "partner" executive and employee shareholding) (ICAO, 2015).

- Maya Maya Airport modernization included, among others, a new terminal which opened in February 2014 as well as an extended runway and was funded by a $180 million low-interest loan offered by the Export-Import Bank of China. The upgrades were performed by the Chinese construction firm Weihai International Economic & Technical Cooperative Co., Ltd.
- The existing Antonio Agostinho Neto International Airport terminal was renovated in order to improve the quality of services offered to passengers and a new terminal was opened in 2015.
- Oyo Ollombo Airport opened in 2013 and was placed in the north of the country, an area rich in mineral and agricultural resources.

4.3.2 Road Sector PPPs

Overview

Governments are aware that a well-maintained and managed road network unlocks the region's productive capacity by linking agricultural areas to national or regional markets, and encourages economic growth and social integration by bringing cities and villages closer together. It is no surprise, therefore, that governments are constantly looking for ways to develop their road networks and other transport links to meet their economic, political and social needs. In LLDCs this often means constructing new roads as well as refurbishing, widening and extending existing roads. Building new roads, however is expensive and governments are often unable to commit sufficient fiscal spending to roads. This is why project financing and PPP projects are interesting to governments (PPP Knowledge Lab, n.d.).

The private sector can play various roles in the project lifecycle of road development, whether it be in road construction, operation, financing or maintenance. Partnerships between the public and private sector in roads are by no means a new phenomenon and, when done right in the appropriate circumstances, can improve project quality and increase efficiencies. Historically, the most common road PPPs have been brownfield concessions. However, since the year 2000 greenfield projects have become increasingly more popular (PPP Knowledge Lab, n.d.).

Revenues and Traffic Forecasts

The principal issue in relation to road projects is a viable off-take purchase. The off-take purchases in a road project are generally individuals and, as a result, demand risk is more difficult to quantify and harder to allocate. In some cases, local populations are asked to pay a toll for a road they have previously used for free. Instead of paying, they seek alternate routes and as a result of the diminished traffic, the project company will never be able to satisfy debt servicing, much less obtain a sufficient return on its investment.

It is essential that the toll regime for a transportation project be based on reliable economic, technical and financial assumptions. The applicable calculations for shifts in the underlying assumptions should be flexible. However, it should be noted that renegotiation of the tariff regime after commencement of the project may be very difficult. Therefore, lenders will generally undertake their own traffic forecasting exercises to verify those provided by the grantor and the project company (PPP Knowledge Lab, n.d.). Unfortunately, many traffic forecasts suffer from political orientation, where they are undertaken with the intent to show the need of the

local economy for state investment in infrastructure rather than to provide an objective analysis of demand (PPP Knowledge Lab, n.d.).

The complexities of traffic forecasts and the cost of risk allocation associated with toll revenues has led to the increasing popularity of availability payment-based toll road projects. Availability payments from the grantor compensate the project company for making the road available to users. A performance penalty regime will deduct amounts from such payments for defects in the road or the services provided by the project company, such as major maintenance, signage, safety, and aesthetics. The penalty regime and the key performance indicators (KPI) are even more important in an availability payment regime than under a user-fee based system since the commercial incentives associated with increasing traffic to earn more profit is lost and will need to be replicated through KPIs (PPP Knowledge Lab, n.d.).

Models

Toll Concession

In a road concession the government grants the private sector the right to exploit a right-of-way for a fixed period. Typically, in a classic concession approach, the traffic and toll collection risks are with the private sector and it is a purely private endeavour, with minimal to no government stake. There have been some cases, as with the M6 Toll Road in the United Kingdom, where the concessionaire has even been permitted the freedom to set tolls and apply time-of-day adjustments. More frequently, however, the government will regulate the toll, linking them to an index or composite index of some form. In this scenario, the concession ends either when a contractually agreed amount has been recovered or a fixed expiry date occurs (PPP Knowledge Lab, n.d.).

In many cases, projects also end prematurely when the concessionaire becomes illiquid and insolvent due to overestimated demand. These experiences have influenced current thinking on whether it is realistic to transfer demand risk.

Toll and Traffic Guarantee Concession

In a toll concession that includes traffic guarantees the private sector takes some but not all of the demand risk of the road. Under this agreement, the concessionaire will get a minimum usage guarantee from the government. Traffic guarantees have been used around the world to mitigate inaccuracies in traffic forecasting and poor due diligence by banks that tend to be overly optimistic. One variant of the traffic guarantee is the so-called “cap and collar” whereby a cash payment is made to the private operator if usage falls below a stated level and the public sector takes all (or a share) of the excess revenue over a stated percentage (PPP Knowledge Lab, n.d.).

Direct Payment Models: Shadow Tolls and Availability Payments

In direct payment models, the remuneration for the private partner does not take the form of charges paid by the users of the works or of the service, but of regular payments by the public partner. The two most popular direct payment models are shadow tolls and availability payments. The former is a demand-based model, wherein the government pays the fees for the users. Availability payment models are based on output standards rather than demand. The contractor has to meet certain output standards set out in detail in the PPP agreement and, so

long as the terms are met, the contractor receives payment of a pre-agree sum. If it fails to do so, then pre-agreed deductions are made on an accumulated points basis.

Output and Performance-Based Contracts

Output and performance- based road contracts (OPRCs), which became popular in the 1980s with Argentina's widely known CREMA (Performance-based Road Rehabilitation and Maintenance) contracts, have evolved further in recent years from focusing mostly on routine and periodic maintenance tasks, to include rehabilitation and improvement tasks as performance-based activities (PPP Knowledge Lab, n.d.). OPRC contracts may cover either individual assets, like traffic signs or bridges, or all road assets within a road corridor or network.

OPRC projects today often follow the design-build-operate-maintain-transfer methodology, where the contractor designs and completes the required rehabilitation and/or improvements to deliver a certain level of service and thereafter operates and maintains the road for several years.

As the name stipulates, OPRC projects are based on output as opposed to input (PPP Knowledge Lab, n.d.). Under a traditional input-based contract the private contractor gets paid for each repaired pothole, whereas under an OPRC the contractor gets paid for each length of road it maintains at the required condition. In return for achieving this standard, the government will periodically pay a fixed amount to the contractor or allow the firm to collect user fees (e.g., toll fees).

