



Infrastructure Financing in Asian Landlocked Developing Countries: Challenges, Opportunities and Modalities

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Abbreviation

Abbreviations used in this report are as follows:

| | |
|-----------|--|
| AF | Adaptation Fund |
| ADB | Asian Development Bank |
| AIF | Asia Investment Facility |
| AIFC | Astana International Financial Center |
| AMC | Asset Management Company |
| CAREC | Central Asia Regional Economic Cooperation |
| CDB | China Development Bank |
| CFC | Climate Finance Centre |
| China-CEE | China-Central and Eastern European |
| CIF | Climate Investment Fund |
| CSN | Countries with Special Needs |
| C-EXIM | China EXIM Bank |
| DFID | Department for International Development |
| EBRD | European Development Bank for Reconstruction and Development |
| EEEF | European Energy Efficiency Fund |
| EPF | Equity Participation Fund |
| ESCAP | Economic and Social Commission for Asia and the Pacific |
| FAO | Food and Agriculture Organization |
| FDI | Foreign Direct Investment |
| GCF | Green Climate Fund |
| GCI | Global Competitiveness Index |
| GDP | Gross Domestic Product |
| GEF | Global Environment Facility |
| GIF | Global Infrastructure Facility |
| GPOBA | Global Partnership on Output-Based Aid |
| ICT | Information and Communication Technologies |
| IDB | Islamic Development Bank |
| IFCA | Investment Facility for Central Asia |
| IFC | International Finance Corporation |
| IMF | International Monetary Fund |
| LDCs | Least Developed Countries |
| LLDC | Landlocked Developing Countries |
| LPF | Loan Participation Fund |
| MCPP: | Managed Co-lending Portfolio Program |
| MDB | Multilateral Development Banks |
| NFRK | National Fund of the Republic of Kazakhstan |
| NIF | Neighborhood Investment Facility |
| NPPF | National Pension and Provident Fund |
| OBA | Output-Based Aid |
| ODA | Official Development Assistance |
| PPCR | Pilot Program for Climate Resilience |
| PPIAF | Public-Private Infrastructure Advisory Facility |
| PPP | Public Private Partnership |

| | |
|---------|---|
| RCIF | Russia-China Investment Fund |
| RZB | Raiffeisen Zentralbank |
| SCF | Strategic Climate Fund |
| SOEs | State-Owned Enterprises |
| TRACECA | Transport Corridor Europe-Caucasus-Asia |
| UNDP | United Nations Development Programme |
| VAT | Value-Added Tax |
| WB | World Bank |
| WEF | World Economic Forum |
| WFP | World Food Programme |
| WSS | Water Supply and Sanitation |

I. Introduction

As one of the main goals of the 2030 Agenda for Sustainable Development, the development of reliable and resilient infrastructure (Goal 9), it is imperative that infrastructure financing be given its due importance. Infrastructure development also leads to positive spillover effects such as the promotion of sustainable economic growth and employment (Goal 8) as well as poverty reduction (Goal 1). Infrastructure development directly influences over 80 per cent of the Sustainable Development Goals targets (UNEP¹, 2019).

The Landlocked Developing Countries (LLDCs) in Asia is defined by the United Nations as a group of developing economies with specific geographical features. The LLDCs in Asia comprises 12 countries² with varying total and per capita GDP, land areas, and population density as well as differing levels of infrastructure development and infrastructure financing capacity. Based on their overall development and historical disposition, LLDCs in Asia can be categorised into two distinct groups such as: 1) the countries with transition economies (the former Soviet LLDCs³ and Mongolia); 2) Least Developed Countries (LDCs)⁴.

Comparatively, the geographical conditions of the LLDCs are unique to the region and LLDCs have to overcome significant infrastructure, transport and infrastructure financing constraints. All of which often hinder economic growth by limiting access to regional and global markets as well as negatively affecting export competitiveness and inflow of foreign investment. The lack of infrastructure inadvertently increases product costs by 30-60 percent as higher transport costs are incurred (UNCTAD⁵, 2015). The LLDCs are also geographically dependent on neighbouring transit countries, particularly, on their transit neighbours' infrastructure, peace and stability, policies and administrative practices, as well as cross-border political relations. While some have better indirect access to maritime services and international markets, others, such as those in Central Asia, depend more on land access to reach their major trading partners. Most discussions on the economic difficulties of LLDCs seem to be dominated by the assumption that the solution

¹ United Nations Environment Programme

² Afghanistan, Armenia, Azerbaijan, Bhutan, Kazakhstan, Kyrgyzstan, Lao P.D.R., Mongolia, Nepal, Tajikistan, Turkmenistan, and Uzbekistan.

³ Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

⁴ Afghanistan, Bhutan, Lao P.D.R., and Nepal.

⁵ United Nations Conference on Trade and Development

for their situation lies in the development of adequate transport infrastructure (UNCTAD, 2002a) that would facilitate access to global markets.

The scale of funding that the Asian LLDCs require to cover their infrastructure gap and bring it to a comparable global standard is significant. The reliance on infrastructure financing ranges from roads and bridges to dry ports and power generation and transmission lines, and access to Internet and other telecommunications networks. Investment in efficient infrastructure such as transport, energy, information and communication technologies (ICT) as well as water supply and sanitation (WSS), is paramount to future prosperity, especially for the LLDCs in Asia. Based on a study by the International Monetary Fund (IMF), an increase of one percentage point of GDP in investment spending raises the level of output by about 0.4 per cent in the same year and by 1.5 per cent four years after the increase (IMF, 2015).

In this context, increasing targeted investments and accelerating infrastructure development has become an important policy agenda for achieving inclusive and sustainable development in many LLDCs. Infrastructure investment in the LLDCs is also essential in order to promote closer economic ties and deeper economic integration with Asia and the Pacific and other regions. The ongoing expansion of trade, people-to-people exchange and capital flows among neighbouring countries and regions increasingly requires greater infrastructure capacity, but huge infrastructure investment deficits are hindering regional connectivity and integration.

Besides the aforementioned issues, the LLDCs have also been facing challenges in terms of infrastructure financing, such as relatively small domestic financial systems and narrow capital markets, constrained public resources, small domestic markets, climate related investment issues and limited capacity to mobilize domestic sources of financing coupled with high infrastructure maintenance costs and infrastructure demand.

Against this background, the main objectives of this paper are to present policymakers an insight on infrastructure financing challenges, opportunities and modalities in Asian LLDCs as well as to make specific policy recommendations to address the aforementioned challenges. The paper will also benefit, among others, international development partners, foreign investors, private sector, and academic communities in these countries.

II. Infrastructure Financing Challenges

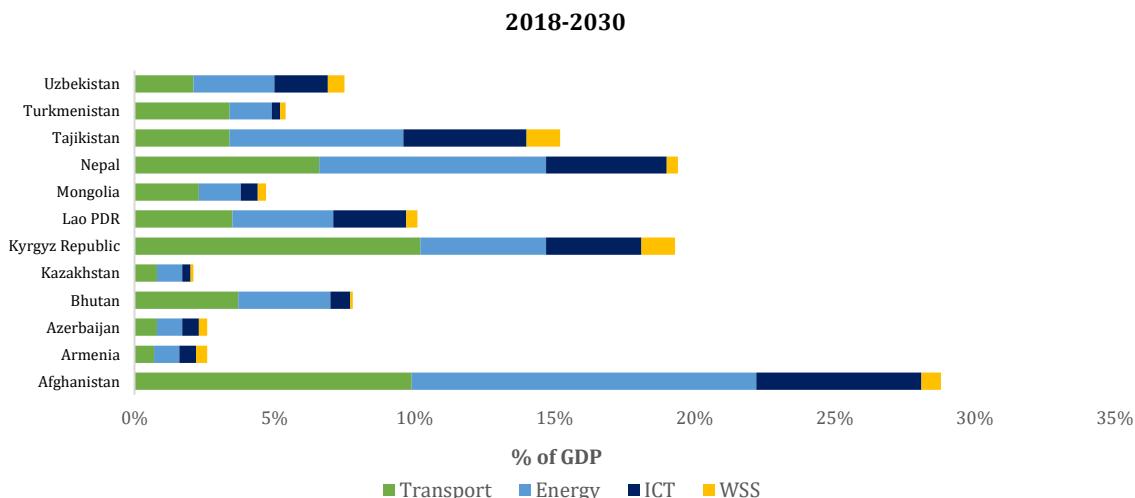
The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) has estimated that among the Countries with Special Needs⁶ (CSN), 65 per cent of infrastructure projects are funded by government budgets, 15 per cent financed by the private sector, 10 per cent financed by loans and credits from Multilateral Development Banks (MDBs), and the remaining 10 per cent is financed from Official Development Assistance (ODA) (ESCAP, 2017). In developed countries, only 30 per cent of infrastructure projects are publicly funded (World Bank, 2015). There are many challenges and opportunities that can arise from the aforementioned funding sources.

Given the large financing gap in infrastructure, it is obvious that all financing sources, such as public, private, domestic and international, will be needed, with the respective roles of these financing sources differing between different countries and sectors. Nevertheless, there are similar constraints in the Asian LLDCs on both public and private resources as well as foreign investments across countries, which makes it much more challenging for them to meet their infrastructure needs.

ESCAP estimates that the financing requirements needed to close the existing infrastructure gap in order to cover all necessary components of infrastructure such as transport, energy, and ICT from 2018 to 2030 in LLDCs. It is estimated to amount to 10.5 per cent of the aggregated total GDP per annum. Among the LLDCs, Afghanistan has the highest proportion of infrastructure needs relative to its GDP (up to 29 per cent of GDP) followed by Nepal and Kyrgyzstan with up to 19 per cent of GDP (Figure 1).

