

White Paper

Risk Reallocation Tools for Infrastructure Development in Frontier Markets

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Risk Reallocation: Tools for Infrastructure Development in Frontier Markets

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Many infrastructure projects, particularly in frontier markets, do not advance due to perceived or actual risks associated with the projects. While these risks generally can be classified into three broad categories – country, project and financial – hundreds of risks arise throughout the timeline of a project, starting as soon as a person has an idea and continuing well after a project is operational.

This report looks at the types and timing of those risks and aims to identify how development institutions, multilateral banks and bilateral donors (collectively, the “public sector”) might best play a role in mitigating these risks without distorting the market. In particular, it explores how the risks associated with infrastructure projects might be best reallocated among the various parties to expedite projects in the most sustainable manner and seeks to identify new tools that the public sector might develop better bridge this gap.

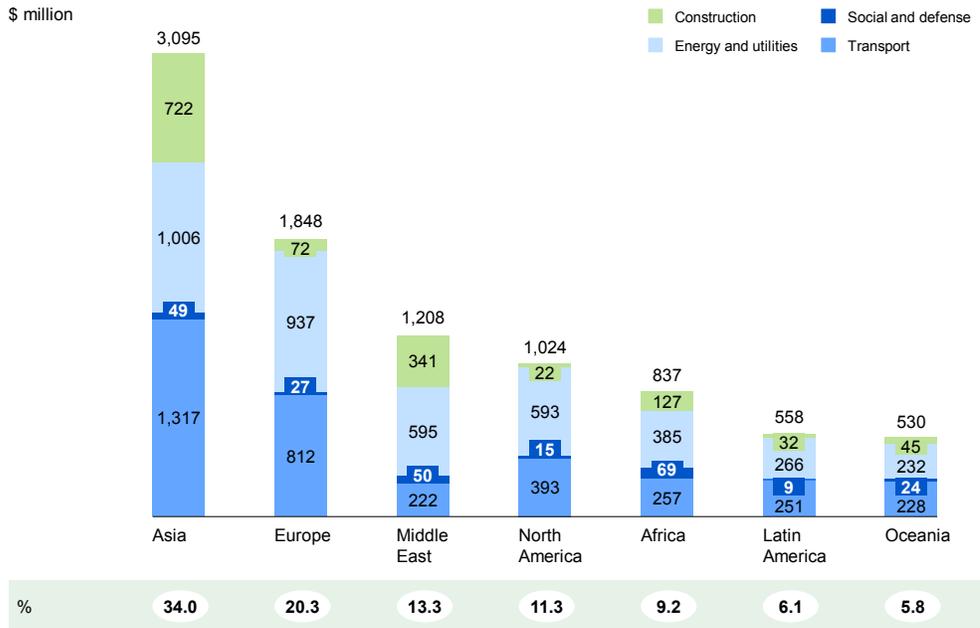
Infrastructure is key to economic growth and social development. A 2013 McKinsey paper¹ on a risk management approach to successful infrastructure projects identified that there is a global pipeline for infrastructure projects estimated at \$9 trillion with more than 60% in frontier markets and a significant portion in the energy sector (see Exhibit 1). The same paper referenced a World Bank study that estimated a 1% increase in GDP for a 10% increase in infrastructure assets, highlighting the importance of bringing these assets online in time, on budget and to the specifications required.

The paper also highlights the common problems that plague most projects and that are already well known: overrun cost, project delays, failed procurement and unavailability of private financing. The management of risk during project development and project execution is regularly identified as the key enabler to dealing with these problems. This is where development institutions, multilateral banks and donors should focus to create a healthy pipeline of projects (as capital does not seem to be the issue) and ensure efficient execution in order to get value for money and enable re-investment in new projects.

¹ Beckers, F, Chiara, N, Fresch, A, et al. *A risk management approach to a successful infrastructure project*. McKinsey Working Papers on Risk, No. 42, November 2013.

Exhibit 1 The current global pipeline for infrastructure projects is estimated at \$9 trillion.

Megaproject¹ pipeline²



¹ Cost >\$1 billion.
² Columns may not sum, because of rounding.

Taking risks

The risks associated with doing business in a particular country include macroeconomic, political, legal, labour and institutional conditions. Project-specific risks might include everything from site acquisition, social and environmental issues, resource supply, technical issues and profitability. Financial risks are associated with not just the financial modelling of the project itself, but also the financial health of the sponsors, the borrower, the lenders and the future sources of revenue for the project.