Payment Mechanism Options

A key issue for roads PPPs is how the Concessionaire is to be paid and who is to bear the risks of traffic risk and revenue risk

- Traffic risk is the risk of how many vehicles will travel up and down the road
- Revenue risk is a factor of both traffic volumes/ toll rates and collection/ enforcement risk

Pure "Availability' based payment structures generally transfer neither of these risks to the private sector. "Shadow Toll" structures are seen as transferring traffic risk, but not revenue risk and "Real-Tolled" structures are usually considered capable of transferring both risks. The advantages and disadvantages of these options are presented in the following table.

Table 4.3: Road Development Payment Mechanism Options

	Real tolls	Shadow tolls	Availability/ performance base mechanisms
Features	▪ Road users pay for use of asset	▪ No actual tolls are collected from public ▪ Usually have banding mechanism, which applies different shadow toll payments to different levels of traffic ▪ Concessionaire is paid by authority on road use – the more the road is used the more the concessionaire is paid ▪ Common to have 4 bands: ○ Base Case: designed to service senior debt but not to provide return on equity ○ Higher bands: provide a return on equity ○ Top band: usually has a toll rate of zero to cap amount payable to concessionaire	▪ Concessionaire paid for making road available for public use ▪ Sometimes mixed with real tolls [e.g. Ireland] so that concessionaire pays a non-availability payment to authority for road or lane closures out of toll revenue. ▪ Amount of deduction/ non-availability payment usually determined by reference to factors including: ▪ length of project road that is unavailable ▪ Number of lanes affected ▪ Duration of unavailability ▪ Time of day of unavailability
Advantages	▪ Zero cost to the Government ▪ Government has fiscal space to fund other projects	▪ Where environment is perceived to be hostile to real tolls, can introduce PPP structures ▪ Prepare way for real-tolled roads in due course by cultivating an industry used to taking traffic risk ▪ Multiple sources of funding can be drawn on by government ▪ Mechanism of traffic risk transfer should reduce complexity of project and reduce level of due diligence required	▪ Absence of traffic/ revenue risk simplifies project ▪ Lower level of due diligence needed ▪ Reduces risk on concessionaire – making project cheaper ▪ Removes emphasis on monitoring traffic flows during operational period ▪ No consumer resistance ▪
Disadvantages	▪ High capital construction costs mean that projects traffic volumes often considered an insufficient revenue stream to meet debt service and equity return for sponsors ▪ Often some form of subsidy/ very long concession period ▪ Reluctance by investors to become involved – costs will be higher to reflect higher risks ▪ Potential consumer resistance to paying for road use and how to mitigate this	▪ No revenue generation device – total cost of project falls on public purse ▪ If traffic volumes are significantly in excess of forecasts, government may find itself paying more “toll” than it budgeted for [This happened in Portugal].	▪ No revenue generation device – total cost of project falls on public purse ▪ Concessionaire is not concerned how much traffic volume there is and so do not transfer traffic or revenue risk.

Case Studies (Examples of Road PPP Projects)

Case Study Lekki-Epe Expressway Toll Road Concession Project, Nigeria

Introduction

The Lekki-Epe Toll Road Concession Project commenced in 2000 with the placing of advertisements by the Lagos State Government for proposals as to how key road infrastructure within the swelling metropolis of Lagos could be developed on a PPP basis. Asset & Resource Management (ARM) Company Limited submitted a proposal in relation to the rehabilitation, construction, operation, maintenance and tolling of numerous stretches of highway infrastructure within Lagos and was duly mandated in 2003 to develop a toll road corridor along the Lekki peninsula (Trinity International LLP (Trinity), 2009). The Concession Agreement was eventually signed by the concession company, Lekki Concession Company Limited ("LCC") on 24 April 2006 (Trinity, 2009).

Overview

The concession agreement gives LCC the right to design, rehabilitate, construct, operate, maintain and toll the existing Epe Expressway (which was widened and rehabilitated as Phase 1 of the project), the Coastal Road which will be an expressway running parallel to the existing road (as Phase 2 of the Project) and the Southern Bypass which is an additional option for LCC in the Concession Agreement. The term of the Concession Agreement is 30 years from its effective date and the scheme is structured as a Build Operate Transfer (BOT) project, with the road infrastructure being handed back to the State at the end of the concession term.

Construction of the Phase 1 works was planned under a turnkey, lump-sum, fixed price contract which also includes a five-year maintenance obligation on the contractor. To further assist in aligning the interests of the investors and the contractor, the contractor took an equity interest of up to 5% in LCC in exchange for an agreed reduction to the Engineering Procurement and Construction (EPC) price (Trinity, 2009).

The concept of a Federal Support Agreement was introduced into the transaction structure to ensure that the State carried out its obligations under the Concession Agreement. After many months of negotiation and endeavour, a Federal Support Agreement for the project was eventually signed with the Federal Government. The agreement, which is the first of its kind in Nigeria, provides a mechanism which allows for funds allocated to Lagos State out of federally controlled sources to be utilised to support the State's obligations on a termination of the Concession Agreement. It was on the basis of this document that the possibility of a commercial bank entering the finance structure alongside the AfDB became a real possibility (Trinity, 2009).

Financing

The transaction was initially pitched to Nigerian lenders, however, with an illiquid bond market and a yield curve out to only the 15-year structure even with a standby facility covering the refinancing risk was far from appealing either for LCC or the local lenders (Trinity, 2009). A more long-term and cost-effective financing plan was therefore required. The AfDB was identified as being a potential source of long-term financing and it, together with Standard Bank were able to offer a financial package which matched the long-term nature of the project revenues. Furthermore, as the AfDB is a dollar lending organisation, Standard Bank was able to structure a

swap facility whereby LCC's exposure to dollar denominated obligations to the AfDB was significantly mitigated.

Challenges

The time period from the commencement of the concession process to financial close (two and a half years) is a clear indication that the project has faced many challenges.