⁶ Include Landlocked Developing Countries (LLDCs), Small Island Developing States (SIDS) and Least Developed Countries (LDCs).

Figure 1. Infrastructure financing needs in Asian LLDCs



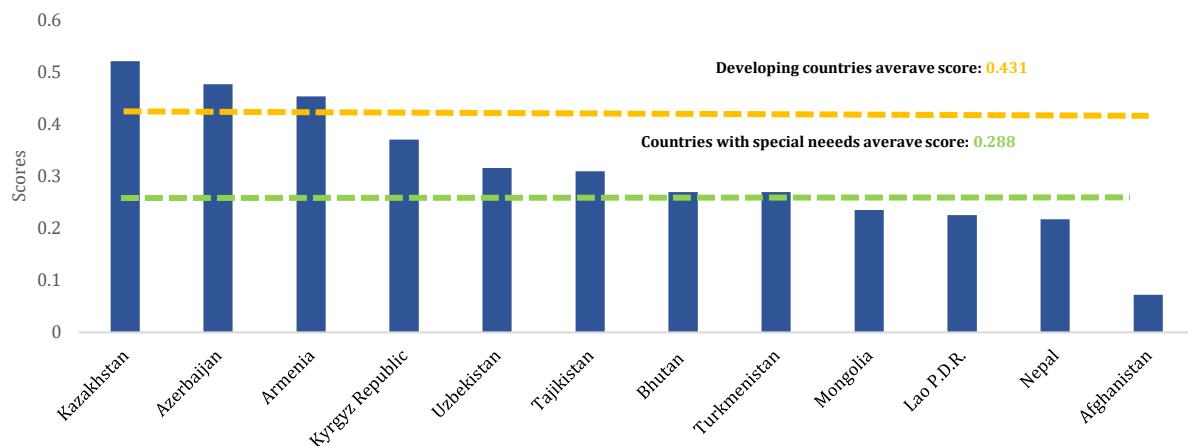
Source: *Economies 2018*⁷

The geographical positioning of the Asian LLDCs significantly influences the rate at which infrastructure is developed and, as a result, its financing capacity. Inadequate physical infrastructure (transport, energy and ICT), coupled with limited cross-border infrastructure hinders these countries from developing viable and predictable transit infrastructure systems. There is also a lack of regional transport networks to deep-water ports and by extension, global markets.

The ESCAP Access to Physical Infrastructure Index 2015 (Figure 2) evaluates the LLDCs access to physical infrastructure in transport, energy, ICT and WSS sectors. The Index highlights low average scores for all types of infrastructure in LLDCs. Kazakhstan is well positioned among LLDCs at the 6th position (0.520), followed by Azerbaijan (9th position or 0.476) and Armenia (11th position or 0.453). These three countries are above the aggregated average of Countries with Special Needs (CSN, 0.228) and developing countries (0.431). LLDCs such as Kyrgyz Republic, Uzbekistan, Tajikistan, Bhutan and Turkmenistan are between the average of CSNs and developing countries. Whereas, LLDCs such as Mongolia, Lao P.D.R., Nepal and Afghanistan are ranked below the CSN average.

⁷ *Economies 2018*, 6(3), 43; <https://doi.org/10.3390/economies6030043>

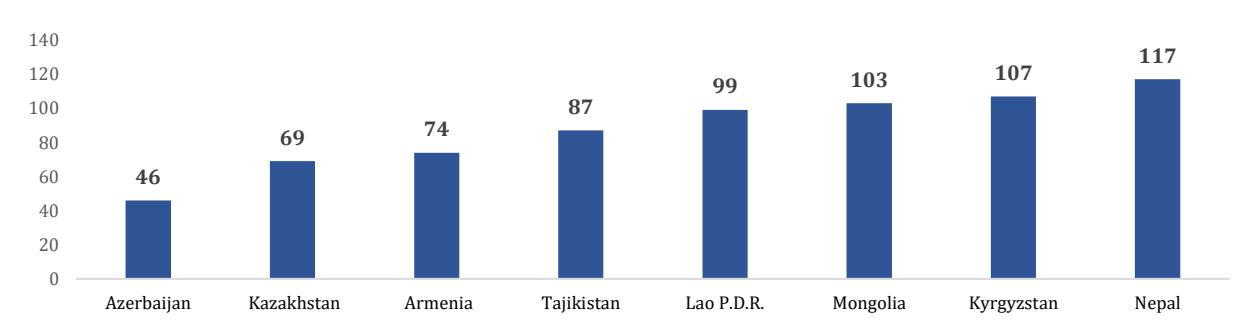
Figure 2. Access to Physical Infrastructure Index 2015, LLDCs



Source: UNESCAP Access to Physical Infrastructure Index 2015

The Global Competitiveness Index (GCI) 2018 (Figure 3) developed by the World Economic Forum (WEF) assesses infrastructure in 140 countries globally. According to GCI 2018, among the Asian LLDCs, Nepal is ranked the lowest (117th) whereas Azerbaijan is ranked the highest (46th), followed by Kazakhstan (69th place). Countries such as Afghanistan, Bhutan, Turkmenistan and Uzbekistan were not covered by the GCI 2018 Ranking. The GCI Ranking, however, does highlight the need for infrastructure development in the Asian LLDCs that it covered.

Figure 3. Global Competitiveness Index 2018 in Infrastructure for Asian LLDCs



Source: World Economic Forum

The lack of economic diversification, volatile commodity prices coupled with international economic sanctions imposed on the Russian Federation and its economic implications, have negatively affected the former Soviet LLDCs. This has resulted in a decline in savings (public & private), social security, foreign investments and remittances resulting in the depreciation of national currencies. These challenges, along with increasing fiscal deficits, have strained public and private finances and consequently, minimized resources and capacity for infrastructure investments in most former Soviet LLDCs.

1. Public financing

Globally, the majority of funding for infrastructure investment in LLDCs are obtained from **the public sector**, particularly government budgets. The way in which public resources are mobilized varies across countries. For example, in resource-rich LLDCs, at least 50 per cent of government budgets are generated from non-tax revenue such as natural resources, while in other LLDCs, a large part of public expenditure is financed by tax revenue. As most of the infrastructure funding in LLDCs are from public financing, concessional financing has predominantly been the dominant financing instrument. Public resources tend to finance transport and social infrastructure as well as water supply and sanitation (WSS).

Fiscal and balance of payments deficits, public debt issues, inefficient tax administrations, and the lack of efficacy in relation to public spending on infrastructure are all major challenges in infrastructure financing for the public sectors in LLDCs. Large current account deficits can expose the LLDCs to a decline in external financing. If the current account deficit is linked to the government budget deficit, then the rising sovereign debt may constitute as a problem of its own. As sovereign debt accumulates, the risk attached to domestic investments rises and foreign capital may suddenly stop, creating a stressful domestic financial situation in the form of rising interest rates, declining economic activity, etc., which could catapult into an economic crisis. However, based on the current scenario, the current account and fiscal deficits of some LLDCs will continue to be financed by a combination of external borrowings, FDI and remittance inflows, mostly from China and Russia.

In most LLDCs, capital expenditures (mostly on infrastructure) are much lower than global averages despite the considerable need for infrastructure financing. In recent years, Afghanistan and Azerbaijan have recorded the highest shares of capital expenditure, while Kazakhstan has the lowest (Table 1). The main source of public funding in non-resource-rich LLDCs is tax revenue which itself is low due to the often inefficient tax administration systems in place and the relatively large informal sector that is present. In addition, tax avoidance and evasion, particularly by wealthier individuals, is also a problem. IMF estimated that around 30 per cent of potential gains from public investment are lost due to inefficiencies in public investment processes (IMF, 2015). Delays and cost overruns due to weak institutional capacities and planning inefficiencies have costed between 20-50 per cent of total infrastructure projects costs (Bhattacharya, Oppenheim and Stern, 2015).

Table 1. Fiscal revenues, grants and expenditures in Asia's LLDCs
(Percentage of GDP)

| Country | Revenues | Revenues, excluding grants | Grants | Tax revenue | Current Expenditur es, | Capital Expenditur es, | Net lending (+) / net borrowing (-) |
|-------------|----------|----------------------------------|--------|----------------|------------------------------|------------------------------|---|
| Afghanistan | 54.0 | 10.1 | 43.9 | 7.6 | 36.9 | 18.4 | -1.3 |
| Armenia | 23.7 | 23.1 | 0.7 | 20.9 | 25.1 | 3.4 | -4.7 |
| Azerbaijan | 34.2 | 34.2 | 0.0 | 15.6 | 24.8 | 12.1 | -2.7 |
| Bhutan | 26.6 | 19.0 | 7.5 | 13.8 | 18.9 | 8.5 | -0.8 |
| Kazakhstan | 14.1 | 13.7 | 0.4 | 9.8 | 15.5 | 1.0 | -2.4 |
| Kyrgyzstan | 32.4 | 30.1 | 2.3 | 16.8 | 27.2 | 6.2 | -1.0 |
| Lao PDR | 20.3 | 15.8 | 4.5 | 13.5 | 14.9 | 9.2 | -3.7 |
| Mongolia | 23.4 | 22.6 | 0.9 | 11.8 | 24.0 | 4.1 | -4.7 |
| Nepal | 21.1 | 19.3 | 1.8 | 16.7 | 15.9 | 4.2 | 1.1 |
| Uzbekistan | 25.3 | 25.3 | 0.0 | 17.5 | 19.4 | 2.5 | 3.4 |

Source: World Development Indicators 2018 and the author's calculations

Public debt as a potential source for infrastructure financing may not be the answer for some LLDCs. At the same time, for many LLDCs, development without debt may not be possible, as unlike private entities, which can raise funding through either debt or equity, governments cannot