Risk arises throughout the life of an infrastructure project with the greatest risks and uncertainties usually occurring at the earliest stages, and generally are allocated among the construction contractor or developer of the project, the financier of the project, the partner government, and in many cases, the public sector.

Risk almost always can be mitigated. However, in many frontier markets, there can be a tendency for investors, especially new investors or off-shore investors, to want to overmitigate the risks, which will reduce the rates of return or price the investor out of the deal altogether.

In fact, there is so much liquidity already in developing countries that many project developers will not wait around while American and European institutional investors decide whether they should get their toes wet in a particular market. Rather, local and other frontier market investors will continue to make money on the limited number of projects that they conclude are bankable; sometimes due to their higher appetite for risk and, in many cases, their familiarity with local markets and players due to their presence on the ground, which allows them to better ascertain which risks are real and which are only perceived.

Opportunity will not await those with excessive and unrealistic fears.

If the President of the company can't travel there, the deal's not going to happen.

Many company executives have “key person insurance” to provide their company with coverage in the event that something happens to a top executive. Many insurance companies that provide this type of coverage (which tend to be based in the US and Europe), have little, if any, familiarity with the actual conditions in frontier markets. Companies themselves also establish policies that prohibit their personnel from traveling to certain countries during periods of unrest or during disease outbreaks.

For example, several years ago, the executive of a large US coffee company wanted to travel to travel to a capital city in Latin America to negotiate the purchase of several containers of coffee. Prior to departure, he contacted the insurance company as required under the policy, to inform them of his travel plans. An agent told him that because of the number of kidnappings in the country, the insurance policy would be nullified if the executive travelled there. The agent's lack of familiarity with local conditions – none of the kidnappings occurred in the capital – and the insurance company's low tolerance for risk threatened to cause a multimillion dollar coffee deal to fall apart. It was only after the executive was able to explain the nuances of the local conditions and offered to “call in” on a regular basis that his travel was allowed to proceed.

Similarly, during the Ebola outbreak in West Africa, many international companies and organizations brought international personnel home and prohibited travel to not just those countries, but to Africa as a whole. Many critical infrastructure projects have been delayed and countless other business deals have not proceeded across the continent as a result of an outbreak that only impacted a few countries and a relatively small portion of the African population. Even after Ebola was eradicated in Liberia, many companies continue to have policies that prohibit travel to the country.

The mitigation tools that the private sector can offer include diverse insurance products, high-risk equity or equity-like capital (with high rates of return) and financing. Partner governments offer tools such as sovereign guarantees, tax and customs incentives, and in some cases financing and grant funding for feasibility studies. And development finance institutions (including export credit agencies) offer many mitigation tools including grants, partial risk guarantees, financing, technical assistance and political risk insurance.

The public sector's role is to bridge the gap between the pricing of commercially available products for risk and financing, while being careful not to crowd out the private sector from providing commercial products that could bridge these gaps. The public sector must also be careful to avoid offering interventions that distort the market (e.g. when excessive donor financing creates a disincentive for governments to open the sector to private financing), waste public resources (e.g. corporate welfare) or support projects that are unsustainable or are otherwise doomed to fail.

Calculating risks: Lake Turkana wind project

Infrastructure projects are riddled with risk during all stages of the investment timeline. For example, the 300 megawatt (MW) Lake Turkana Wind Project in Kenya started with some friends standing on the side of the lake – one of the most desolate areas of Kenya – and noting how the powerful, consistent winds that blew across the plains could power millions of homes in a country with no wind generation projects. Since that day, the project has been under development for approximately a decade with many lenders, donors, developers, technical experts and government officials involved at every stage of the project to turn this dream into reality. This project offers to be the largest independently owned and operated wind project in sub-Saharan Africa outside of South Africa.

Not only have multiple donors and multilateral banks provided financing for this project to make sure that it moves forward, but donors also provided the technical assistance necessary to ensure

that the power system in Kenya could absorb the intermittency associated with wind power. Site acquisition has proceeded over time, but there remain land disputes. In addition, hundreds of kilometres of transmission lines have to be built, which required environmental studies to consider the impact on not just the land, natural resources and people living in the area, but also on the animal population.

Lake Turkana finally is breaking ground after many years, but risks remain: equipment could get slowed down at customs or a government official levy taxes on donor financing in contravention of an international agreement; if there is a terrorist attack on Westerners, even in the capital far away from the project site, expatriate personnel involved in the project could be forced to leave the country, causing further delays (this is a key reason why developers try to build local capacity to manage, operate and maintain projects).