- There were no privately financed toll road precedents to follow in West Africa. The project was truly a first for the region.
- There is no doubt that Lagos is viewed as a challenging environment in which to undertake an urban toll road project. In addition, the city end of the corridor is very narrow and massively congested. The results of this perception were many. In the first place, international organizations and contractors were not convinced that the environment in Lagos would support such a scheme. While certain international organizations enquired about the transaction, none were prepared to bid for the EPC and operation and maintenance (O&M) roles in the transaction. Equally, equity investors were challenged by the raw politics of the environment and the unpredictability of everyday life (Trinity, 2009).
- Local lenders had no real experience of long-term limited recourse financing of infrastructure concession projects. In addition, the financial terms that they were able to offer were constrained by limited tenors which were not consistent with the long-term nature of the financing that was required.
- At the outset of the project, there was a lack of any real procurement and regulatory regime for concession projects at the State level.
- During its development phase, the project was faced with the uncertainty of the first transition of power between civilian administrations in Nigeria. At the same time, there was a change in the government of Lagos State with a new Executive Governor being elected.

Success Factors

Achieving the financial close milestone was the product of a number of different factors.

- ARM took the decision to gather together a team of experienced infrastructure development advisors for the project at a very early stage in the process. At any time during the long gestation period for the project, it would have been very easy and understandable for ARM to seek to cut its losses and abandon the project (Trinity, 2009).
- LCC was very quickly established as a substantive entity in Lagos. It was able to hire a dynamic chief executive with wide ranging experience of developing and financing concession-based infrastructure projects. The LCC team was absolutely vital in driving the process along, not only in relation to the financing of the project but also dealing with the myriad of commercial, political and legal issues facing the project. There is no doubt that without the energy, enthusiasm and dedication of the LCC team in Lagos, the project would not have achieved financial close.
- The State proved itself to be an effective partner in the scheme. Not only did the State show considerable patience in the development phase (a quality not often shown by political entities), it proved its commitment to the scheme in a difficult political arena by agreeing firstly to guarantee the investment required to enable the pre-financial works to

proceed and then to provide a mezzanine loan to LCC of N5 billion to assist in the overall financing of the project.

- The patience, dedication and pragmatism of the senior lenders was a key aspect. Local lenders had stuck with the project from the outset and with African Development Bank (AfDB) and Standard Bank providing 15-year money, the local lenders (buoyed by consolidation and an extended bond yield curve) were able to push the market by offering 12-year tenors not previously seen in the Nigerian market (Trinity, 2009).
- The project underwent significant amounts of due diligence. The involvement of the African Infrastructure Investment Fund, co-managed by Macquarie, in the equity led to an extremely detailed, thorough and robust due diligence process. In addition, the senior lenders conducted their own traffic, technical, financial and legal reviews and there is no doubt that the rigorous nature of the process served to flush out many issues which were then addressed appropriately.
- Political reality required the construction works on the scheme to commence prior to first drawdown of the senior debt. In fact, the progress of the pre-financial close works was an enabling factor in itself. With the assistance of the State, ARM and local lending institutions, LCC was able to proceed with and complete the first section of the construction works before financial close was achieved. The completion of these works, in the most congested part of the road corridor, was a clear demonstration of the management capabilities of LCC and of the contractor, Hitech.
- The transaction is predominantly a Nigerian deal. The LCC team is Nigerian, the local lenders are all strong Nigerian financial institutions, the contractor is Nigerian and the majority of the shareholders are also Nigerian. With such a high level of local participation came much needed know how and understanding as to how the maze of local conditions should best be negotiated. This “on the ground” experience and presence was absolutely vital to address the public relations, technical, political, financial, commercial and legal issues that arose throughout the process (Trinity, 2009).

Conclusion

The Lekki-Epe Toll Road Concession Project was very much a first for West Africa. At the outset, many believed that the project was not feasible given the environment in which it was proposed to be undertaken. Nevertheless, one after the other, issues were addressed, albeit over an extended period. Achievement of the important financial close milestone is a testament to the faith and dedication of the sponsors, investors and advisors who have worked on the transaction over many years.

Case Study: Routes 2 and 7 Roads, Paraguay

The consortium Rutas del Este SA has secured a US$50 million financing package for "Section Zero" of the project to upgrade National Routes 2 and 7 in Paraguay. Route 2 links Asunción, the capital city, to Coronel Oviedo to the east. Route 7 connects Coronel Oviedo to Ciudad del Este, the second-largest city in the country (InfraPPP, 2018).

The financing has been provided by a consortium of local banks, comprising Sudameris Bank, Banco Atlas, Banco Regional, Banco Continental and Visión Banco. It will fund the rehabilitation of the section of Route 2 that links San Lorenzo and Ypacaraí, around 25km, and the temporary operation and maintenance of Route 2 and a section of Route 7 (InfraPPP, 2018).

The loan was structured by Goldman Sachs. This participation of international leading financial institutions had no precedent in Paraguay, making it the first loan of its kind. This is fitting, given that the project is itself unprecedented - it was the first project to be developed through a public-private partnership since the government passed a PPP law in 2013 (InfraPPP, 2018).

Rutas del Este SA consists of internationally-renowned developers Sacyr and Mota Engil, and Paraguayan firm Ocho A. The consortium was awarded the project in October 2016 and secured commercial close in March 2017 (InfraPPP, 2018).

The estimated total investment required is US$527 million. The financing of Rutas 2 and 7 involves a complex multi-tranche structure that combines a securitization of government receivables with a letter of credit facility and a project financing. The US$457.6 million securitization was structured by Goldman Sachs and implemented through a 144A/Reg S bond offering, with Goldman Sachs acting as global coordinator and joint bookrunner and Itau BBA acting as joint bookrunner. The combined US$200 million project financing and letter of credit facility was arranged by IDB Invest and included the International Development Bank ("IDB") (Clifford Chance, 2019).

The financing breaks new ground in that it includes a letter of credit facility provided by a multilateral lending agency to fully support advances to a project company using bond proceeds to finance working capital. The structure achieves the double purpose of eliminating construction risk from the perspective of bondholders, while reducing negative carry by eliminating the need for a separate working capital facility.

By leveraging the status of IDB Invest as a multilateral lending agency with a robust credit rating, this innovative structure allocates risks efficiently to reduce financing costs and provide the protection required to attract institutional investors. Rutas 2 and 7 is the first project finance transaction for which IDB Invest and IDB have provided a letter of credit facility (Clifford Chance, 2019).