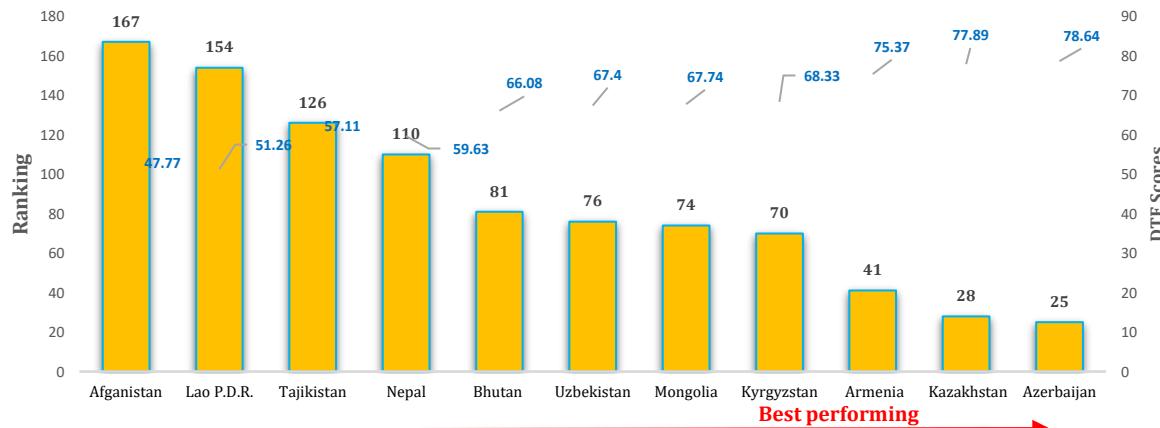
issue equity. Therefore, for many LLDCs, funding through government budgets via debt financing is usually the only choice. Often, beyond a point, growth becomes dependent on debt availability. This could be a path dependency that ensnares the economy into a cycle of indebtedness, leverage, and financial distress. Debt increases leverage which in turn increases overall macroeconomic volatility. The debt servicing requires additional spending from government budgets. As the debt to GDP ratio increases, financial flexibility is reduced. Furthermore, when the debt is denominated in a foreign currency, the interest rate and currency risks are compounded as well. Thus, rising debt ratios can lead to reduced credit ratings which in turn increases the cost of future infrastructure funding.

2. Private financing

Geographical and climate conditions adversely affect **investment climate in infrastructure markets** of some LLDCs. Many LLDCs in Asia have mountainous terrains, with inhospitable climates, unfavourable topography, remoteness of cities from each other, and low population densities, making the cost of infrastructure construction expensive and investment opportunities for foreign investors relatively unattractive.

The business environment is the one of the main challenges for most Asian LLDCs and plays a substantial role in attracting investment. According to the World Bank's Doing Business 2019 report, Afghanistan (167th) and Lao P.D.R. (154th) are at one of the lowest positions. Azerbaijan and Kazakhstan have the best business environment among LLDCs in Asia at 25th and 28th place respectively, out of the 190 countries ranked (Figure 4).

Figure 4. Doing Business Rankings for Asian LLDCs, 2019



Source: *Doing Business Report 2019, World Bank*

Box 1. “Astana International Financial Center” (AIFC), Kazakhstan

By establishing the AIFC, the Kazakh authorities intends to promote FDI and increase investors' confidence by creating a competitive, efficient and transparent financial market in Central Asia and the wider region. The AIFC aims to serve as a financial hub for the Eurasia region, bridging financial markets in Europe, China and East Asia. The AIFC plans to attract both local and international investors by offering favourable tax treatment, simplified labour and visa regimes, large investments in infrastructure, and a separate legal framework based on the United Kingdom common law and is detached from the judicial system of Kazakhstan. A transparent and market-friendly regulatory framework, and modern infrastructure would help AIFC to achieve its goals and set an example of innovation, high-quality service provision and good governance for the Eurasian region.

The Kazakh constitutional law on the AIFC:

- provides for the establishment of the AIFC, which is precisely defined territory with a special legal regime.
- provides for the establishment of AIFC Courts and the International Arbitration Centre, where the AIFC Court will have exclusive jurisdiction over disputes (1) arising between AIFC's participants, bodies and/or their foreign employees; (2) concerning any operations carried out in and subordinated to the jurisdiction of the AIFC; (3) involving parties that accepted its jurisdiction by mutual agreement.

The AIFC focuses primarily on (a) capital markets based on new exchange platform, established in cooperation with the Shanghai Stock Exchange and NASDAQ; (ii) asset management; (iii) Islamic finance; (iv) Fintech startups; (v) private banking, oriented to the needs of high net-worth individuals, and (vi) “green” finance.

Another investment constraint is the restrictions that are specifically imposed by various LLDCs on foreign direct investment as well as on private ownership in general. Such practices are still relatively common in strategic infrastructure sectors. Among other restrictions, foreign investors are faced with legislative regulations, such as foreign equity limits, screening & approval procedures, restriction on key foreign personnel, and other operational measures. Foreign equity restrictions are the most important type of restriction in infrastructure subsectors. Such restrictions can be imposed on only listed companies or on investments in a specific company, most notably in former state monopoly holders. These restrictions usually aim to foster linkages with the domestic economy or to protect national interests. However, this approach does not assist in facilitating infrastructure investment but instead results in protecting specific interest groups (OECD, 2014).

In most cases where FDI is not allowed, the sector or sub-sector involved is closed to private domestic investment as well, with state-owned enterprises (SOEs) maintaining a monopoly. This is often the case for: fixed line telephone services; transmission and distribution of energy, especially grid-based electricity; railroads, airports, and water and sanitation services.

Transparency and predictability of the procurement regime is another challenge foreign investors in Asian LLDC. This has a strong impact on whether private and foreign investors can operate in infrastructure markets on a competitive base with state-owned operators for infrastructure projects.

State-owned enterprises and the competition regime with private sector can both significantly influence how much space is left for private domestic and foreign investment in infrastructure markets. The dominant position of SOEs can create market distortions, thus affecting the potential for foreign and private participation. The majority of SOEs are not commercially viable because they are often inefficiently operated. Their recurring financial losses worsen government budget deficits, increase debt levels and result in poor infrastructure maintenance, service quality and network coverage which can also deter foreign and private participation.

The **financial sectors** of all Asian LLDCs are bank-dominated systems and are mostly exposed to asset-liability maturity mismatch. The banking sectors usually only have substantial short-term resources, while infrastructure financing needs long-term investments. Another challenge is the currency mismatch due to the varying revenues generated in local currency by different projects for debt payments made in a foreign currency. Recently the currency risk has become the most important issue for many banking sectors of former Soviet LLDCs due to the substantial depreciation in currency that occurred as a result of the fall in oil prices and international economic sanctions imposed on the Russian Federation which is often the key trade partner and the largest investors for many former Soviet LLDCs.

The common fundamental issue faced by Asian LLDCs is the lack of sufficiently sophisticated financial institutions and capital markets capable of both generating strong savings and then channelling those savings into infrastructure investment in a way that minimizes unmanageable risk. Pension funds and insurance companies would be well suited to fund infrastructure because

of their long-term liabilities but, in the LLDCs, they still represent a small source of infrastructure financing. The biggest constraint to the development of a strong domestic private equity industry is the narrow base of domestic investors.

A major challenge for financial institutions involved in infrastructure investments is the high degree of financial and political risks. Infrastructure investments typically generate cash flows only after many years, and the initial phase of an infrastructure project is subject to high risks. Further, private finance sector is much more sensitive to country risks than investment in non-infrastructure sectors. Political risks, such as breaches of contracts and regulatory concerns, have been identified as the main constraints to investment in infrastructure in developing economies (Araya, Schwartz and Andres, 2013). Private investments usually do not participate in infrastructure projects without any obvious revenue flows unless authorities offer subsidies or sign purchasing agreements as well as provide various government guarantees.

Since infrastructure investment from the private sector cannot be realized without some form of public support, authorities in most LLDCs use a form of **Public Private Partnership** (PPP) mechanism. However, there are certain constraints in adopting a PPP approach, such as the lack of PPP guidelines from the government, higher charge towards direct users, lengthy delays in negotiation due to political debate, as well as misunderstandings over government objectives and evaluation criteria. In addition, PPPs tend to have long lead times and high transaction costs for all parties, and must be capable of being financed in capital markets. Debt is usually syndicated, and sustainability requires a strong and effective governance framework. PPPs are not usually suitable for projects under \$50 million and, if financed with tenors of less than 10 years, are vulnerable to the risk of refinancing. Another disadvantage of PPPs is the implied lack of flexibility with incomplete contracts of 20, 30, and 40 years in duration, and governments' capacity to manage planning and change over such long operational periods (Regan, 2017).

However, despite the above-mentioned challenges the countries face, there are still many opportunities and modalities in infrastructure financing in Asian LLDCs.

III. Infrastructure Financing Opportunities and Modalities

Through structural reforms and improvement of public governance, the authorities in LLDCs need to efficiently mobilize domestic and international resources, create a favourable investment climate, build private sector incentives and confidence to invest and ensure that foreign savings are efficiently channelled into productive investments, including infrastructure markets.

1. Public financing

Mobilizing domestic public finance is a key factor in infrastructure financing in the LLDCs. As mentioned earlier, 65 per cent of infrastructure financing are funded from government budgets (ESCAP, 2017). In this context, **improved tax administration through tax reforms** would allow the authorities in LLDCs to expand their fiscal scope. Typically, developing economies collect just 15 per cent of their GDP in taxes while advanced economies collect an estimated 40 per cent of their GDP in taxes (IMF, 2017).