But these real and potential risks are not slowing down the project and the vision of its developers. They remain committed. Lake Turkana provides only one example of hundreds of infrastructure projects across Africa that is breaking into new markets and that offers new promise for capacity building and investment. As all the dozens of parties involved in Lake Turkana work through the many constraints to this project and introduce new technology to a new market, they are de-risking future projects and forcing new reforms that will make future projects more attractive and bankable.

The risk timeline

Risks occur at every step of a project, starting at the point of concept when the developer of the “idea” has to find investors interested in the project. Even when the project is commissioned, investors worry about whether the project will generate sufficient revenue to offer them a sufficient rate of return. This section attempts to describe some of the typical risks that occur during the various stages of a project and provides examples of tools available to mitigate these risks.

Prefeasibility to project development

At the earliest stages of an infrastructure transaction, there are very basic risks. Many people have “great ideas” or “know senior people in the government who are going to get the project done”. Sorting through these ideas and assessing the credibility of particular developers who themselves may be new to these new investment markets is challenging.

For international developers and investors with large portfolios, the organization typically is driven by the achievement of a minimum rate of return for shareholders and investors in that company. For this reason, staff may be less likely to pitch projects in an unproven market with a perceived high level of risk than a project in a more mature market that may offer lower rates of return.

For example, despite the fact that geothermal resources in East Africa are considered some of the highest quality in the world, most large geothermal companies see Asia and Latin America as safer bets; they reach that conclusion due to perceived and actual risks. Helping developers mitigate these risks at the earliest stages could lead to a dramatic increase in bankable projects.

Such early stage risks include project feasibility, which encompass an assessment of environmental, social, technical, political, legal and financial risks. High-quality feasibility studies have proven to be one of the most effective tools to identify projects that truly are bankable. Such studies also can identify additional risks that must be mitigated with other tools before a project can be deemed bankable.

The environmental data available for many frontier markets is often sparse or outdated because there is not enough of a market demand to justify the expenses associated with collecting the data. Development institutions often can play a critical role in offsetting the expenses associated with environmental assessments, often to the benefit of future projects, as well.

Social risk in many frontier markets is especially high, where there typically are high Gini coefficients that reflect significant income disparities. The government institutions in these same countries often are not well equipped to manage and mitigate social conflicts arising from resource management. It is important, therefore, to have early consultations and buy-in from local communities to ensure the sustainability of the project. Expectation management among the local community is critical to a project's success, as countless governments learn every day from extractive projects that pull billions of resources out of the ground in some of the poorest communities in the world.

Technical risks can be the easiest to identify and mitigate in frontier markets because these markets typically are offering rich resources that simply have not been exploited to date. In frontier markets, investors typically are not looking to squeeze the last bit of energy out of an already tapped out market. While fracking is profitable in the United States, there are much less expensive ways to produce energy in Africa, where there are sufficient natural resources to power the world for decades to come. Smart developers in frontier markets are typically trying to figure out how to pick low-hanging fruit in an unfamiliar environment.

That being said, less developed regulatory environments and a lack of infrastructure raise technical risks that well-developed markets do not have. Will the grid in a country with only a few hundred or thousand megawatts of generation be able to absorb the intermittency associated with renewables such as wind or solar? There's a good reason why South Africa's Renewable Independent Power Producers programme, which has awarded over 4,000 MW of renewable projects in just over four years has been successful: South Africa's grid has the potential to produce 44,000 MW of power, so the renewables only account for about 10% of the total.

In Botswana, just across the border, however, the country produces less than 1,000 MW of power. Adding even 200 MW of solar power to the grid will create potential intermittency issues, so the government has to be very careful with its planning. That being said, there is also the argument that countries in sub-Saharan Africa are in a position to skip over developmental stages that the developed world took a long time to traverse, such as the early introduction of smart grids and net metering.

Given the limited amount of distribution and transmission lines available in sub-Saharan Africa, project developers have to bear the burden and expense of figuring out how to move electricity across long distances. Development institutions frequently step in to provide technical support through studies, expert advice, software or hardware for partner governments, or in some cases, through direct grants to build out support infrastructure such as transmission lines. In the best of cases, development institutions will work with host governments and the private sector to build the capacity of the local population to build, manage, maintain and operate projects and industries.

