Infrastructure Project Financing Options: Traditional and New Sources, Strategies for Avoiding Dutch Disease, China's White Knight Interventions, and the U.S. BUILD Act (2018) for Sustainable Development

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Introduction

Infrastructure development is vital for economic and human capacity development of a nation. And yet, many times financing is difficult to obtain, particularly in the areas that need it most. Ironically, some of the countries that have recent discoveries of oil, gas, and valuable minerals, and seem most able to pay off potential loans, have not had access to financing, or it has come in ways that do not stimulate economic development across the economy, but instead lead to the economic illnesses associated with the Paradox of Plenty, such as Dutch Disease. Traditional sources have been wary of lending to such nations due to their poor credit scores, lack of transparency, or human rights issues. New sources of infrastructure investment, such as China's multi-trillion Belt and Road Initiative, have functioned as a "white knight" in providing infrastructure to achieve an expansion and deepening of trade relationships. For optimal economic impact, it is important to couple the infrastructure with companies that can establish local businesses that create a solid domestic value chain, and which fill gaps in the supply chain. The U.S. BUILD Act, passed in 2018, which establishes the new International Development Finance Corporation (IDFC) will provide loans for business-to-business projects involving local companies and U.S. companies. Such financing could assist countries in achieving sustainable development, avoid the Dutch Disease, and successfully repay their infrastructure loans.

Equity Finance

The project sponsor(s) can obtain funding in many different ways, depending on their experience, credit ratings, the nature of the project itself, and the business model. There are other factors which come to bear on the project financing as well, which include the business environment, which would include the regulatory structure, judicial system, rule of law, relationship between the government and private sector, and more.

The project sponsors will issue shares and in doing so, will own their proportional share of the company, which is many times formed around the specific project. By creating a separate entity for each specific project, it's often easier to keep the accounting separate, and also, if the goal is to eventually sell the project to a larger acquiring entity, it makes it easier to sell either the entire project or the individual ownerships.

Public Equity Finance.

The project may be perceived as having the potential for sustainable growth and a flexibility that will allow it to adjust to changing market conditions. This is usually the case with resource exploration involving new technologies, such as shale plays.

It is somewhat less likely that a public company would get involved in infrastructure, but it's not beyond the realm of possibility, particularly if it has to do with gas gathering and processing, oil and gas pipelines and storage.

There is also the possibility of forming a public company around something like a mega alternative energy project, such as a large wind or solar farm, but the uncertainties of government regulations need to be nicely ironed out before that happens. There are also often national or local security concerns that may make governments uncomfortable about a public company having such control. In that case, the national regulatory agency will become a silent (or not so silent) partner and may require a national resources company to have access to ownership, just so that they have access to day-to-day operations and information.

People who buy shares in a public company may do so through an initial public offering (IPO) or through the stock exchange, or indirectly through their mutual fund. While the stock market is an excellent source of large amounts of capital, there are inherent risks in the volatility of the stock market itself. Further, it may be more difficult to manage a widely diversified group of investors. It is not uncommon for "shareholder activists" to obtain control of a block of shares, either directly, or via proxy, and to try to insert new leadership and/or to oppose critical phases of the project. Such actions have proved disastrous to the fate of infrastructure projects. Further, by sabotaging the company's plans, they make the company vulnerable to the designs of competitor companies.

Private Equity Finance for International Infrastructure.

The company may prefer to remain private. Their shares are in blocks and are privately owned by individuals and organizations. None of the private company's shares are offered on the open market through various stock exchanges. Instead, the shares are sold to investors whose investment goals align well with the levels of risk and the long-term return on investment profile of the project.

In this case, the investors may be institutional investors, which would include mutual funds, pension funds, insurance companies, and others which must follow strict guidelines.

Infrastructure projects that have a low rate of risk, and a stable cash flow in the key time horizons required by the organizations are important to institutional investors. For example, a gas pipeline or a toll highway or bridge could be attractive. However, if the project does not pay dividends,

and if there are few ways to guarantee stability in the company, it is unlikely that the project will receive institutional funding.

Factors militating against institutional investment include government instability, war, sabotage, weak institutions (such as weak or corruptible judiciary, collusion between government and local companies, poor enforcement of labor, environment, or safety conditions) make it difficult for the locations that most need infrastructure to establish communication, transportation routes, and supply chain / value chain affiliated companies to be receive the capital they need .