Despite the constraints faced by LLDCs, countries can strengthen their capacity to collect tax revenue by pursuing reform strategies. There are a few lessons that can be drawn from the best practices pertaining to relevant international experience from developing countries (IMF, 2017). Tax reforms between 2004 and 2015 in five low-income (at the time) and emerging market economies -- Cambodia, Georgia, Guyana, Liberia and Ukraine resulted in large revenue gains. Georgia particularly has shown marked improvement in tax. By 2008, Georgia's tax-revenue-to-GDP ratio had doubled to 25 per cent.

Simplification of the tax system and curb exemptions. Simplification should focus on taxes, legislation, procedures, and structures. A simpler tax system with a limited number of rates is critical to fostering taxpayer compliance, as seen in Georgia. This makes tax administration less challenging in the LLDCs who often lack a well-functioning judicial system. Whereas, curbing exemptions can reduce the tax system's complexity and distortions while boosting revenue by broadening the tax base.

Reform indirect taxes on goods and services. The value-added tax (VAT) has proved to be an efficient and strong revenue booster: countries that impose this tax tend to raise more revenue than those that don't (Keen and Lockwood, 2010).

Introduction of comprehensive tax administration reforms. Modernization of tax institutions in the LLDCs is critical element in many successful revenue mobilization cases. A broad spectrum of legal, technical, and administrative measures such as:

- *Establishment of large taxpayer offices:* A large taxpayer office allows a country to exert focus on tax compliance efforts of the biggest taxpayers.
- *Extensive use of information and communication technologies (ICT):* Successful revenue mobilization hinges on managing information and leveraging the power of big data to improve compliance and fight corruption. Most of the countries studied by IMF have taken advantage of ICT systems to leapfrog their revenue mobilization reforms (IMF, 2017). Countries that have been successful in resource mobilization have computerized the administration of their taxes and automating most processes, including e-filing. They have also established a system for information sharing among tax authorities, taxpayers, and banks, as well as a one-stop Internet portal.
- *Modern registration, filing, and management of payment obligations.* Establishment/modernization of basic rules and processes in these key compliance areas.
- *Enhanced audit and verification program:* A risk-based audit, which links the likelihood and nature of an audit to the taxpayer's inherent risks, is the most effective type of audit in terms of encouraging compliance. Most successful cases of tax reform in LLDCs highlighted this part as a critical in their revenue mobilization strategies.

Box 2. National Fund of Kazakhstan as a potential source for infrastructure financing

The National Fund of the Republic of Kazakhstan (NFRK) is a crucial and sustainable tool in the mobilization of resources given its long-term asset base and ideally would be able to invest in priority infrastructure projects in resource-rich Kazakhstan..

NFRK is currently used as a stabilization and saving fund. It is used to manage Kazakhstan's oil revenues and to minimize the impact of volatile oil prices on public finances, support targeted capital spending, and save for future generations. The current NFRK concept (2016) sets an annual guaranteed transfer to the government budget at maximum \$10 billion for budget support and targeted capital spending. A guaranteed transfer will be in the national currency and will be reduced to \$6 billion by 2020 to curb dependence on oil revenue and to hedge against exchange rate changes. The minimum balance should be 30 per cent of GDP, and the budget should target a non-oil deficit of 7 per cent of GDP by 2020 and 6 per cent by 2025. Acquisition of domestic securities including infrastructure is no longer permitted, although targeted transfers may take place. The current reserves are estimated to be \$57 billion as of 2018, or 45 percent of GDP.

The national priorities of Kazakhstan in ICT and energy infrastructure are the following:

1) “Digital Kazakhstan” State Programme was approved in December 2017 and is currently a national priority. Between 2018-2022, the program will focus on five areas: 1) Digitalization of the economy; 2) Transition to a digital state; 3) Implementation of the digital Silk Road; 4) Development of human capital; 5) Creation of an innovative system. The financing is centrally sourced from local budgets, development partners, private investments and financial institutions. Overall investments are estimated to be 384 billion tenge (or about \$1,1 billion).

2) Promoting low-carbon growth and energy efficiency. The government announced its Green Economy Strategy project as another national priority. Within the Green Economy Strategy, the EBRD will assist in implementing key aspects of the strategy through projects pertaining to energy, renewables, agriculture, water, waste management, transport, and other sectors. The EBRD is already the largest investor in the non-oil and gas sector of the economy of Kazakhstan.

Therefore, in case of resource-rich Kazakhstan, regulatory liberalisation on partial asset allocation alongside the development of a green economy are critical factors that need to be met in order to realise the country's infrastructure financing needs.

Transport user charges are another way of raising revenue that can be directed towards transport investment and is a means of freeing public expenditure that might otherwise have been used on infrastructure maintenance to become available for investment in new infrastructure. Most LLDCs have implemented some form of road user charge, to cover the necessary costs of basic road maintenance.

However, increased tax mobilization does not necessarily lead to adequate spending on infrastructure. Reducing inefficiencies in public spending on infrastructure can better utilize available funding through public spending reforms.

Bond Finance

Bonds are an alternative source of capital to intermediated credit and equity financing (Hack and Close 2013). Bonds take many forms and are widely used by governments, corporations, and project sponsors to raise capital for infrastructure projects. As a financial security, bonds are an attractive investment for passive institutional investors, may be credit-rated, and offer investors liquidity and diversification. The security may be issued through a number of different configurations, including different tenors, currencies, and security options. Bonds may be fully or partially guaranteed by the issuing institution, a bank, or government, and it may be issued with an indexed payment stream, a convertibility option, or discount. Bonds may also be listed on securities exchanges and their performance can be measured through the tracking of market indexes. A recent study confirms that infrastructure bonds in Asia and the Pacific generally have significantly better credit ratings and lower default risk compared to corporate bonds (Ehlers, Packers and Remolona, 2014). Bond financing provides a flexible way to finance long-term projects and is well-matched to passive investor requirements for infrastructure finance (Regan, 2017).

Tax-Exempt Bonds are government-issued securities for specific national interest projects or general infrastructure purposes and offer investors a full or partial exemption from taxation on interest receipts. They form part of governments' capital budgets for infrastructure spending, and are considered a government liability (Marlowe 2009; Ang, Bhansali, and Xing 2010). Tax-exempt bonds are in high demand from investors who are paying higher marginal rates of income tax, which limits their attractiveness in low- and middle-income countries and suggests that a capital-guaranteed or indexed bond would be a more attractive option for many investors. Tax-preferred bonds may be issued by central government agencies or by municipal agencies with a national government income tax exemption. Tax-based incentives can present a conundrum for governments. A deduction from tax liability is an explicit transfer payment from the state to private investors to be offset by the welfare and private benefits of additional public goods. The security

will also be priced lower than other state securities in the market, which may reflect the lower risk of the revenue bonds or simply that buyers recognize the bonds' real post-tax return and adjust prices for the tax benefit. Many economies in Asia grant an automatic income tax exemption to resident holders of state-issued bonds. Other countries, subject to international tax treaties and free trade agreements, grant full or partial exemption from transaction taxes, including capital gains and withholding taxes for non-residents (Regan, 2017).

Revenue Bonds are debt securities issued by governments to meet the cost of greenfield infrastructure projects or are debt securities issued by a project's private sponsors to raise investor capital on either a project-by-project or portfolio basis. The bonds are secured over the value of the assets and the contracts being financed. Issuers may provide enhancements by offering part or all of the issue at a discount or as indexed securities, in which case there is a discount to the yield spread (or interest) paid to retail investors. Issuers of indexed bonds have an advantage because the security is generally priced lower than conventional bond issues in the market (Chan et al. 2009: 84).

Governments can channel public resources directly into infrastructure financing or/and through state financial institutions such as state-owned development banks. Compared to other developing countries, infrastructure investment in the LLDCs is more centralized whereby the central government accounts for most of the public capital expenditure. State-owned financial institutions are established to support state interests such as the implementation of development strategies and policies including infrastructure financing (UNESCAP, 2017).

Beyond case-by-case project preparation and financing, concrete, implementation-oriented guidelines that can help governments identify and manage reforms is needed to make the broader infrastructure investment environment more open to private participation.

2. Private financing

The private sector and foreign direct investment (FDI), including public-private partnerships (PPPs) are increasingly considered as a viable solution to meeting the infrastructure needs of LLDCs. The private sector is involved in infrastructure development through PPPs (joint ventures, concessions, etc.) and direct investment. Private infrastructure investment in LLDCs has been

more prevalent in sectors such as energy and ICT or certain types of transport infrastructure, such as railways or airports, due to the potential revenue that can be generated from those sectors. Despite the low private sector participation in infrastructure financing in LLDCs, there are numerous opportunities to increase private sector through means of improved governance, FDI incentives and various effective financing schemes.

Fostering and making investments in infrastructure more attractive for private resources is possible by improving the efficiency of service delivery, facilitating investor access to land, and improving the cooperation between government-owned infrastructure operators and private investors. Improving transparent procurement processes can also help ensure that projects are viable. Developing national infrastructure plans, improving core standards of investor protection, establishing a clear and well-implemented land policy, and refining mechanisms for dispute resolution and contract renegotiation, are means through which governments can bolster investor confidence and mitigate project risks (OECD, 2015).

International experience suggests that the following factors are important for **foreign direct investments**: socio-political stability, stable macroeconomic environment, access to global markets as well as sufficient and accessible resources, including the presence of relevant infrastructure and human capital. Increasing private participation in infrastructure investment also requires a supportive institutional environment. PPP units, procurement entities, and privatisation authorities need to be provided with sufficient amount of well-trained staff, and have well defined responsibilities as well as efficient coordination mechanisms. Among private international financing, for upper-middle LLDCs, FDI accounts up to 50 per cent⁸ (UN-OHRLLS, 2018).