Where there is a lack of technical capacity within a local labour market, technical risk can be particularly difficult to mitigate, especially in countries with strict visa requirements or with stringent local content requirements. Many developing countries, while having the best of intentions of developing local capacity, end up shooting themselves in the foot by establishing strict requirements that scare off foreign investment. These requirements are intended to ensure that project developers and operators are not simply using the host country as place to create jobs for expatriates or to sell foreign-made goods without there being any skills transfer to the local population, but when they are overly burdensome or too expensive, the investments don't happen.

What many frontier market governments may not acknowledge, though, is that most companies – particularly those from the most developed countries – have determined on their own that they have a strong economic interest in training local staff and developing local value chains. Simply stated, expatriate staff, and all the security requirements that go along with ensuring their safety

and avoiding significant legal liabilities in the event that things go wrong, are expensive. The economic reality speaks for itself: mature international companies *want and need* to build local capacity to increase their profit margins.

Political risks tend to be much higher in frontier markets than in other markets due to weak government institutions, unpredictable justice systems, a sparse regulatory system, high levels of corruption and, in many cases, a relatively brief and unpredictable democratic history, if any. While many investors might worry about whether the government minister with whom an agreement was negotiated will be around a few months later or whether a subsequent government might renege on a deal, the worst case scenario for many is a war on domestic soil or a government coup, which are phenomena largely limited to the frontier markets.

Legal risks are linked to the maturity of the governance and legal framework in these frontier markets. They pertain to the enforceability of contracts and security, fairness and predictability of dispute resolution in country, land ownership system and clarity of regulation around procurement, among other things.

Financial risks generally are linked to whether there will be a sufficient funding stream to get the project from the concept phase to completion in a timely manner or whether the project itself ultimately will generate sufficient revenue to justify the investment. Many projects die because developers spend months and years lining up financing in small chunks. There is also the risk that while the project is being developed investors might decide to pull funding if they feel the likelihood of meeting their expected financial return is less than their tolerance for the project. Investors might either lose patience when there are setbacks or run into their own financial difficulties that might force them to pull back their investments.

The public sector can design products to help developers secure and streamline financing, which ultimately can bring projects online more quickly. At the early stage, financial modelling needs to be completed that evaluates the probability and project impact on everything from a country's expected macroeconomic trajectory and anticipated exchange rate fluctuations to the likelihood that a government off-taker will remain reliable or solvent. Unless other risks are mitigated, financial risks can be the most difficult ones to overcome.

Enabling more projects to go through the funnel.

The European Union's Electrification Financing Initiative (ElectriFI) offers great promise for public sector financing to complement private sector financing. In 2014, the EU provided grant-like funding to 21 hydro, wind, solar and biomass projects in Africa to bridge gaps. If the projects are successful, the grants will be converted into loans (at concessionary rates) allowing re-investment in new projects. These blended financing facilities are being done in support of the UN's SE4ALL initiative to enable universal access to modern energy services.

Site acquisition is yet another early stage risk that can have political, social, environmental and financial risks. Will there be a government expropriation of the land site? Is the title to the land truly free and clear, or will the cousin of a government official show up at some point in the future and claim some interest in the land? In countries with histories of expropriation and weak governance structures, site acquisition can pose a high risk.

De-risking projects at the early stage. One private equity fund gave the example of how a small amount of early stage capital (\$1-2 million per project) could significantly de-risk projects valued at hundreds of millions of dollars to the point that such a facility could have an exponential impact on the number of deals that make it to the point of bankability. When a private equity fund is looking at an investment, it often looks at the multiples of required investment associated with the initial equity investment and the eventual later stage equity and debt financing. Early-stage capital reduces these multiples and makes investments more attractive at an earlier stage, which can greatly expedite the project.

Project structuring and financing

Many investors will not go anywhere near a project until there is an agreement in place that provides for a future revenue stream, such as through a Power Purchase Agreement (PPA) from a creditworthy government entity. At this point, the financial structure itself is the primary risk. The project developer needs to obtain the necessary debt and equity. New investors will take a fresh look at many of the same risks that were considered at the feasibility study stage. In the case of power deals, just because a developer has a signed PPA does not mean that the project will ever move forward or that the government will, in fact, ever purchase the power.

Once a project appears to be more likely to proceed after a PPA is signed, there is an increased risk that the local community's interest in the project will increase. Project developers can suddenly find themselves engaged in tough negotiations with local communities and politicians, seeking to ensure that the community will receive the maximum benefit from the project.