Perceived instability of all sorts also results in large expanses of "stranded" resources. For example, in 2015 through 2017, uncertainty about government regulations regarding pipelines and storage facilities in western Canada and in west Texas in the U.S. resulted in effectively "stranding" reserves in entire basins. The uncertainty, compounded by downward price shocks, resulted in the bankruptcy of numerous companies, resulting in even less confidence in investment in the projects until both market and regulatory environments changed.

Project Finance Debt for International Infrastructure

Project finance debt can be either direct, or secondary. The project itself may take on debt as an organization. Or, alternatively, each sponsor may assume debt in order to have the capital necessary to pay the obligations based on their type of interest. For example, if the project sponsor has taken working interest, they will be required to pay their proportional part of the costs of the project, at predetermined times (usually monthly billings, along with payments at specific times.)

Commercial Banks and Syndicated Lending. Commercial banks are important sources of finance debt, and they may form a syndicate to make loans to projects. In that case, the debt is raised through the international syndicated loans market.

A syndicated loan, or, syndicated bank facility, is a loan offered by a group of lenders who team up to make funds available for a single borrower. The borrower could be a corporation, a large project or a sovereignty, such as a government. The syndicate will issue a loan, and it will cover the drawdown and purpose of funds, repayment terms, lender protections, and loan economics and pricing.

The members of the syndicate will have very clearly defined roles. Some will be the arrangers, others will be the underwriters, and others are the participants. Fees will be split among the banks in accordance with their roles.

In a large infrastructure loan, each of these elements can be challenging. For example, during the commitment period, the borrow can request funds up to the total committed amount of the loans.

But for each payment (or "drawdown"), it is necessary to satisfy clearly stated conditions. If the draws are needed to pay for the next stages of the infrastructure project, delays due to documentation and satisfying the conditions of the loan can be extremely frustrating, especially if there is a perceived loss of control. Satisfying the conditions may be much more difficult in some countries rather than others, which may make commercial loans less desirable, or more difficult to obtain (Arezki, etal. 2017).

The loan repayment time limit (the "tenor") for a commercial loan is rarely longer than 5 years. Any tenor longer than 5 years is considered to be very uncertain. So, infrastructure loans or building project loans must be repaid within the tenor, usually less than 5 years. This can be problematic for an infrastructure project, which is why often the strategy is to obtain commercial financing for the construction stage, and to use that time to find a buyer who will purchase the entire project, thus paying off the loan within the repayment period.

An infrastructure or building project that has as its goal to sell the project once it has been completed is usually seeking a buyer who has experience and capability in the operations side of the business. For example, a company specializing in airport construction and design may obtain the financing for the construction of an airport. But, after they complete the construction, they will sell it for a lump sum to a company that specializes in airport management and hospitality. The initial project sponsor (a company specializing in construction) could probably not generate enough cash flow and/or surplus to actually pay off the loan, even if they wanted to.

For that reason, the commercial bank will need to consider the long-term business plan of the entities involved in the infrastructure project. A timeline of events (an events horizon) will need to be mapped out clearly, with potential companies identified long in advance.

Export Credit Agencies. Many governments seek to develop markets for their country's goods and services, and so may take an active role in an infrastructure project, understanding that doing so will open doors for companies in their country such as construction firms, equipment firms, communications, and consultants.

So, each government has its own Export Import Bank, often abbreviated to EximBank. The relationships with the government EximBanks can be complicated with a number of conditions, many of which may be very supportive of the project itself, especially if the investment opens the door to more direct overseas investment in the emerging value chain.

Export credit agencies (ECAs) will usually only fund up to 85% of the eligible content of an export contract. The importer must fund 15%. Loan repayment lengths (tenors) are usually 7.5 years or less.

The EximBank / ECA will stipulate the types of goods and services to be covered in the loan, and the countries of origin. The reasons for this are pretty clear. The goal of the government EximBank is to support its own country's businesses. However, strategically allowing complementary goods and services from friendly countries makes sense, particularly if the goal is to establish a sustainable value chain and a chain of affiliated companies that constitute a supply chain. For example, an airport project may not be viable without the subsequent construction of warehouses, roads, and ground transportation hubs. So, the Eximbank may also allow one of the affiliated supply chain providers to take a piece of the project, along with the financing.

Interest rates are usually variable, and the borrower must obtain insurance or pay for insurance provided by the EximBank. That is called "premia."

However, the investments must be carefully coordinated and if they are of infrastructure critical for value chain formation, it is important to avoid delays in construction, as well as making sure that the quality is high.