Case Study: Using PPPs to develop Chile's infrastructure (Transit Country)

During the 1980s, the Chilean government failed to invest sufficiently on the country's infrastructure, particularly its motorways. At the same time, the number of vehicles increased from nearly 900,000 in 1982 to more than 1.3 million ten years later, while traffic accidents nearly doubled. By the early 1990s, it became necessary for a significant level of investment, so the government of Chile had to decide how to find the necessary capital for roads and yet continue to put money into social improvements (CPI, 2016).

The government opted for a concessions programme in order to renew all its infrastructure, including roads, ports and airports, to meet the demand resulting from Chile's rapid economic growth. The programme applied the principles of public-private partnerships (PPPs) to the task, with the intention of improving the investment efficiency and management of its infrastructure projects. "The government responded by launching a programme under which concessionaires would finance highways and other infrastructure in the private capital markets. The programme was designed to boost investment in the country's infrastructure without raising taxes or increasing public-sector debt, which were not politically viable options at the time." (CPI, 2016).

The Chilean PPP infrastructure initiative was adjudged a success by the International Monetary Foundation (IMF) in 2004. "Since 1994, the government has engaged the private sector in 36 PPP projects with a total value of US$5.5 billion. The projects contracted thus far comprise 24

transport projects, nine airports, two prisons, and a reservoir. Over 20 of these projects are already in the operational phase. (CPI, 2016)

Between 1994 and 1998, projects worth USD3.3 billion were developed in Chile under PPPs, and this resulted in the construction of nearly 2,000 kilometres of roads. In 2014, the PPP programme was still viewed favourably, although with some reservations. “PPPs have worked well for ports and airports and, in Chile, for urban motorways with heavy traffic. But they should be a complement to, not a substitute for, public investment in roads, railways and metros.” (CPI, 2016).

Key lessons

- Good degree of alignment between the Chilean government and its agencies and the private sector organisations responsible for the financing and delivery of PPP infrastructure projects. The government was responsive to problems encountered by the banking sector. After it was clear that there are systemic problems in the Chile financial system, which inhibited capital uptake, the government introduced reforms in order to enable PPP infrastructure projects. When the programme was launched, it was assumed that most of its financing would come from the domestic financial market. The funds obtainable from Chilean banks are limited, however, by portfolio diversification regulations, which prohibit banks operating in Chile from investing more than 15% of their capital in greenfield infrastructure projects. “Other changes introduced to the Chilean financial regulations in 1995–96 was designed to facilitate the involvement of local banks and institutional investors in concession projects. One key modification to the banking law increased the limit on lending for infrastructure projects from 5% to 15% of the lender’s capital and reserves. The other significant change allowed pension funds and insurance companies to invest in bonds issued by companies that did not have an established track record.
- Clear Objectives. The broad objective of the PPP infrastructure programme was to boost investment in the country’s infrastructure without raising taxes or increasing public-sector debt. The detail was set out in the Concessions Law and associated legislation.
- Strong Management. There was a sound institutional structure supporting the PPP programme. The Coordinación General de Concesiones was established as a separate agency within the Ministry of Public Works in 199 to manage the project design, bid process, the selection of concessionaires, and the supervision of concessions during construction and operations. It is structured as three main departments covering projects, construction, and operations, with units that provide support on legal, environmental, social and engineering issues.

Case Study: Senegal’s Dakar-Diamniadio Toll Road (Transit Country)

In 2000, the Senegalese capital Dakar faced severe traffic congestion and high levels of pollution. Recognising the challenge to the country’s economic growth if the infrastructure were not improved, the government of Senegal initiated the construction of a 32km toll highway from Dakar to the new economic hub of Diamniadio. The project was completed in 2015, diverting 45,000 vehicles from Dakar's city centre and reducing commuting times between the city and its suburbs from two hours to less than 30 minutes (Schaefer, 2018)**.**

The Public-Private Infrastructure Advisory Facility’s support to the Government of Senegal in 2009 led to the construction of the Dakar–Diamniadio Toll Road, one of the first toll roads to be built through public-private partnerships (PPPs) in Sub-Saharan Africa (excluding South Africa).

The highway now provides substantial socioeconomic benefits for the 2 million Senegalese living in Dakar and surrounding cities. The highway is essential to Dakar's development as a sub-regional economic center.

In 2007, PPIAF approved a $250,200 grant to help establish the institutional and regulatory framework for the transport sector in Senegal. The PPIAF grant supported technical assistance to the National Agency for the Promotion of Investments (APIX) to consolidate the institutional framework and develop contractual arrangements for the Dakar–Diamniadio Toll Highway project (Schaefer, 2018).

The highway—the first public-private partnership (PPP) for a greenfield toll road in West Africa—was completed in two phases, and was also supported by IFC. The first section, a 24-km stretch from Dakar to Diamniadio that was inaugurated in 2013, slashed commuting time between the two cities from more than two hours to about 30 minutes.

Eiffage, the French company that emerged as the preferred bidder, offered to finance 92.5 million euros (about US$125 million in 2009) (Schaefer, 2018) through debt and equity, or about 40% of the construction costs. Upon its selection in December 2008, Eiffage formed SENAC as a special-purpose vehicle to serve as the concessionaire. The Senegalese government contributed €55 million of the construction costs (about US$74 million) from its own budget but financed the rest of its €130-million share with loans from development agencies.

The success of the first section led to an extension of the toll road, also structured as a PPP. The second stretch, commissioned in 2016, extended access from Dakar to the newly inaugurated international airport in the region of Thiès and created a faster route from the capital to seaside resorts in Saly, an important source of employment and income for the country. IFC investments in the two phases of the toll road—part of a broader World Bank-led project in Senegal—amounted to €26 million. An additional €50 million was arranged and mobilized by IFC from the Western African Development Bank, the African Development Bank and CBAO, one of the main Senegalese commercial banks.

Key lessons

- Political commitment. The Government of Senegal set the project as a priority. The first driver on the road was the President – who paid the toll. But commitment alone isn't enough; it needs to be turned into action by government agencies. An intra-agency coordinating committee was set up. The National Agency for the Promotion of Investments (APIX) oversaw the preparation of the concession. The Public Private Infrastructure Advisory Facility (PPIAF) supported APIX with technical assistance, including the design of a framework for the oversight of the project.
- Consensus-building and stakeholder engagement. Part of PPIAF's US$250,000 grant to the Government of Senegal helped to pay for seminars with stakeholder groups to discuss structuring options for the road and socio-economic drivers of the willingness to pay. The final structure chosen involved a relatively low toll, with an upfront contribution by the government to the cost, with the concessionaire taking full construction, operating and traffic risk. The combination of careful outreach to stakeholders, a fairly low toll, significant time savings and a well-maintained road meant that the first toll road in the country was accepted by the population. In addition, the fact that there is a free alternative road helped

the Government and other stakeholders point out that motorists could always choose to use the other route.