The cost of those demands can be significant and can impact the financial structure of the deal itself. While developers should price the cost of these mitigation efforts into the deal, development institutions with a long history in a particular country can play a critical role in helping the project developer learn from previous experiences. Generally, it is important for the development institution to play a neutral role in the resolution of these types of disputes, but the development institution can play a helpful role in bringing the parties to a dispute together. However, it is best when the host government leads the process and when community engagement starts early to avoid disputes and so that community expectations can be priced into the cost of the deal. While meeting those expectations can be expensive, project delays due to community disputes can quickly grow into destabilizing and lengthy political disputes that can be even more expensive or even fatally toxic to a project.

Project developers also can find that despite the fact that they have a signed agreement with one government entity, other government entities, including the legislature, may need to provide approvals. While development institutions can provide general advice regarding the necessary government approval processes, most development institutions will not get involved in the internal politics of a particular country unless there is a compelling reason to do so.

Beware the legal clause

In one frontier market where more than a dozen lenders were involved in a major infrastructure project, a senior host government official insisted that certain legal disputes be resolved in accordance with local law and in local courts. While such a position might not only be acceptable but even standard practice in many countries throughout the world, this official's position threatened to derail not just this particular deal in a country that suffers one of the worst reputations for corruption in the world, but also to derail future projects as well.

While it is conceivable that some lenders with a greater risk appetite might accept such a clause, others will not. One might argue that the host country will never be able to improve its reputation if not given the opportunity to demonstrate that its laws and judicial system can work. However, the practical reality is that the perceived risk associated with this particular legal clause is too great for certain lenders to overcome. If the deal were to have collapsed over a single legal clause, not only would other existing projects potentially collapse, but other projects waiting in the wings for development will be delayed too, and robbing millions of people access to infrastructure.

From financial close to breaking ground

Prior to financial close on a project, there often are many conditions precedent that must be completed before a project can proceed. These conditions precedent can be regulatory or technical in nature and include licensing requirements, legal approvals from government officials, sometimes legislative approvals, and additional environmental and social studies. Securing these approvals can drag on for months, if not years. And the risk of getting shaken down by a corrupt government official at this point can be debilitating given that all the pieces may have fallen neatly into place, only to be held up by what would seem to be routine government approvals.

Having involvement from public sector institutions can be helpful in overcoming corruption given that these institutions can apply political pressure at the most senior levels within government in the frontier market without significant fear of retribution. One private company that is a partner in the US government's Power Africa initiative, which aims to double access to electricity in sub-Saharan Africa, revealed that since his company became part of Power Africa, the company was not once approached for a bribe. He noted that officials in the frontier market knew that the US government would not stand by idly and watch a priority project get derailed by corruption.

Conditions precedent can also include the building out of supporting infrastructure on which the project will depend (e.g. transmission lines to support a new electricity generation facility), which also have their own risks given that they are projects themselves.

Solving community disputes

Community disputes can occur along any stage of the project timeline. For example, a large wind project in Africa promised to be the first one in its country. Just as the project was getting ready to break ground, however, certain community members began protesting issues having to do with the land setback of the project. Not only did the protests eventually become violent, but the delays associated with the project resulted in significant financial losses as the project used up its equity in the absence of sufficient debt financing.

Senior government officials have worked diligently to resolve the dispute given the importance of the project to the country, and many other parties, including the public sector, have become involved in trying to identify ways to mitigate future disputes, while also trying to keep the project on track due to financial losses. Investors turned to the government to help mitigate the losses, and all the parties involved (including the equipment suppliers whose wind turbines were sitting in customs) have suffered financial losses. While many parties are working together to try to find a resolution and to keep the project on track, the project has been delayed.

