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

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

This learning module was developed for capacity building activities to strengthen capacity to develop bankable transport infrastructure projects and transport connectivity in landlocked developing countries and transit countries. It was 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 its 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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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.
- **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.

[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).

- **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 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. ▪ 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

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

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 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

[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)

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

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 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.

Criteria	Details
	▪ Guarantee from multilateral investment agency. ▪ Catastrophic risk.
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.

Criteria	Steps that can be taken by project proponents
Financial structure	▪ Contact with potential financiers. ▪ Establish the project financial structure. ▪ Identify the nature and scale of all the project risks. ▪ 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.

Criteria	Steps that can be taken by project proponents
	▪ Construction contract. ▪ Operation and maintenance agreement. ▪ Offtake purchase agreement. ▪ Input supplier agreement. ▪ Guarantee from multilateral investment agency. ▪ 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

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

Source: 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.
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

Criteria	Steps taken to make the KBP bankable
	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)
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

Criteria	Steps taken to make the KBP bankable
	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

[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/

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.

Key Take Away (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

[15] https://constructionreviewonline.com/2014/07/zimbabwe-takes-ownership-bot/

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 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

[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
[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

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).

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 Away / 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 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

[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/

[25] Ditto

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.

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 Exercise

- 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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