Multilateral Agencies and Development Finance Institutions

Challenges for Western MLAs and DFIs: There are several government-owned institutions that have been established to promote development. They consist of Multilateral Agencies (MLAs) and Development Finance Institutions (DFIs). Since the international banking crisis in 2008 – 2010, and a high rate of defaults in the years from 2001 to present, it has been more difficult for countries with poor credit to obtain long-term loans for large infrastructure projects. Many of the countries applying for infrastructure development loans have sovereign debt ratings below Ba1, which is too low for most loans. Further, many of the countries do not participate in the Moody's rating system at all. For example, countries such as Senegal, Suriname, and Peru, which have new discoveries of natural resources, and which need infrastructure development to avoid Dutch Disease coming from the "Resource Curse" can most likely not receive funding if they are relaying on Western MLAs. Each has a dismal Moody's credit rating, ranging from B2 to Ba3. Their Standard and Poor's and Fitch ratings are no better (Country Economy Ratings, 2018, https://countryeconomy.com/ratings).

MLAs and DFIs are often the finance option of last resort, particularly when they are considered high-risk by potential equity buyers, commercial lenders, or export credit agencies. No one will buy a bond floated by them (as they would immediately convert to "junk" unless affiliated with a strong alliance that would keep the project viable).

Financing Droughts for Developing Nations: It is not easy for a developing nation to obtain a loan from an MLA because of an arduous process and often difficult to satisfy conditions. Further, it has been argued that the MLAs and DFIs have been politically influenced, and the presence

economic sanctions and other punitive trade behaviors have restricted the ability of the entities to fund projects. Further, the restrictions have hampered flexibility, making it difficult to enter into collaborative or cooperative relationships or partnerships. The restrictions can include International Monetary Fund currency exchange requirements, transparency in government and private industry, an assurance of rule of law in the judicial system, environmental protection stipulations, and the assurance of human rights protections (Arezki, etal. 2017).

Multilateral Development Banks / Multilateral Lending Agencies

African Development Bank (AfDB)
Asian Development Bank (ADB)
Asian Infrastructure Investment Bank (AIIB)
CAF - Development Bank of Latin America (CAF)
European Bank for Reconstruction and Development (EBRD)
European Investment Bank (EIB)
Inter-American Development Bank Group (IDB, IADB)
International Fund for Agricultural Development (IFAD)
Islamic Development Bank (IsDB)
World Bank

Subregional Development Banks

Black Sea Trade and Development Bank (BSTDB)
Caribbean Development Bank (CDB)
Central American Bank for Economic Integration (CABEI)
East African Development Bank (EADB)
Economic Cooperation Organization Trade and Development Bank (ETDB)
Eurasian Development Bank (EDB)
New Development Bank (NDB) (formerly BRICS Development Bank)
West African Development Bank (BOAD)

The Vital Role of the Initial MLAs: But what are the main multilateral lending agencies? The World Bank and its affiliated agencies is by far the largest. Others include the European Investment Bank (the EIB), the European Bank for Reconstruction and Development (the EBRD), the African Development Bank (the AfDB), and the Asian Development Bank (the ADB). These agencies have been, since their inception, dominated by "western" finance and financial interests. In the 1970s through 1980s, when developing nations started to find it difficult to repay their loans, the agencies were accused of neo-imperialism.

And, it was easy to see why the MLAs would be vulnerable to criticism of Western-benefiting lending. For example, many African and South American infrastructure projects were built by American and European construction companies using American and European equipment, raw materials, consultants and workers. The MLA-funded projects also provided unique access to American and European markets for manufactured goods, and they were also valuable as strategic locations for security. Finally, some infrastructure projects were located near the primary products and natural resources (minerals, petroleum, raw materials), needed by the European and American economies.

Despite the self-interest in the overall value chain, the countries that did obtain large infrastructure loans certainly needed the electricity, roads, bridges, airports, etc. as a foundation for economic development. When loans started drying up in the 2000s, either for being high-risk or to satisfy political agendas, the nations that could no longer obtain loans saw their much-needed infrastructure projects stall.

Without the roads, pipelines, storage facilities, power plants, airports, bridges, and other infrastructure, primary products needed for value-chain economic transformation were likewise stalled out.