Due to the weak economic diversification that is prevalent in most Asian LLDCs, non-commodity sectors such as ICT (E-commerce, Big Data, etc.), agro-processing, tourism, finance, venture business, green economy should be targeted by FDI. The current era of digitalisation is as such that the harmonisation of legislation concerning ICT development and its compatibility with international standards would benefit Asian LLDCs. Priorities should include the legal enforcement of electronic documents; protection of intellectual property and privacy; liberalization

⁸ While ODA accounts just 10 per cent.

of telecommunication markets; development of electronic transactions; and enforcement of electronic documents and contracts.

A significant proportion of electricity generation expenditure is obtained from foreign investments (for example, Lao P.D.R.). Therefore, another important type of private investment is greenfield FDI in LLDCs in infrastructure (ESCAP, 2017, Table 2).

Table 2. Greenfield FDI in infrastructure in Asian LLDCs, 2011-2015

| Host country | Amount received, in millions of US dollars | Percentage of national GDP |
|--------------|--|----------------------------|
| Kazakhstan | 2 475 | 0.2 |
| Tajikistan | 1 137 | 2.9 |
| Lao P.D.R. | 1 012 | 1.9 |
| Armenia | 535 | 1.0 |
| Nepal | 429 | 0.4 |
| Uzbekistan | 428 | 0.2 |
| Afghanistan | 321 | 0.3 |
| Azerbaijan | 321 | 0.1 |
| Bhutan | 272 | 2.9 |
| Kyrgyzstan | 80 | 0.2 |
| Mongolia | 61 | 0.1 |

Source: UNESCAP estimations based on data from fDi Markets

Incentive policies for FDI are usually divided into two categories: fiscal and financial incentives (OECD, 2003). Various studies have confirmed that developing countries mostly use fiscal FDI incentives such as:

- *Reduced direct corporate taxation* which aims to ease the corporate tax burden and also includes reduced rates of corporate income tax, tax holidays and special tax-privileged zones (usually special area such as ICT infrastructure).
- *Incentives for capital formation.* This includes special investment allowances, investment tax credits and reinvested profits.

- *Reduced impediments to cross-border operation.* Foreign investors are attracted to areas where the fiscal system imposes minimal costs on the cross-border transfer of funds, goods and services.
- *Other tax reductions.* The selective lowering of any tax rate affecting the business enterprise sector may be used to attract foreign enterprises. Some states use lower sales taxes and VAT reductions as an incentive; others offer foreign-owned enterprises property tax reductions.

Financial FDI incentives are usually negotiated between authorities and large foreign investors the following investment packages:

- *Infrastructure subsidies*, particularly, by providing physical infrastructure (roads and railways) or communication to meet the needs of the investors.
- *Job training subsidies*. Foreign investors are faced with a shortage of qualified labor when setting up organizations in host countries. Authorities provide trainings through public education and vocational programmes.
- *Administrative assistance*. Authorities can assist foreign investors in certain tasks to ease their business experience. An example of this is through the easing of administrative impediments.
- *Temporary wage subsidies*. The start-up phase of organizations can be further supported through the temporary coverage of part of the new corporate unit's wage bill.
- *Credits to investors*. Authorities may provide soft loans or interest subsidies to foreign enterprises for the specific purpose of an investment project. Also, they may ease investors financing costs by issuing loan guarantees.
- *Real estate*. There are many cases of local authorities selling land or buildings to foreign investors at below market values.
- *Cost participation*. In order to influence investors' business decisions, authorities may contribute toward marketing and developing costs.

In addition to incentive policies to attract FDI, regulations pertaining to procurement should be based on the following measures for greater ease of understanding and transparency: commitments to public announcements of tenders; standard or model contracting agreements; procurement appeal provisions; and objective eligibility requirements and evaluation criteria. Clear and

consistent rules for transparent bidding and tendering procedures should be established, to guide the choice among different forms of public, private, and hybrid provision of infrastructure services. International experience also suggests that implementation of electronic procurement systems (“E-Procurement”) improves transparency and reduces corruption by conducting transactions between awarding authorities and suppliers over the Internet.

Technological progress alongside a change in the regulatory climate have been instrumental in attracting foreign investment and competition into what used to be public sector monopolies of key sectors such as mobile telecommunication networks or power generation. In order to incite healthy competition, authorities can help develop a transparent, fair, clear and consistent regulatory framework for both SOEs and private and/or foreign investors. For example, they may denounce abuse of dominant market position by SOEs, as well as disproportionate subsidisation by governments. Given the potential contribution of FDI in building high-quality infrastructure, countries should consider the extent to which certain sectors or sub-sectors could open up to foreign private investment. National security-related concerns regarding the liberalization of critical infrastructure can go through a separate rigorous screening process. Many developing countries have attempted to privatize infrastructure or public services only to fail or achieve less than optimal outcomes. Governments need to develop not only clear assessments of what can be achieved and at what cost, but also have a comprehensive understanding of the complex technicalities involved in infrastructure investments and their long-term implications in terms of cost, availability and affordability of services. A sound legal framework to guide concessions and management contracts is a crucial part of infrastructure development and investment strategies.

Opportunities in Public Private Partnership (PPP). PPPs are delivered under a procurement policy that brings some uniformity to the project selection, bid, and implementation process. PPPs are long-term contracts for the provision and management of infrastructure services in which a private firm provides capital, constructs the required assets, and carries out most development and operational risks over the contract term.

Private financing through PPP includes (i) equity through the project’s developer or (ii) project financed debt through private lenders, which can be either commercial banks or institutional financiers. MDBs and bilateral institutions also provide various forms of financial and technical

support to infrastructure projects in developing countries. Public source financing via PPP includes (a) governments providing part of a project's upfront capital costs through grants or viability gap funding; (b) SOEs investing equity; and (c) state-owned banks extending loans.

The largest share of private investments through PPP has been invested in the ICT sector followed by energy, due to lower construction risks associated as well as positive financial returns, compared with other types of investments and growing demand in the ICT sector. In the meantime, the viability of PPPs varies across countries. Lao P.D.R. widely uses PPP investments in electricity sector. The country is a leader among Asian LLDCs and has implemented more projects through PPP than any other LDC. The PPP investments in Lao P.D.R. account for more than \$17 billion since 1990, followed by Nepal with \$2,5 billion accordingly (Table 4).

Table 3. PPP Investment projects in Asian LLDCs, 1990-2018

| Host countries | Completed projects | Total investment (millions of US dollars) |
|----------------|--------------------|--|
| Afghanistan | 2 | 211 |
| Armenia | 10 | 612 |
| Azerbaijan | 4 | 375 |
| Bhutan | 2 | 218 |
| Kazakhstan | 8 | 885 |
| Kyrgyzstan | 2 | .. |
| Lao PDR | 31 | 17 896 |
| Mongolia | 3 | 368 |
| Nepal | 2 | 2 500 |
| Tajikistan | 3 | 956 |
| Uzbekistan | 2 | 320 |

Source: PPP Knowledge Lab⁹

There are two main tools to assess the readiness of a country/sector to implement PPPs which can be used by the governments of LLDCs to assess their own readiness, and based on its outcomes, determine the best path to becoming ready:

⁹ <https://pppknowledgelab.org/countries>

1. ESCAP PPP Readiness Self-Assessment¹⁰ is an assessment tool which can be used to self-diagnosis the readiness of a project/organization to implement PPPs. The Assessment is used to diagnose the main challenges faced by organizations in attracting private investment for infrastructure development. This tool can also help in preparing a detailed action plan and identifying relevant authorities to work with.
2. The PPIAF Country PPP Readiness Diagnostic tool¹¹ is used to provide strategic and specific understanding of whether a country or specific sector within a country is ready to undertake PPPs, and if not, what is the most effective and efficient operational plan to solve this issue.

The PPIAF monitoring reports do not analyze LLDC financing as a separate topic, but they do analyze financing in the International Development Association (IDA) countries¹². Globally, twenty-three LLDCs (including in Asia) are eligible for IDA financing. As of 2015, development financial institutions contributed 53 per cent of PPP investment, while 43 per cent was financed from private sources and 4 per cent from public resources.

The LLDCs are advised to take advantage of the above-mentioned opportunities that are available and adapt them to their own circumstances.

Domestic pension fund is another source of financing diversification and fits the criteria ascribed by infrastructure financing mechanisms. The challenge is to channel these resources towards infrastructure. There have been some attempts to tap pension funds for infrastructure, such as the case of Bhutan which was successfully able to use pension fund investments in their hydro power project (Box 3).

The lessons from the Bhutanese project can serve as an example to other LLDCs. Support of the national government, multilateral development and commercial banks and the financial participation of the suppliers and users, as well as a project with a demonstrable long-term reliable

¹⁰ <https://www.unescap.org/resources/ppp-readiness-self-assessment>

¹¹ The Public-Private Infrastructure Advisory Facility Country Readiness Assessment took at <https://ppiaf.org/sites/ppiaf.org/files/documents/toolkits/highwaystoolkit/index.html>.

¹² <http://ida.worldbank.org/about/borrowing-countries>

revenue stream can be attractive to national pension fund managers.

Box 3. Bhutan: pension fund investment in a power plant¹³

Bhutan is an example of how pension funds in even a relatively small LLDC can invest in infrastructure. Its Hydro Power Corporation Limited was incorporated in May 2008 as the vehicle for development of the run-of-the-river 126MW Dagachhu Hydroelectric Project in southwestern Bhutan. The project is designed to annually generate approximately 515 GWh and in a 90 per cent dependable year to generate 360 GWh.