- Experienced concessionaire with strong commitment to Senegal. The concessionaire, the Eiffage Group is one of Europe's leading construction and toll road operating companies, with a long history of involvement in, and commitment to, Senegal. Eiffage, through the special purpose company set up to construct and operate for 30 years the road, SENAC S.A., ensured that the road was constructed and is being operated to a high standard, on time and within budget.
- Strong involvement of development institutions in both public and private financing. The public sector component, financed by the Government of Senegal, the African Development Bank, the Agence Française de Développement and the World Bank, covered right-of-way clearance, urban restructuring and re-settlement of households – up to 30,000 people – affected by the road. On the private side, IFC served as the lead arranger and global coordinator for this landmark €230 million toll road project, committing €22.5 million in long-term debt facilities. In all, the total private equity and debt raised by the concessionaire amounted to €100 million. The amount of the debt financing package was €65 million, of which €45 million was mobilized from the Western African Development Bank (BOAD), the African Development Bank and CBAO, one of the main Senegalese commercial banks.
- Clear, visible benefits. Commuters are saving three hours a day. The road is safer and the quality of the ride is higher. There is economic development sprouting all around the road. Small farmer businesses have been developed with women associations alongside the road. For those who do not wish to use the new highway, the previous road remains as a free – and now more fluid – alternative.
- PPIAF makes small grants like this all over Africa, and in other regions, to help governments build capacity and regulatory frameworks, to bring in private investors and financiers to provide better infrastructure services.

Case Study: Kalangala Infrastructure Services PPP Project, Uganda

Bugala Island, situated on Lake Victoria in Uganda's Kalangala District, has undergone a transformation over the past decade. Bugala Island was previously one of Uganda's poorest districts, and residents lacked safe regular access to the mainland, reliable electricity and clean water. This had constrained the growth of agriculture and fishing activities on the island and prevented the realisation of its tourism potential (Private Infrastructure Development Group (PIDG), n.d.). In 2005, InfraCo Africa[33] began to address these constraints and established an infrastructure company, Kalangala Infrastructure Services (KIS). Today, the island is thriving and Kalangala is among Uganda's wealthiest regions. KIS has played a major role in this transformation (PIDG), n.d.).

KIS is a PPP project pioneering mixed utility company that has responded to the complexity of Bugala Island's needs. KIS has delivered and now operates two modern roll-on roll-off ferries; has

[33] InfraCo Africa provides funding and expertise to infrastructure projects, enabling them to grow from an initial concept to a bankable investment opportunity to a viable operating business. They can work with projects at their earliest stage, either directly where they already have an experienced lead developer, or where they can provide on-the-ground project development expertise through their own teams. InfraCo Africa receives funding, through PIDG's publicly funded trust, from governments in the UK (FCDO), the Netherlands (DGIS) and Switzerland (SECO). InfraCo Africa is established and operates as a private limited company which is registered in England and Wales.

upgraded the island's 66km Luuku – Mulabana main road; is distributing clean water to 19 villages on the island; and has developed 1.6MW of hybrid solar-diesel power and recently taken over operation of the Kalangala Town Council (KTC) grid (InfraCo Africa, n.d.).

The project saw the establishment of the implementing institution; Kalangala Infrastructure Services (KIS) Ltd, a subsidiary of Infra Co Ltd (54% stake), which is based in the UK. The project was financed through equity and debt from Infra Co, Nedbank from South Africa, Emerging Africa Infrastructure Fund (EAIF); a debt joint guarantee from USAID and Guarant Co; as well as an Output Based Aid (OBA) grant (InfraCo Africa, n.d.).

There was no formal bidding process to identify the private sector players as the project was mainly spurred by development partners, who were interested in developing the Island. The PPP, which is a BOT, also has several incentives for the private Lake Victoria and tax waivers on specified machinery inputs. KIS is also the contracting agency to execute all the project investments, which include:

- **Road Works:** Rehabilitation, expansion and upgrade of the 66km Main Island Road
- **Ferry Service:** Build two new ferries to provide ferry transport services between Luuku and Bukakata;
- **Power Supply Systems:** Development of a power generation plant, and construct a distribution network throughout Bugalaisland; and Water Supply Systems: To rehabilitate and expand the Kalangala Town Council water supply system and construct water supply systems for 5 major fish landing sites.

In order for the private sector to recoup its costs, it collects fees from the ferry services, and tariffs for the power and water supplied to the Island. The Government also compensated previous land owners who lost their land to enable the road construction and leeway to power lines and water pipes.

The period in which the PPP would be operational before being transferred to government could not be established. However, at the end of the period, all the assets will be transferred to the government, even though Kalangala Infrastructure Services shall be maintained as a special purpose vehicle for developing Kalangala.

The KIS PPP project has already had some demonstrable impacts on the ground. It has enhanced living standards of the people of Bugala Island in Kalangala District. Villages where KIS water supply is provided are also having a decrease in waterborne diseases. Electricity generation has also increased business hours, as they can now run till late. There has also been a noticeable trend where temporary structures that were common before the project are being replaced by permanent homes. Government has also benefited from the project, as taxes have been paid from the project in the first five years, including from ferry VAT and ferry license fees (InfraCo Africa, n.d.).

4.3.3 Railway PPPs

Efficient rail transport can be an important catalyst for economic growth and development. Rail transport can stimulate trade, link production sites to regional and international markets, promote national and cross-border integration of regions and facilitate access to labour markets, education and health services.

Rail transport is generally more energy efficient than road or air transport. Investment in rail transport is therefore an important element of a low carbon transport strategy. High-speed lines can substitute long-distance road or air transport. Rail transport is also an energy efficient means to move high volumes of bulk commodities from centres of production, such as mining and agricultural areas, to ports and airports (PPP Knowledge Lab, n.d.).