Lack of Infrastructure Financing and "Dutch Disease": In the early 2000s, many developing nations found it impossible to obtain loans for infrastructure. The loans were desperately needed in order to create access to the outside world, to develop markets, and most importantly, for resource-rich nations to avoid the consequences of the so-called "Resource Curse," which often occurs in low-income nations when a significant exportable primary product is found, such as petroleum or minerals. One common consequence of the "Resource Curse" is "Dutch Disease," which cripples non-primary product economies, making the uncompetitive, and causes labor shortages in non-dominant industries.

An example of Dutch Disease is Nigeria where, despite vast amount of oil and oil wealth, has not diversified, and where proceeds from oil sales do not get directed into infrastructure or small industry, but which often leave the country as "tribute" is paid to the individuals involved in the financial side of the oil industry. In the meantime, income and social inequality have skyrocketed, the rate of poverty has risen, and resentment of the "have's" in the economy bubbles up in the form of sabotage, crime and violence. To further exacerbate the situation, draconian austerity measures imposed by international financial institutions on Nigeria and Greece, catapulted both countries into liquidity crises (Swamy, 2015).

Currently, there are several countries with recent or expanded reserves of gas, petroleum, or minerals that are in direct risk of the Resource Curse or Paradox of Plenty malaises such as Dutch Disease.

Guyana	Offshore oil and gas
Mozambique	Offshore gas
Tanzania	Offshore gas
Suriname	Offshore oil and gas
DR of Congo	Cobalt
Bolivia	Lithium

While infrastructure development has already been committed to and largely financed in the case of Mozambique, it's not the right kind of infrastructure needed for creating multiplier effects with value-chain products. In fact, one can argue that the kind of infrastructure that has been committed to: liquid natural gas processing (Anadarko) and floating liquid natural gas (ENI) will actually accelerate any potential Dutch Disease by making the country even more dependent on a mono-product (natural gas) destined for export since there are very limited local markets and no way to get the gas to the populace. The ships bearing cannisters of LNG will go to Europe, India, and China. The labor once employed in agriculture or small industry will be pulled to jobs in the energy sector, and influxes of cash will have a negative impact on the currency. Currently (in 2018), Mozambique is on par with Venezuela in its sovereign debt rating, which is to say it is in default. Given such a situation, the traditional multinational lending agencies would not touch Mozambique, except to perhaps work with something in conjunction with corporate-owned LNG infrastructure. Companies are generally required to hire locally and to contribute to an education and health fund as a condition of their licenses, but without infrastructure, the investments do not benefit many people.

With such a future in sight (extreme case of Dutch Disease), the general progression of affairs is for economic inequality to skyrocket, resulting in anger, resentment, and infighting. In order to maintain some sort of stability, a strong-arm dictator often comes to power. And, before one knows it, the countries with resources have little or know hope of sustainable development and a transition to prosperity. Energy poverty, income inequality, dirty conditions, poor health care, and lack of education will continue to occur.

The main hope of salvation from such a fate involves a commitment to a) a rainy day fund to avoid problems when there are price collapses; and b) strategic infrastructure financing, combined with investments in companies along the value chain that will team up with outside companies that will facilitate the knowledge transfer of production as well as marketing / distribution.

White Knights? Chinese MLAs and the Belt and Road Initiative: Experts have long argued that the two best ways to avoid "Dutch Disease" and economic / political instability caused by the "Resource Curse" or "Paradox of Plenty" are to first, invest the surpluses from the revenues into a

rainy day fund, for when there are price collapses in the primary product; and second, to invest in infrastructure.

China began investing in infrastructure in Africa, Africa, and Asia in conjunction with investments in some of the countries' mining and petroleum operations. In September 2013, a plan to coordinate the investments in infrastructure in order to link markets, secure trade routes, forge creative and productive bonds, and to raise the standards of living in countries along the ancient Silk Road and in a new "Maritime Silk Road" was announced. It was called the One Belt One Road Initiative, which was later renamed as the Belt and Road Initiative (State Council of the PRC, 2018).