Project construction to completion

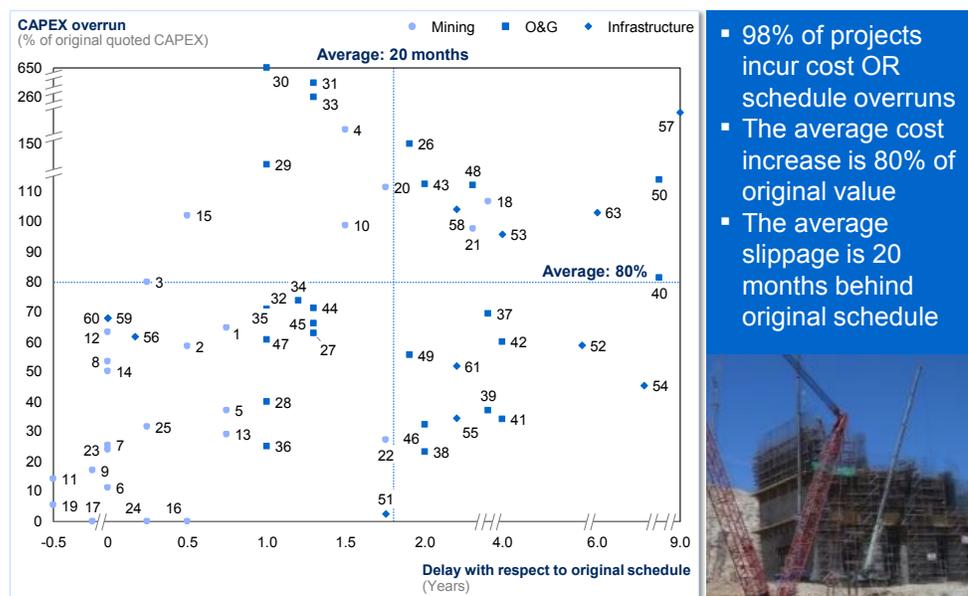
Every politician wants to be present when that first shovel is put into the ground of a major project. The only better photo opportunity is actually being there when the switch is flipped. But a lot can go wrong during this time period. Unexpected delays, unanticipated expenses and cost overruns, political and social unrest (including labour strikes) and force majeure (including storms, disease, drought, terrorism, etc.) can cost projects billions of dollars and lead developers to try to renegotiate the terms of the deals they struck.

Recent McKinsey research identified that most sectors struggle with delivery of projects within budget and schedule (Exhibit 2). The typical reasons that were identified are internal factors (e.g. change of scope and poor contractor performance), project linked factors (e.g., socioeconomic challenges and environmental and regulatory complexity) and external factors (e.g., inflation, foreign exchange, labour costs and force majeure)

In other cases, host governments renege on their maintenance obligations and use a company as a political football, trying to force the company to undertake maintenance and operations obligations that the company never contracted to undertake. Otherwise, the company may face reputational or financial harm within the country when the government does not treat it fairly. Under the worst circumstances, developers and investors can decide to cut their losses, pack up and go home.

Exhibit 2 - Even sectors that build a lot struggle with on-time, on-cost delivery of large investment projects

ESTIMATES BASED ON BEST AVAILABLE DATA



SOURCE: IHS Herold Global Projects Database (Nov. 19, 2013); Companies' public annual reports; press releases

Because these types of risks are easier to identify and isolate, there are a well-developed series of commercial and public tools available such as performance bonds, seller development bonds and other insurance products. For years, these types of risks have been “priced” and there are a wide variety of products available.

Where the private sector has been unable to offer a tool at a palatable price to mitigate a particular risk, public institutions often step in. Sometimes, the cost of the risk simply is too great, such as in the construction of a multi-billion dollar infrastructure project in a frontier country emerging from war with a fragile new government. For this reason, development finance institutions such as the Overseas Private Insurance Corporation offer products that mitigate against political risks. Public insurance tools place huge sums of public funds at risk. Consequently, the institutions offering these tools need to demonstrate a benefit to their own constituencies, and they typically demonstrate this benefit by linking their investments to companies from their own country.

The first few years of operations

On that big day when the flip is switched or the first car drives on a new highway, everyone celebrates. But significant risks still remain. Just because a developer has a signed agreement that the government will pay its bills does not mean that the government will pay. The end users themselves may not pay, and the host government may not have the political will to take action against those who do not pay their bills. And even when end users are paying their bills, they may not be paying enough to cover the actual costs associated with the project itself.

Fuel prices can unexpectedly escalate without a commensurate increase in tariffs to offset the new costs; or fuel prices can suddenly decline, which can quickly drain the coffers of oil and gas-rich countries that depend on those revenues to service debts. The host country's currency can fluctuate leading to unexpected losses if the tariff is not indexed. Costly accidents can occur, and the threat of war, political violence or a new government that seeks to renegotiate the deal can be

just below the surface. People also steal electricity and refuse to pay taxes, if they are taxed at all.

Tools that can be used to mitigate some of these risks include sovereign guarantees and partial risk guarantees. Many governments in frontier markets will not offer sovereign guarantees for a variety of reasons, with one key reason being that the guarantee would count against International Monetary Fund debt limits. For this reason, there are creative tools available such as put call/option agreements that force the host government to purchase an asset at an agreed upon price if there is non-performance and that likewise, require the developer to sell that asset at an agreed upon price to the host government if the developer fails to perform.