The Dagachhu project is a PPP venture, with Druk Green (the national operator of hydropower stations) as the majority equity partner with a 59 per cent stake, Tata Power Company of India (the holder of the power purchase contract) with 26 per cent and the National Pension and Provident Fund (NPPF) of Bhutan with the remaining 15 per cent stake.

The project is funded in a 60:40 debt equity ratio with the Asian Development Bank (ADB) providing a loan of \$ 51 million for civil works; RZB¹⁴ of Austria providing a loan of €41 million for electro-mechanical works; and NPPF providing a loan of \$ 9 million. The ADB also provided a loan of \$ 39 million to the Bhutanese government to meet the financing gap of the project. The cost of the project on completion was \$ 200 million and it started producing electricity in 2015.

3. International financing

International financing is a main element for LLDCs and a great opportunity to supplement their domestic resources. ODA, MDBs and bilateral development partners remain the main source of external funding and opportunity for many Asian LLDCs. In the meantime, the international innovative private financing opportunities have been increasing globally and can also be seen as a viable supplementary opportunity for LLDCs to diversify their funding sources.

International official funding through ODA and MDBs¹⁵, which is available to LLDCs, are mostly concessional - with long-term maturity, low interest rate and tend to include grant elements. If the

¹³ Source: <https://www.drukgreen.bt/index.php/44- subsidiary-company/dhpc/289-background-of-the-project>

¹⁴ Raiffeisen Zentralbank Österreich Aktiengesellschaft

¹⁵ World Bank (WB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), Islamic Development Bank (IDB), and others development partners.

concessional debt share of total external debt of a country is substantial, countries can allow increased spending on infrastructure financing. Concessional debt accounts for the highest share in external debt of Nepal (85 per cent), Afghanistan (75 per cent) and Lao P.D.R. (42 per cent) (World Bank, 2016). An allocation of ODA varies greatly amongst LLDCs. ODA is the most important source of international financing for low-income LLDCs and accounts for more than 70 per cent while the ODA share for lower-middle LLDCs is between 35 per cent and 65 per cent of the total non-national funding (UN-OHRLLS, 2018). During 2012-2017, the largest share of ODA was provided to Afghanistan – the country with the highest needs in infrastructure financing. The second largest ODA recipient among LLDCs in Asia is Nepal.

The Belt and Road Initiative (BRI) and the AIIB both will play a crucial role in Central Asia and have placed infrastructure connectivity as one of its core agendas. It aims to bring European and Asian economies closer and drive regional economic and social development, ultimately creating an economic belt that connects policies, roads, trades, currencies and people for the great benefits of the Central Asian LLDCs. During the last decade China has become one of the largest bilateral investors, mostly in infrastructure, and important trade partner for most of the LLDCs. Additionally, investment projects under China's Belt and Road Initiative could boost foreign direct investment. The BRI also covers almost all existing transport corridors in the region. Among others, the initiative gives priority to the development of transport and logistic infrastructure, and manufacturing. To support the infrastructure development in countries along the Belt and Road Initiative several financial institutions were established, including the China-led \$40 billion Silk Road Fund, the AIIB with \$100 billion committed, and the New Development Bank (NDB)¹⁶ with \$50 billion of initial capital. These institutions are committed to providing additional funding.

There are other new financing sources from China, the European Union and some specialized funds. The China Development Bank (CDB) and the China EXIM Bank (C-EXIM) both are institutional Chinese banks with more than \$1.8 trillion of assets. These banks provide concessional and non-concessional (in the case of the C-EXIM) finance globally, including LLDCs. The Chinese government is a guarantor of their debt, enabling it to provide low interest rate and long-term loans that are competitive with concessional loans, compared with traditional MDBs. In addition, LLDCs in Asia have access to other Chinese funds, such as the China-Central

¹⁶ Established by BRICS group (Brazil, Russia, India, China and South Africa)

and Eastern European (China-CEE) Fund¹⁷ and the Russia-China Investment Fund (RCIF)¹⁸. Both were established to facilitate financing of infrastructure projects to enhance inter-connectivity in Eastern Europe and Central Asia.

Many of the regional development agencies (e.g. ASEAN Infrastructure Fund, CAREC, TRACECA, etc.) have regional funding sources that can help with project preparation, including project funding. In order to access these funds, projects have to adhere to certain criteria imposed by the funding and often, multiple countries are involved. For example, the Central Asia Regional Economic Cooperation (CAREC), which covers Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan and Uzbekistan, prioritises the development of transport systems and infrastructure in the region. CAREC obtains its funding from multilateral donors such as ADB, EBRD, WB, IDB, and UNDP. Since 2001, more than \$22.6 billion worth of financing was provided for CAREC countries. The largest share of CAREC financing was in the transport sector (70 per cent). Another source of regional infrastructure financing in LLDCs is TRACECA (Transport Corridor Europe-Caucasus-Asia), originally financed by the European Commission. LLDCs, such as Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, are members of the initiative. From the TRACECA initiative, more than \$17.1 billion were invested in their transport systems.

The Global Infrastructure Facility (GIF), which became operational in 2015, is another potential vessel of opportunity for LLDCs. GIF is a partnership among governments, multilateral development banks, private sector investors, and financiers. It is designed to provide a new way to collaborate on preparing, structuring, and implementing complex projects. The comprehensive project support provided by the GIF is based on the combined expertise of its technical and advisory partners. GIF includes commercial banks and institutional investors and supports the design and development of well-structured and bankable infrastructure projects.

The **Climate Finance** framework provides a great opportunity for LLDCs, especially to those which promotes green economy, low-carbon growth, and energy efficiency as their national priorities. LLDCs have access to climate finance through the following funds:

¹⁷ <http://china-ceefund.com/>

¹⁸ <http://www.rcif.com/>

- the Global Environment Facility (GEF) with 182 member states, provides grants to countries with projects related to biodiversity, climate change mitigation and adaptation, land degradation, the ozone layer, and persistent organic pollutants.
- the Climate Investment Fund, comprises of two separate funds—the Clean Technology Fund (CTF), and the Strategic Climate Fund (SCF). The Climate Investment Fund provides large-scale financial resources to invest in clean technology projects, which are based on low-carbon technologies.
- the Green Climate Fund (GCF), as a source of financing to supports building climate-resilient infrastructure and is available to LDCs. The GCF was created to support developing countries by helping them limit or reduce their greenhouse gas emissions and adapt to climate change.

Green bonds are debt instruments for “green economy” infrastructure. Currently, EBRD and World Bank are the largest issuers of green bonds globally. EBRD is currently the largest investor in Kazakhstan in the non-oil and gas sector. The World Bank has invested in Armenia and Uzbekistan through green bonds (\$218 million on two LLDCs and Timor-Leste) focusing on renewable energy and climate-resilient transport infrastructure development. Green bonds are channelled through the securitization of project finance loans in local bond markets.

Box 4. Kyrgyzstan: Climate finance for low-carbon, climate-resilient infrastructure.

Climate finance is one of the potential sources of financing diversification for LLDCs and can fit well to finance low-carbon, climate-resilient infrastructure. Kyrgyzstan has been attempting to tap into climate-related development finance for infrastructure.

Kyrgyzstan is one of the countries in Central Asia that is the most vulnerable to climate change (WHO, 2013) due to the high occurrence of climate-related disasters, its dependency on climate-sensitive economic sectors and its ageing infrastructure.

Kyrgyzstan has taken significant measures towards creating a comprehensive national plan which includes various sectoral strategies and programmes that address climate resilience. Strategy development has focused on key climate-sensitive socio-economic sectors and infrastructure, such as energy, transport, water, agriculture, etc.

In 2015, the Climate Investment Fund (CIF) supported the initiative of Kyrgyzstan to participate in the Pilot Program for Climate Resilience (PPCR). This process has been supported by EBRD, WB and ADB. The Climate Investment Programme is a plan to mobilize and leverage finance for climate resilience and climate-resilient infrastructure in key sectors in Kyrgyzstan, from all available relevant sources (Table A).