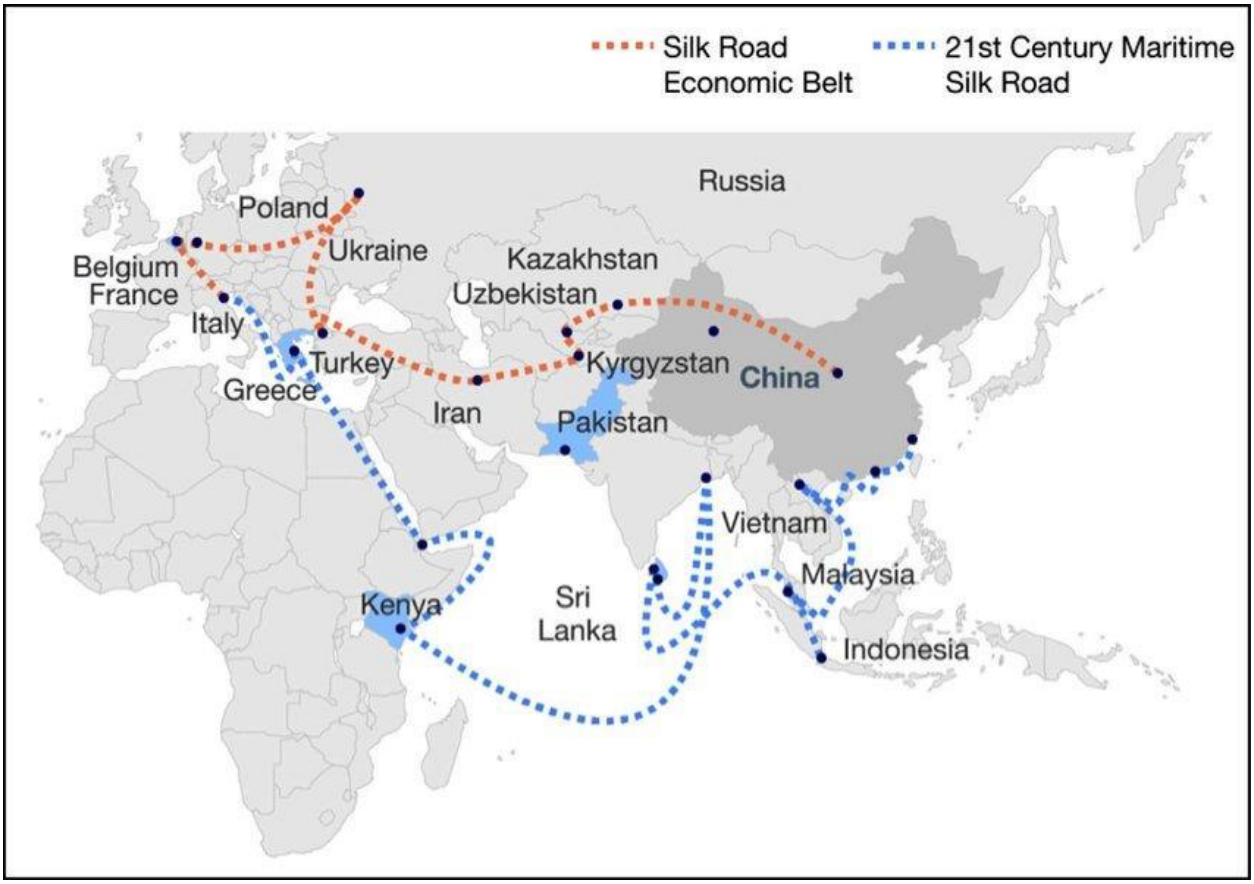

Image source: McKinsey and Company

Financing for infrastructure would total several trillion dollars over the life of the initiative and would be administered through brand new Development Finance Institutions and a new export development bank:

> One of the main goals of the Belt and Road Initiative is to galvanize the additional financial support necessary for this infrastructure need. To facilitate this, the Asia Infrastructure Investment Bank and the New Development Bank were started; the $40 billion Silk Road

> Fund was created; China's two big policy banks — China Development Bank and the Export-Import Bank of China — were encouraged to extend over $200 billion in loans to BRI countries; while China's big four non-commercial banks have put up tens of billions of dollars (HSBC, 2018).

Together, the Silk Road Economic Belt and the 21st Century Maritime Silk Road cross at least 80 countries and can potentially have connections in countries representing 60 percent of the world's population. Ideally, it is a "win-win" relationship because, as discussed earlier, much of the Belt and Road Initiative crosses poor and unstable countries where traditional financing for infrastructure is simply not available. The logistics service supply chain is a clear first choice for investment, and a recent study identified the highest-impact logistics services locations along both the terrestrial and maritime stretches of the BRI (Liu, etal, 2018).

The BRI infrastructure has transformed a number of economies and has had multiplier effects. For example, in Zimbabwe, the airport at Victoria Falls has stimulated tourism, resulting in a revitalized tourism economy. However, the BRI has not been without its critics, particularly as some countries have not been able to make their initial loan repayments, and some parts of the loans were forgiven in exchange for use of the asset. Because some assets are strategic (a port at Djibouti and a deepwater port in Pakistan), the BRI initiative was politicized, particularly in certain parts of the international press.