There are a wide variety of insurance products (both private and public) also available to mitigate against other more common risks such as political violence, accidents and equipment failure. Companies themselves typically build working capital reserves and maintenance escrow accounts into their projects to mitigate against more predictable risks such as maintenance and unexpected pricing changes. Once a project in a high-risk investment climate begins generating revenue, the higher rates of return associated with the deal itself can help companies better finance such risk mitigation tools.

The private sector and governments are starting to manage risks with new tools. Smart metres can reduce the theft of electricity dramatically, while simultaneously reducing the costs to consumers. Focusing on technological improvements in the grid to reduce technical and non-technical losses reduces the need for a significant tariff increase if any at all.

While development institutions can provide technical and political advice for loss reduction and energy efficiency strategies, the private sector and governments themselves understand the cost savings they can achieve. So naturally, the market for these types of products is growing rapidly even without needed intervention from development institutions. For example, the government of one country in Africa claimed recently to have saved 30 MW of power on its grid by distributing \$1.5 million worth of LED bulbs – an excellent return on investment considering the cost associated with adding 30 MW.

The private sector continues to develop new insurance products as well because it sees that there is profit to be made and there is an evolving understanding of how to isolate particular risks. Such new tools include weather index insurance whereby a private insurance company can mitigate its own claim risk by selling a product in a broad range of geographical locations (e.g. similar to hurricane and flood insurance products).

Missing tools and risk reallocation

The proper role of the public sector is to step in and help mitigate any risks that the private sector and host government either are unable or unwilling to mitigate. For public sector tools to be effective in ensuring the long-term sustainability of particular sector, it must be clear that most of these tools are meant to merely bridge market imperfections with the goal of having the private sector ultimately come together with the host government to make bankable deals happen.

But there are many pitfalls where development can go wrong:

Crowding out the private sector with grants and giveaways. The public sector goes wrong when others become dependent on its tools and refuse to proceed with an otherwise financially viable project until the public sector's "free money" becomes available. For example, where two different donors have projects with the goal of providing solar panels for businesses and one donor is "granting" the solar panels, while the other donor is providing financing for the purchase of the solar panels, businesses are going to wait for the grant. A grant threatens to crowd out local sellers of solar panels who might operate on thin margins. When the donor purchases panels in

large quantities offshore for distribution, the local businesses miss out on an opportunity to build credit with a local financial institution or may even go out of business.

Creating dependence, while destroying the market for private sector investment. When development institutions or governments intervene through grants, concessional loans, or subsidies to force the numbers to work on a project, they often do a disservice to the long-term sustainability of the market itself. In one country, it is estimated that there are more than \$1 billion of donor funds available to support power projects in a country with less than 100 MW of generation and with very little private sector investment; at one point, there was not even a law to permit private sector investment. The frontier market's government had little incentive to create an environment for private sector investment so long as donor funds continued to pour in.

Pushing the private sector to make hasty decisions. Recently, one public institution has been providing grants to offset the risks associated with early stage drilling for geothermal wells in East Africa. The recipients of these grants of millions of dollars each initially were required to drill within one year of being selected. During the first year, very few grantees actually drilled because they were continuing to work through technical and financial issues with their projects. While time limits are critical, there are other ways to ensure that developers are progressing on their projects without forcing them to drill early or lose funds. Nevertheless, if there were to be continued pressure to drill or lose the grant money, there would be a significant risk that the drilling would not take place in the best locations, and if there is a "miss" during the drilling phase, an entire country could suffer reputational harm due to a perhaps incorrect perception that the geothermal resources in that country are not of high quality. One "miss" should not taint an entire country, but the practical reality is that as investors are looking for new opportunities in new markets in new sectors, that one "miss" can be all that it takes to get an investor to look elsewhere.

Getting stuck in the same routine. Many development institutions and multilateral development banks continue to offer the same products that they have been offering for years despite the fact that the private sector likely could sell these tools. The fact that these institutions come under increasing pressure to demonstrate that they are not costing their constituencies a lot of money often leads them to focus on their most profitable products. These institutions sometimes even finance other operations through the revenues generated from the profitable tools that they sell.

The fact that multilateral development banks and development finance institutions (DFIs) have been in the political risk insurance business for many years and generally claim that they do not operate at a loss suggests that the private sector perhaps might be able to sell some of these products instead and that perhaps the DFI should consider selling off some of their investments to the private sector sooner. In fairness to DFIs, however, there are many reasons why the private sector has not developed some of the risk management products that DFIs offer. Namely, DFIs have access to subsidized funding that allows them to "claim" a profit.