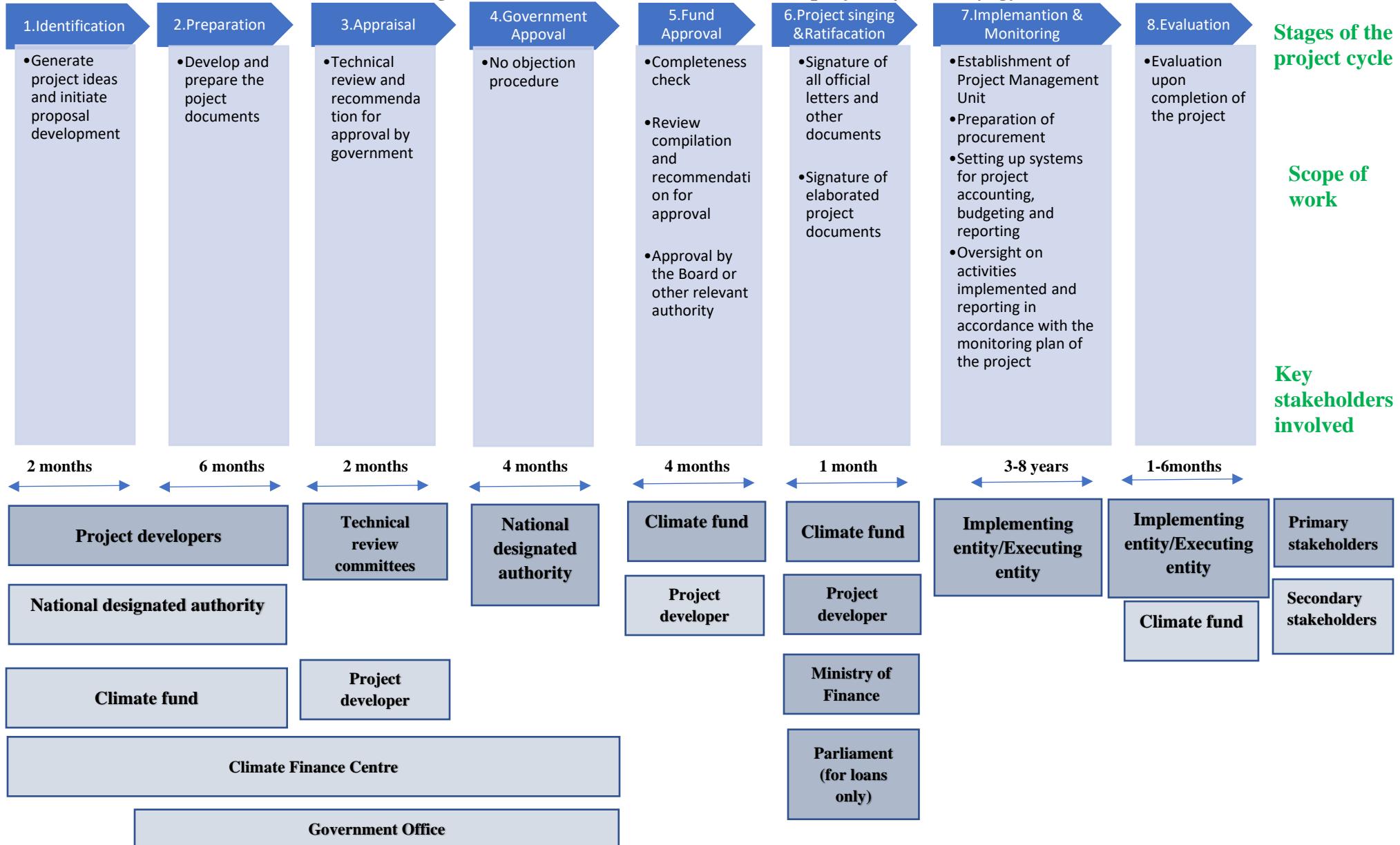
The Kyrgyz authorities, with the support from the CIF, have established the Climate Finance Centre (CFC) to coordinate climate finance issues in the country. The CFC is responsible for attracting financial resources from climate funds and international organizations as well as design and implementation of climate resilience investment projects in priority sectors.

Table A

| Typology | Relevant funds/donors |
|-----------------------------------|---|
| Dedicated global climate funds | Green Climate Fund (GCF) Global Environmental Facility (GEF) Adaptation Fund (AF) Investment Facility for Central Asia (IFCA) Climate Investment Funds (CIF) Pilot Program for Climate Resilience (PPCR) |
| MDBs | Asian Development Bank (ADB)* European Development Bank for Reconstruction and Development (EBRD)* World Bank (WB)* International Finance Corporation (IFC)* |
| Bilateral and multilateral donors | Department for International Development (DFID), United Kingdom Food and Agriculture Organization (FAO)* Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) * United Nations Development Programme (UNDP)* World Food Programme (WFP)* |

Source: The Government of Kyrgyzstan.
Note: MDBs and donors marked with an asterisk (*) are GCF accredited entities

Figure 5. Overview of the climate finance project cycle in Kyrgyzstan



Islamic finance is another innovative source of infrastructure financing, due to its growing penetration rate, particularly, in the banking sectors of LLDCs in Central Asia and beyond. In some countries, Islamic finance already accounts for more than half of total financial assets (World Bank, 2018). The main principles of Islamic finance are suitable for infrastructure development. Islamic principles of financing are defined based on asset-oriented system and the principles of risk-sharing and profit-sharing. However, they prohibit charging and paying of interest.

Following that, global pension funds are another viable source of funding. Large pools of financial assets are held in global pension funds and insurance funds. According to the OECD, the total pension fund assets held in OECD countries in both public and private sector funds amounted to around \$25 trillion at the end of 2015. According to Willis Towers Watson, the total pool of assets held by the world's 300 largest pension funds amounted to \$15 trillion in 2015. Based on a survey of 72 pension funds across 21 countries, the holdings in infrastructure assets averages 5.6 per cent, heavily influenced by Canada and Australia (Alonso, Arellano and Tuesta, 2015). There are more than ten pension funds which invest between 10 per cent and 31 per cent of their portfolios in unlisted infrastructure assets.

A catalogue of all the available lending products from the MDBs and the IMF was made available for the Third Financing for Development Conference in Addis Ababa in 2015 (World Bank, IMF and MDBs, 2015). According to the IMF's catalogue there is a range of financing solutions:

1. Adding, Pooling, Enabling Instruments. This category of solutions covers new flows, such as taxes or fees, as well as policy-driven “flows” that are not considered to be traditional finance instruments/investments but do generate economic or financial value. Policy guidance and lending support to strengthen domestic policy, legal, tax, regulatory and institutional environment for many purposes: to increase a country's available resources and creditworthiness; enhance development impact, and to attract private investment. Some of the many examples are the Asset Management Company (AMC), Equity Participation Fund (EPF) and Loan Participation Fund (LPF), European Energy Efficiency Fund (EEEF), Managed Co-lending Portfolio Program (MCPP), etc. For example, the AMC's global Infrastructure Fund has raised \$1.2 billion in equity commitments from commercial investors. It offers significant mobilization and scaling

opportunities, based on a strong governance structure and innovative business model to match private capital with development finance.

2. Debt-Based, Right Timing Instruments. These instruments help to transform cash flows from infrastructure assets to provide a steady, predictable stream of liquidity for development programs based on their liquidity needs and time horizons. Issuers and financial intermediaries, including the MDBs, have developed a range of new instruments targeted to specific markets and financing purposes, ranging from green bonds to vaccine bonds to cater towards the fast-growing Islamic Finance market. Different instruments have been designed to provide long-term flows, predictability, flexibility, or short-term bridging to meet specific development financial needs. Issuing bonds is one of the main mechanisms MDBs rely on. With their AAA rating and callable capital MDBs are able to issue a wide range of bonds to raise funds inexpensively.

3. Financial Risk Management Instruments. These are initiatives which leverage public funds to create investment incentives for the private sector, through mechanisms that correct market failures, reduce sovereign risk and/or macroeconomic and climate driven vulnerabilities. There are various forms of risk management approaches, including guarantees, derivatives, blended finance, pooled vehicles, project preparations facilities, etc., provide insurance protection for risk sharing or full risk transfer. An example of a financial risk management approach is the Neighborhood Investment Facility (NIF) which is a financial mechanism aimed at mobilizing additional funding to cover the investment needs of the neighboring EU region for infrastructures in sectors such as transport, energy, the environment and social issues (e.g. construction of schools or hospitals). Facilities modelled after the NIF and that are relevant to Asia are the Investment Facility for Central Asia (IFCA) and Asia Investment Facility (AIF). Another example is the Public-Private Infrastructure Advisory Facility (PPIAF), which is a multi-donor trust fund that provides technical assistance to governments in developing countries in support of the enabling environment conducive to private investment, including the necessary policies, laws, regulations, institutions, and government capacity. It also provides support to governments to help them develop specific infrastructure projects with private sector participation.

4. Results-Based Financing Instruments. There are two benefits of reserving funding until the project results are delivered. First, the risk is transferred in part or in full to the entities

conducting the work. This promotes accountability, ownership, improved management as well as effectiveness of service providers. Second, it may help bring in additional funding toward the development objective. Results-based instruments include conditional cash transfers, pull mechanisms, performance-based funding, and impact investment. An example of this approach includes the Global Partnership on Output-Based Aid (GPOBA). GPOBA is a multi-donor trust fund established in 2003 to implement output-based aid (OBA) approaches across a variety of sectors including infrastructure. OBA subsidies are performance based and are designed to create incentives for long-term success of development projects. The following Asian LLDCs have already benefitted from GPOBA: Armenia, Lao P.D.R., Mongolia, Nepal and Uzbekistan.

It is important for the LLDCs to receive **technical assistance from international financial institutions and MDBs to utilize international experience** to enhance institutional and technical capacity for planning, maintaining and managing infrastructure and strategically important projects. The authorities from LLDCs should be made aware of the ways in which to prepare bankable infrastructure projects, as well as to develop and provide such training courses in the future. Partnering with international donors such as the World Bank and ADB can also increase financial viability of projects as well as reduce operational inefficiencies and ensure enhanced transparency.

The LLDCs should also have in place an effective capacity building strategy integrated with the national development strategy. In 2015, the IMF published guidelines on how the efficiency of public investment in infrastructure could be increased by 30 per cent (IMF, 2015). The report indicates practical ways through which these efficiency increases can be achieved, including better strategic planning of infrastructure investments, strengthening institutions and enhancing transparency.

IV. Conclusions and Recommendations

Some of the problems and challenges of the Asian LLDCs are intrinsic to their geographical circumstances of being landlocked whilst other factors are common with other developing countries in Asia and the Pacific. The combination of factors, such as governance issues, lack of economies of scale, weak private sectors and infrastructure deficiencies, are common features for many

developing countries globally (including LLDCs), causing the investment climate for infrastructure markets to be relatively unfavorable. Factors that are specific to LLDCs, such as mountainous and unfavourable topography, low population densities, higher transportation costs and inhospitable climate, increases the cost of infrastructure construction, thus making investment opportunities relatively unattractive for many LLDCs in Asia.