It is important to keep in mind that infrastructure is a necessary foundation for economic growth. However, it must be accompanied by strategic private investment, and also effective public-private partnerships. Thus, the Belt and Road Initiative is still in its infancy, and there are many opportunities all along the value chain for products produced, and in the supply chain for all kinds of necessary products (Zhai, 2018).

The key is to identify the kinds of investments that will yield the highest economic multiplier. Investments should be positioned along the value chain. Further, all supply chains – for the operation of the infrastructure, to affiliated industries (health care, tourism, agriculture, food, retail, manufacturing), should be carefully evaluated for gaps and potential efficiencies.

Productive Economic Synchronicities and the U.S. BUILD Act: In 2018, President Trump signed into law the Better Utilization of Investment Leading to Development (BUILD) Act (U.S. Congress, 2018). It authorized $60 billion dollars to be distributed as business-to-business loans administered through the International Development Finance Corporation (IDFC). Companies owned by at least 51% U.S. citizens will qualify to apply for loans to be used in projects involving foreign national companies in some of the poorest nations, primarily located in Africa. The goal is economic development, and also a productive relationships with industries in Africa.

There is not a central repository or register of One Belt One Road (or Belt and Road Initiative) projects. Instead, it is necessary to compile information from different sources, which makes it more difficult to create models for coordination and planning of how to strategically invest and how to optimize supply chain networks. Here is a list of Belt and Road projects that were completed as of March 2018 (Yamada & Palma, 2018):

Hungary	Huawei logistics center	$ 1.5 billion
Iran	Rudbar Lorestan hydropower dam	$ 578 million
Kazakhstan	Khorgos dry port	$ 245 million
Pakistan	Gwadar Port construction of breakwaters	$ 123 million
Sri Lanka	Hambantota deep sea port Phase I, II	$ 1.3 billion
Cambodia	Natl. Road No. 214, Stung Treng-Mekong Bridge	$ 117 million
Indonesia	Sumsel-5 power plant	$ 318 million
North Korea	New Yalu Bridge	$ 350 billion
Under construction	2.84 billion	
Bangladesh	Payra power plant	$ 1.65 billion
Laos	China-Laos railway	$ 5.8 billion
Pakistan	Peshawar-Karachi motorway	$ 2.84 billion
Israel	Haifa Bay Port	$ 1.16 billion
Announced		
Mongolia	Tavan Tolgoi rail project	$ 1 billion
Turkey	Third nuclear power plant	$ 25 billion
Pakistan	Kohala hydropower plant	$ 2.4 billion

Although some envisioned the BUILD Act as a response that counters the Belt and Road Initiative, others see the win-win economic benefits. If viewed through the correct lenses, it can be seen as a perfect complement, and one that could potentially help nations such as Mozambique and Guyana avoid Dutch Disease. Productive infrastructure that alleviates energy poverty and brings clean water, better living conditions, electricity, and roads to Mozambique can provide the framework for economic diversification (thus avoiding the primary trap of the Resource Curse, which is a rapid slide into a mono-economy, one dependent on a single primary product).

A Longer-Term Vision and Potential Outcomes

As countries are stabilized by means of productive investment of infrastructure and infrastructure-utilizing companies that stimulate trade, countries that have influxes of revenues from primary products can strategically invest the money in startups and companies at the commercialization phase.

Once on the path to stability and sustainable economic and human capital development, complementary infrastructure and project financing would be needed. In that case, the traditional MLAs and DFIs could participate, with a positive impact on the economy.

Developing strategies for avoiding unilateral trade flows would necessarily be a part of the overall long-term development plan. For example, manufacturing and adding value to the primary product could be achieved. An example might be instead of simply shipping copper ore to smelters, with electricity, roads, and access, it could be possible to smelt the ore, transform it into wires, and even create other goods out of it, which would be destined for neighbor markets. Or, for example, natural gas could be converted into urea which could be used as a fertilizer in nearby agricultural endeavors.

Strategic, balanced investment that takes into consideration supply chains and above all, having domestic enterprises on higher levels of the value chain, can effectively leverage existing infrastructure. In doing so, it can a "white elephant" infrastructure projects into a nice, lively pink elephant and can liberate stranded resources.

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