PPPs in railways can bring opportunities for investment, operating efficiency and modern and clean technology. PPP railway projects providing for shared use of rail tracks may lead to efficiency gains and an increased revenue basis for states and private investors and make investment in PPP schemes more attractive.

There is a long history of private investment and financing in railways. The development of railways across Europe and in the United States in the 19th century played an important role in both their demographic and industrial development. In recent decades, railway PPPs have been used in emerging markets to rehabilitate and rejuvenate existing general freight and passenger rail operations, to finance greenfield rail lines to serve dedicated, heavy haul end users like mining, or to finance above rail investment (rolling stock) where there is a separation of above and below rail operations (PPP Knowledge Lab, n.d.).

Revenue guarantees and market risk

A primary difference between a PPP passenger railway project and a PPP power project is the absence of a universal offtake agreement. Although commercial carriers may make contracts with railway operators for long-term rail access, such contracts will, generally, not cover the entire period of the concession. Further, just as with roadway and bridge projects, there is no guarantee that once the project is completed private passengers will use the service. Even with market testing and traffic forecast, the project company can be left holding the majority of the market risk for the project. For this reason, lenders will seek to allocate this risk to another party. Certain methods have been developed to allocate part of this risk to the grantor, such as through shadow tolls.

Track access charges

The revenue stream for the owner of the rail track is usually based on track access charges, which operators pay in order to run their rolling stock on the network. Track access charges are usually based on:

- A fixed track charge (set against fixed track upkeep costs);
- A variable track usage charge based either on the number of net ton kilometres or passenger kilometres recorded or the number of train slots used or a combination of both; and
- A variable traction electricity charge, if applicable, (for the power consumed by the operator's trains).

This payment structure works well within the framework of project financing where the lenders will want a fixed part of the payment stream generated by end users to cover debt service.

Interface with existing transport services

PPP railway projects often need to be linked to existing transport services, since they may involve the construction of new lines or networks or the enhancement of an existing network.

When a railway project must connect to the national railway service (which may suffer from operation and maintenance failures, inefficient scheduling or high cost for users) the project company's efficient operation of the rail project may be inhibited. Specific undertakings from both the grantor and the national railway should be obtained as well as practical and enforceable sanctions sufficient to provide incentive to operate the railway effectively and to compensate the project company for potential damages.

For freight rail, multimodal connections must be considered. The importance of well-functioning rail-port links, rail-inland container transfer facilities, and other logistic centers is critical to the success of a freight railway projects.

Taking over existing rail services

Taking over existing rail services can be a challenge if the private operator uses limited recourse financing (i.e. project finance model) to raise debt, since the existing service is often unprofitable. This is particularly true of routes which are primarily passenger service oriented. Often even recovering operating costs can be difficult. Often, public sector subsidies are needed to support such projects for the benefit of the community.

Capital cost and subsidies

Rail projects involve significant capital costs, especially when a network must be extended or where substantial parts of its infrastructure must be replaced. This investment may exceed the appetite of the private sector finance market, or the revenue potential of the project.

- Passenger rail: In the case of passenger rail, the investment necessary for capital improvements may exceed the willingness of passengers to incur fare increases and may require a long-term subsidy from government. Meaningful government subsidies will provide lenders with improved debt-coverage ratios, sponsors with enhanced equity returns and can encourage both parties to take usage risk.
- Freight rail: The challenges associated with financing freight railways are different from those that affect passenger railways. For freight railways, the main issue is the lack of alignment between the tenure of commercial debt, which rarely exceeds 15 to 18 years, and the normal amortization of the infrastructure, which is 40 years or more. Therefore, to be viable, the investment has to be underpinned by one or several offtake agreements that will secure the necessary transport volumes and revenues.

Usage and revenue forecasts

Delivering a project successfully relies on the accuracy of revenue forecasting. Long-term usage and revenue forecasts are inherently uncertain given the changing competitive context of other rail services or other transport alternatives such as roads or air transport. The potential for aggressive and sustained competition must be considered, particularly in deregulated markets. This uncertainty may result in lower credit quality for structures that pass volume risk to lenders.

Depending on circumstances, freight forecasting can be even more problematic than passenger sector forecasting, especially if the traffic includes a high share of transit traffic or modal shift traffic between road and rail.

Models

Rail PPPs typically operate within a concession framework, through which a private partner is granted permission to rehabilitate and/or build and operate a railway and collect revenues from the railway, for a fixed period of time, or until other conditions in the contract have been met. Concessionaires use the revenue stream from their operation of the rail network to pay off debts incurred in the rehabilitation/construction of the line, pay whatever applicable concession fees to the grantor and to pay for ongoing maintenance and operation of the below and above rail assets (PPP Knowledge Lab, n.d.).

Broadly speaking, rail concessions can be divided into four categories, defined based on what aspect of the railway is being financed:

1. **Private monopolistic vertically integrated railways:** all of the rail infrastructure is owned, built, and maintained by a single operator that has the most time exclusive use of the rail.

2. **Privately shared use vertically integrated railways:** the same as above but the operator has obligations to share the rail infrastructure with third party users, albeit it might be granted an initial exclusivity period.

3. **Below rail service providers:** the operator of the rail provides rail infrastructure to rolling stock operators, similar to a toll road.

4. **Above rail service providers:** the operator provides rail transport services (passenger and/or freight) using rail infrastructure it does not own.

Within these four categories, there are many different types of rail concessions that serve a variety of purposes. For example, because railways are often the most economical way for mining product to be transported to end users or ports for distribution, mining companies may invest in railway infrastructure and operations and enter into a special purpose railway concession. These companies are remunerated by providing transport to support their own operations and by selling services to other companies. In these concessions, the company pays a concession fee to government for the right to operate the railway over a long period (e.g., 30 years) and becomes responsible for investing in and maintaining the railway infrastructure and rolling stock (PPP Knowledge Lab, n.d.).

While less common, there have been PPPs in high-speed rail, like the Perpignan-Figueres Line between France and Spain that opened in 2011. Under a high-speed railway concession, a private firm or consortium of private firms builds or restores a rail track and its associated facilities (such as the train station) under a long-term concession agreement, in which the concessionaire takes the financial risk in return for the right to charge a toll to passengers and freight trains that use the line (PPP Knowledge Lab, n.d.).