The scale of funding and financing that LLDCs need in order to close their infrastructure gap and bring it to a comparable global standard remains very large. Since the early 2000s, private participation has taken on an increasingly larger role when it comes to project financing, bonds, and PPP procurement methods. In addition, private management of infrastructure tends to increase efficiency, improves productivity, and eliminates high-risk lifecycle costs for the state. However, private participation is still limited in all LLDCs. Given the relatively weak domestic private sector and underdeveloped capital markets, it is hard to expect significant contribution from private financing. Future innovation and development of the PPP procurement model should be designed to allocate risk equitably and increase the attractiveness as well as bankability of transactions to private finance. Furthermore, existing pension funds and SWFs can start to play a larger role and become important financing players for projects in Asian LLDCs.

The governments of LLDCs are advised to use technical assistance in **capacity building** from the international community to work on the following:

- Establish clear and consistent financing strategies through mobilization of domestic resources, improving the investment climate and access to international capital markets.
- Achieve consensus on policy recommendations with neighbouring countries at regional level and harmonize regulatory framework in infrastructure finance and PPP, if necessary.
- Enhance the capacity of government officials in planning, executing, supervising and evaluating sustainable, resilient, inclusive, and well-prioritized infrastructure programmes and robust infrastructure frameworks.
- Strengthen the existing multilateral mechanisms in order to promote greater infrastructure finance knowledge transfer between countries, project preparation and implementation support in the form of regional platforms, open dialogues with project related organisation and other stakeholders on how to develop bankable infrastructure projects and access innovative financing mechanisms.

- Take into consideration potential climate change impacts to ensure the environmental sustainability of the infrastructure projects.

In general, all LLDCs have yet to fully optimize their potential, especially in terms of opportunities from domestic and global infrastructure financing institutions. Therefore, they still have substantial space to mobilize additional resources for infrastructure financing. The variety of financial instruments will also help LLDCs to make infrastructure financing more attractive for a broader group of investors as well as being able to diversify the risks.

The LLDCs are advised to maximize the use of all available domestic funding and financing resources. The main recommendation in relation to **maximizing available domestic resources** is to:

- Improve the efficiency of their fiscal policy, especially tax and expenditure policy, to generate higher fiscal capacity and create fiscal space to develop infrastructure.
- Allocate greater share of public revenue to infrastructure, if possible.
- Make better use of transport user charges (such as tolls), so that there is less need for public revenue to maintain road infrastructure and keep it in good condition thus, being able to release funds for new investment.
- Improve and strengthen legal system to reduce uncertainty faced by private participants and build a supportive and enabling environment for business.
- Consider making infrastructure investment attractive to national pension funds and sovereign wealth funds.

The governments of LLDCs are advised to consider all the relevant global potential sources of infrastructure financing and **exploring new sources of international funding**. The main recommendations are to:

- Implement a project prioritization process, so that the projects presented to bilateral and multilateral finance institutions are those that already have a strong economic, social, environmental and political justification.
- Draw on resources of regional development banks and regional integration funds. To take advantage of most of these funds, a LLDC project needs to have regional benefits beyond its own borders and preferably beyond its transit neighbors.

- Maximize the use of technical support from specialized agencies and funds, from project preparation to project design in order to make it more attractive for private investors and to be able to enhance their negotiating position with private partners.
- Review all the potential sources of multilateral and bilateral funding. In addition to traditional sources, there are now many specialized funds with specific social or environmental objectives, that can be used to supplement conventional financing.
- Before considering PPPs for specific projects, undertake a diagnostic of the country's readiness to implement PPPs (PPIAF and UN ESCAP offer examples) and implementing the measures indicated therein.
- Approach and involve potential new bilateral and multilateral sources (such as the AIIB, Silk Road Fund, etc.) as early as possible, especially during the project identification and preparation stage, to increase the chances of making the projects attractive to them.
- Consider potential climate change impacts to ensure the environmental sustainability of infrastructure projects and consider climate finance as a means to cover any additional costs.
- Expand and updated the catalogue of all the various infrastructure financing solutions that are available to the Landlocked Developing Countries in Asia.

References

ADB (2017). Meeting Asia's Infrastructure Need, Mandaluyong City, Philippines: Asian Development Bank

Agenor, Pierre-Richard; Moreno-Dodson, Blanca (2006). Public infrastructure and growth: new channels and policy implications, Policy, Research working paper. Washington D.C.: World Bank. Available from <http://documents.worldbank.org/curated/en/485431468141267544/Public-infrastructure-and-growth-new-channels-and-policy-implications>

Araya, Gonzalo; Schwartz, Jordan; Andres, Luis (2013). The Effects of Country Risk and Conflict on Infrastructure PPPs. Policy Research Working Paper; No. 6569. World Bank, Washington, D.C. <https://openknowledge.worldbank.org/handle/10986/16002> License: CC BY 3.0 IGO.”

Discussion Paper, First High-Level Follow-up Dialogue on Financing for Development in Asia and the Pacific, Incheon, Republic of Korea, 30 - 31 March 2016

European Bank for Reconstruction and Development: Guide to EBRD Financing. Available from <http://www.ebrd.com/downloads/research/factsheets/guidetofinancing.pdf>

Gallup, J. L., Sachs, J. D., Mellinger, A. D. (1999). Geography and Economic Development, International Regional Science Review, Vol 22, Issue 2, pp. 159–232. Available from <http://journals.sagepub.com/toc/irxa/22/2>

Inderst, G. and Croce, R.D. (2013). Pension Fund Investment in Infrastructure: A Comparison Between Australia and Canada. Available from http://www.oecd-ilibrary.org/finance-and-investment/oecd-working-papers-on-finance-insurance-and-private-pensions_20797117

International Monetary Fund (2017). Kazakhstan: 2017 Article IV Consultation, December 2017

International Monetary Fund (2017). The Kyrgyz Republic: 2018 Article IV Consultation, December 2018

International Monetary Fund (2017). Mongolia: 2017 Article IV Consultation, December 2017

International Monetary Fund (2015). World Economic Outlook

International Monetary Fund (2014). World Economic Outlook

MacKellar, L., Wörgötter, A., Wörz, J. (2000). Economic Development problems of Landlocked Countries, Reihe Transformationsökonomie / Transition Economics Series No. 14. Institute for Advanced Studies. Available from <https://www.ihs.ac.at/publications/tec/14-abstr.htm>

Michael L. Faye, John W. McArthur, Jeffrey D. Sachs and Thomas Snow (2004). The Challenges Facing Landlocked Developing Countries. Journal of Human Development Vol. 5, No. 1

Organization for Economic Co-Operation and Development (2017). Checklist for Foreign Direct

Investment Incentive Policies. Available from <https://www.oecd.org/investment/investment-policy/2506900.pdf>

Organization for Economic Co-Operation and Development (2015). Fostering Investment in Infrastructure. Available from <https://www.oecd.org/daf/inv/investment-policy/Fostering-Investment-in-Infrastructure.pdf>

Preqin Ltd. (2016). Sovereign Wealth Funds investment in infrastructure. Preqin Sovereign Wealth Fund Review. Available from <https://www.preqin.com/docs/newsletters/ra/Preqin-Real-AssetsSpotlight-May-2016.pdf>

Schwab, Klaus (2018). World Economic Forum, Global Competitiveness Report 2017-2018.

United Nations (2018a). Transport Challenges and Opportunities for Landlocked Countries for achieving Sustainable Development Goals (SDGs). Intergovernmental Eleventh Regional Environmentally Sustainable Transport (EST) Forum in Asia, 2-5 October 2018, Ulaanbaatar, Mongolia.

United Nations (2018b). Improving Transport Connectivity for the LLDCs. Ministerial Meeting of LLDCs on Trade and Transport, Astana, Kazakhstan, 16 - 17 May 2018

United Nations (2017). Asia-Pacific Countries with Special Needs Development Report. Sales No. E.17.II.F.9

United Nations (2016). Mobilizing Private Capital Flows for Infrastructure in Asia and the Pacific

United Nations (2015/5). Investment Policy Framework for Sustainable Development, <http://investmentpolicyhub.unctad.org/>

United Nations (1992). Report on the United Nations Conference on Environment and Development: Chapter 17.

United Nations Conference on Trade and Development: Landlocked Developing Countries Facts and Figures. http://unctad.org/en/PublicationsLibrary/aldc2014d1_en.pdf

United Nations Environment Programme (2019). Integrated Approaches to Sustainable Infrastructure.

UN-OHRLLS: Landlocked Developing Countries Facts and Figures 2014. Available from <http://unohrlls.org/custom-content/uploads/2013/09/LandlockedDeveloping-Countries-Facts-and-Figures-2014.pdf>

UN-OHRLLS (2013). The Development Economics of Landlockedness. Available from <https://unohrlls.org/custom-content/uploads/2013/10/Dev-Costs-oflandlockedness1.pdf>

World Bank (2018, 2019). World Bank Doing Business Report 2018 and 2019.

World Bank (2016). Country Readiness Diagnostic for Public-Private Partnerships. Available from <https://pppknowledgelab.org/d/3553/download>

World Bank (2010). The Cost of Being Landlocked, Logistics Costs and Supply Chain Reliability, Directions in Development. Available from <https://openknowledge.worldbank.org/handle/10986/7420>

World Bank, IMF and MDBs (2015). Catalogue of the MDBs and the IMF Financing Solutions. Working document to supplement joint discussion note From Billions to Trillions: Transforming Development Finance. Available from <http://www5.worldbank.org/mdgs/documents/MDBs-IMF-DevFinSolutions-11-3-15.pdf>

World Economic Forum (2015). Global Competitiveness Report 2015-2016. Available from <http://reports.weforum.org/global-competitiveness-report-2015-2016/>