Case Studies

Case Study Rail Concessions

The following is an extract from *Railway Reform: Toolkit for Improving Rail Sector Performance Chapter 13: Encouraging Private Sector Participation (2017)* prepared by the PPIAF supported by the World Bank. It presents a discussion on private sector participation in railway development through railway concessions.

Concession contracts

Rail concessions are effective ways of increasing private sector participation. Concessions and franchises are simply contracts between a government owner and private parties for the provision of specified rail-related services. The contracts can be for infrastructure, operations, or both. The terms "concession" and "franchise" are often used interchangeably, but may be interpreted differently in different jurisdictions. Here, concessions and franchises are distinguished by the length of the contract – a concession typically lasts longer than a franchise and requires a more significant investment commitment from the private sector.

In most cases, concessions involve a contract for vertically integrated train services. Under a typical concession contract, the state maintains ownership of the land under the railway and the "below the rail' infrastructure, while transferring most other infrastructure along with rolling stock assets and the right to operate rail services to a private company for a period fixed in the contract. Concessions are usually longer-term arrangements, in order to take advantage of private sector investment and commercial management practices. Railway concessioning can encompass the whole enterprise or be limited to specific enterprise components – freight operations, commuter services, or long-distance passenger services. Railway concessioning has been used in Europe, Latin America, Africa, and in many other parts of the world. While a number of African concessions have been terminated early (see text box below), those that have continued have had generally positive results. At a minimum, concessioning has generally reduced the financial burden of the railway on Government, and in almost all cases rail traffic has increased, sometimes dramatically following the concession.

Underperformance and instability of concessions in Sub-Saharan Africa
According to Joan Miquel Vilardell (2015), most concessions in Africa have been awarded to holders who have not performed as expected, have become very instable, or both. There has been need for multiple restructuring and amendments to stay operative. This could suggest that the approach or the type of targeted operator were ill conceived.

Concessions that have been cancelled in Africa include:

- The 20-year concession of Zambian Railways (ZR), signed in 2003, was revoked by the Zambian Government in 2012.
- The 25-year concession of Tanzania Railways (TRC), signed in 2007, was terminated in 2011.
- The 25-year concession of the Kenyan and Ugandan railways to Rift Valley Railways (RVR) signed in 2005 was cancelled in 2017.

However, as was the case initially in many parts of the former Soviet Union, concessions in Africa did not deal effectively with a number of underlying issues[34]:

- The fundamental misunderstanding by Government about what concessions meant. Concessions do not mean for concessionaires to manage the railways on behalf of Government. Rather, concessionaires are to take over the railways and operate it profitably (subject to concession contract terms).
- Failure to agree on the financing mechanism for public service obligations (PSOs), particularly passenger transport. A number of concessions required the operator to continue to cross-subsidize loss-making suburban and longhaul passenger traffic from freight revenue for a number of years. This drained available cash (the difference between revenue and direct operating costs), leading to under-maintenance of track and thus to declining running speeds and service levels and eventually to a declining capacity to move freight. In most cases, these passenger service requirements were eventually converted to directly subsidized PSOs to be provided by the concessionaire.
- Failure to establish a corporate structure that was sustainable in an environment where the interests of the operator and the owner were not always fully aligned.
- Failure of the owner and the concessionaire to agree on reasonable traffic forecasts, and to align these with infrastructure upgrading proposals. Most agreements forecast a rapid increase in rail traffic, regarded as being constrained initially primarily by track and rolling stock condition. The agreements did not adequately consider the 'chicken and egg' question of how to finance the initial infrastructure improvements needed to handle additional traffic before traffic and revenue increased, or indeed how to convince potential customers to be the first to switch back to the not-yet-improved railway. In some cases, traffic volumes were simply not sufficient to support the infrastructure costs, setting unrealistic expectations. Failure to set up an appropriate mechanism to oversee the commercial agreement between the Government-owned railway and a private operator. In most cases, this task was left to the railway entity, creating a clear conflict of interest between the railway as regulator and the railway as owner and a party to the concession agreement.[35]
- Failure to agree on appropriate mechanisms to facilitate cross-border movement of cargo by rail. With notable exceptions (Abidjan-Ouagadougou in West Africa, and Mombasa-Nairobi-Kampala in East Africa), African railways concentrate on national markets and do not cross borders. When they do cross borders, they can attract traffic with a longer average haul, but only if they can provide service comparable to that provided by through truck movement.
- Failure of Government to implement (or pay for) some of the rehabilitation costs in accordance with the concession contract.

[34] This section is drawn in part from recent surveys of African rail concession performance, including: Joan Miquel Vilardell, Railway Concession in Africa: Lessons Learned, prepared for AfDB Transport Forum, 2015; Larry Phipps, Review of the Effectiveness of Rail concessions in the SADC Region, prepared for USAID Southern Africa, 2009; Richard Bullock, Results of Railway Privatization in Africa, World Bank, 2005;

[35] For example, the debate about appropriate structure continues – In 2016, 10 years into a 25-year agreement, Kenya Railway Corporation and the Ministry of Transport retained a consultant to advise on a more appropriate regulatory mechanism for the balance of the concession agreement between KRC and RVR.

Concession contracts that include upgrading of rail infrastructure are typically for a period of 25 to 40 years, to allow the concession operator to obtain a return on investment in long-term assets. A concession contract can also include government commitment to invest in assets, such as infrastructure or passenger rolling stock.

Infrastructure concessions are generally exclusive – the concession operator has the exclusive right to invest, maintain, and operate the infrastructure and to run trains, although they can require the concession operator to provide access to other train operators providing specific transport services (passenger, freight, or both).

Typically, state-owners are financially responsible for resolving existing workforce redundancies and environmental issues prior to concessioning. The State may include one or more service contracts with the concession operator for loss-making services (usually for provision of specific number of passenger services).

A difficult and often contentious part of concession agreements involves terminal valuations—how the value of private investments will be calculated at the end of the concession. If assets simply revert to government ownership at the end of the concession, operators often seek to dis-invest during the final years of the contract, effectively using up their earlier investments. This can leave the government with railway assets that are no better than when they were transferred to the operator at the beginning of the concession, or in some cases assets that have degenerated beyond their initial condition. Another option is for the government to pay the operator for the asset value that remains at the end of the concession. This requires contractual agreement from the beginning on a method to value the assets at the end of the concession. Often, concession contracts have a renewal period, to try to avoid this end-of-contract dilemma. In such contracts, a 30-year concession may be renewed for an additional period of 5-10 years after year 20, thereby providing the private investor with an incentive to continue to invest. This avoids reaching the 'final years' of the concession, unless there has been a decision by one party to terminate rather than to renew.

Concessions involve competitive tendering, engage private investment and management directly, and can transform a state-owned enterprise. Some countries have emphasized the use of concessioning both to promote competition within the rail sector and to seek private sector investment and management. Larger national rail networks, such as Brazil, Argentina, and Mexico, were concessioned into self-contained viable sub-networks – each constituting a natural geographic monopoly. In some concessions, the government has required new private operators to allow other licensed railway operators access to the concessioned network. In Mexico, the national railway was disaggregated into competing networks plus a jointly owned concession serving Mexico City. Network segments with lighter traffic density were separately concessioned as short-line railways. These concessions have created competitive rail services, attracting large private sector investments and new commercially focused railway management teams. Rail traffic in Mexico has grown dramatically, the need for subsidy and government investment has declined dramatically, and the condition of assets – infrastructure as well as rolling stock fleets – has improved greatly. In Cameroon, while the results are less dramatic, there have been significant investments by both the government and the operator, traffic has grown steadily, and the 20-year term of the original agreement, signed in 1990, has already been extended to 30 years.

4.4 Challenges with PPPs in Transport

It is worth nothing that private sector engagement in infrastructure projects is not traditionally a natural fit because PPPs bring together parties with such diverging interests and end goals. While the Principal-Agent incentive theory (i.e. the principal (often government) introduces a set of incentives in order to increase the agent's (private sector) efficiency), conflicting interests can still exist:

- The agent could act contrary to its instructions because the principal's instructions are not in their interests, for example by increasing profit margins despite cost-effectiveness being in the principal's best interests (also known as moral hazard).
- The principal could select an ill-suited agent (adverse selection), which causes problems with project implementation.
- The private sector could be more experienced and have superior knowledge of terms and conditions from previous projects (knowledge asymmetry), compared to the government entity, which has limited PPP experience. This asymmetry could result in reduced access to information as the private sector's engagement in project delivery and operations grows.

Therefore, mitigating against such outcomes in order to enhance congruency of goals involves the publication of best practices guidelines and manuals, making use of knowledgeable transaction advisors and ensuring that costs to the public sector are market related. Additionally, devising a robust monitoring regime can also assist in mitigating 'shirking' during the project implementation.

Some critics have also noted that there is a tendency towards over-engineered and legally complicated agreements because PPPs are risky undertakings. PPPs are thus criticised for their high transaction costs, the long-term and rigid nature of contracts, the difficulty in finding private investors to partners with, and the increased difficulty for local firms and financiers to participate in PPP projects.

4.5 Key Messages

PPPs are advantageous because of the following.

- Improved service quality through the use of contracts and the public partner is able to specify the level of service quality required to be offered to the public. The private sector may also have special expertise and technology that will result in improved service quality.
- May lead to higher quality and timely provision of public services.
- Lower project costs may be incurred since PPP projects usually encompass a wide range of activities – design, construction etc., all in one project rather than being separated into its different parts. Therefore, better overall solutions are possible to accomplish and the chance to exploit scale economies increases.
- Risk sharing in that PPP projects are often designed so that each specific risk associated with the project is borne by the partner best suited to handle this risk. For example, since PPP projects typically give the private sector a greater responsibility for project design, construction, service obligations and financing, there is a net transfer of risk from the public

sector to the private sector. Likewise, the public sector would then take care of aspects such as political issues and regulations.

- If the public sector is unable to finance all the projects that are considered to be socio-economically beneficial then the private sector can participate in the financing of some projects, thereby ensuring earlier and quicker construction.
- PPPs are seen as an instrument that combines the relative strength of government and private provision in a way that responds to market failure but minimizes the risk of government failure. Private sector actors in PPPs can use their management skills and capacity for innovation to improve efficiency and quality standards.
- Efficiency gains play an important role in increasing value for money through PPPs. Governments pay a fee to the private partner for the services provided (for example, in terms of usage fees and availability payments), which the private sector uses to pay operating costs and interest charges and to repay debt and return on equity. In cases where efficiency increases offset the higher financing costs of the private sector, the PPP may have a higher value for money and hence be the preferred option for the government. Such efficiency effects may include improved analysis during project selection, better planning, on-time and on-budget implementation, improved construction expertise, and adequate maintenance (WBI 2012).
- PPP projects presume long-term commitment from all parties, which may create locking and reduced flexibility.

If implemented well, PPPs can therefore help overcome inadequate infrastructure, which constrains economic growth, particularly in developing countries. PPP's should however be implemented thoughtfully considering the potential challenges presented in section 4.4.

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Annex 1. List of Landlocked Developing Countries

1. Afghanistan
2. Armenia
3. Azerbaijan
4. Bhutan
5. Bolivia (Plurinational State of)
6. Botswana
7. Burkina Faso
8. Burundi
9. Central African Republic
10. Chad
11. Eswatini
12. Ethiopia
13. Kazakhstan
14. Kyrgyz Republic
15. Lao People's Democratic Republic ('Lao PDR')
16. Lesotho
17. Malawi
18. Mali
19. Mongolia
20. Nepal
21. Niger
22. North Macedonia
23. Paraguay
24. Republic of Moldova
25. Rwanda
26. South Sudan
27. Tajikistan
28. Turkmenistan
29. Uganda
30. Uzbekistan
31. Zambia
32. Zimbabwe

Annex 2. List of Transit Developing Countries

1. Algeria
2. Angola
3. Argentina
4. Bangladesh
5. Benin
6. Brazil
7. Cambodia
8. Cameroon
9. Chile
10. China
11. Democratic Republic of Congo
12. Djibouti
13. Eritrea
14. Ghana
15. Guinea
16. India
17. Iran
18. Cote d'Ivoire/Ivory Coast
19. Kenya
20. Mozambique
21. Myanmar
22. Namibia
23. Nigeria
24. Pakistan
25. Peru
26. Senegal
27. Somalia
28. South Africa
29. Tanzania
30. Thailand
31. Togo
32. Turkey
33. Uruguay
34. Vietnam