A key challenge remains with some public sector tools being tied to investments from the country offering the product, as a way of creating jobs and supporting industries in the country offering the product. While there is increasing agreement worldwide to "untie" assistance and financing, the practical reality is that several key countries have not and do not intend to do so any time soon. Consequently, eliminating these "tied" product lines can place one country's companies at a significant disadvantage when competing against companies from other countries that continue to offer these types of subsidized insurance and financing products for their companies.

Developing new tools

The public sector must continue to develop new tools in response to the increased demand from investors worldwide for bankable infrastructure projects. There are a lot of good ideas and a lot of funds available for investment, but investors do not perceive that there are enough bankable projects to satisfy their appetite for investment.

In addition, there are many opportunities for the private sector to step in and offer tools that will allow public sector funding to stretch further, while also creating new private sector commercial products. Donor grant funds might be better utilized to help subsidize the development of private sector risk mitigation tools, such as insurance products.

For example, if there is a 30% risk in a given country that a geothermal well will not prove to be productive, then donors might consider subsidizing the cost of the insurance premium to help encourage private investors to share the risks. With \$15 million in donor funding to cover 50% of the insurance premium (where the premium is 30% of the covered amount), a donor might leverage \$100 million in coverage for geothermal drilling risk – perhaps a much better use of limited donor funding, while also stimulating the creation of a private market for insurance products.

Another approach might be for donors to layer in a first loss tranche in the insurance pool, so if a claim is made on the policy, the donor money would be paid out first. This approach could make the market more attractive to insurance companies and positively impact premiums. Using grants to catalyse private sector money as a means of risk sharing is becoming increasingly common.

Existing blending facilities like the European Union-Africa Infrastructure Trust Fund uses donor money to share risk and catalyse investment. The type of support under this facility includes both interest rate subsidies for medium/long-term project loans, as well as grants to decrease the overall investment costs for financing social or environmental components of a project. The EU's new "Electrify" facility is working to convert loans into subordinated debt as a risk-sharing mechanism for rural electrification investments from private sector.

Other "new" risk mitigation tools could include currency or foreign exchange guarantee facilities and private insurance covering political risk and country credit.

How Risks Might be Better Allocated Along the Risk Timeline:

A key goal of the public sector is to use its limited funds to help bridge the market imperfections that prevent the private sector from offering tools themselves. But, when these public institutions, despite the best of intentions, offer products that the private sector could offer, they slow down and even can reverse development.

The public sector needs to rethink its role in helping infrastructure deals advance. Tools could include having third parties, including donors, provide independent financial oversight and auditing to reduce the risk of corruption and bribery during the implementation of a project. However, third-party oversight does not always work when a host government does not respect or otherwise interferes with the arrangement, as often is the case. At the end of the day, the host government has the home field advantage and can undermine even the best negotiated risk mitigation arrangements.

But, it also has become increasingly clear that the public sector can play a greater role at the earliest stages of transactions to help jump start investments and the deals themselves. The public sector is best equipped to absorb the losses associated with early-stage investments.

Sometimes the role is simply one of convener. And, development institutions can continue to play the role of technical assistance provider to build the capacity of frontier market government officials so that they negotiate deals on a level playing field with multinational companies and so that they can manage their own resources.

Generating new deals

Power Africa's African Clean Energy Financing (ACEF) Facility initially was created in part to help the US government meet its global climate change goal of leveraging financing for clean energy investments. The US government's Overseas Private Investment Corporation and the US Trade & Development Agency provided over 30 renewable energy projects with a total of \$20 million in grants to help advance the projects. Collectively, these projects offer the opportunity to leverage over \$4 billion in financing for approximately 1,000 MW of clean energy.

Based on the success of this oversubscribed facility in identifying new deal flow, Power Africa is looking at how this model can be replicated and expanded. One of the keys to Power Africa's success is its approach of working with partner country governments and with individuals in the community to build their capacity to enter into fair and sustainable partnerships with the private sector to bring electricity to millions.

Negotiating sustainable deals

One reality of infrastructure deals is that many lawyers often take a lot of time and get paid a lot of money to negotiate the critical legal agreements that make projects sustainable. In many frontier markets, the host government lawyers do not have the experience or the training to be able to negotiate a fair deal with a large multinational company. To help build this capacity Power Africa and the African Development Bank's African Legal Support Facility are providing host governments with access to international, high-quality legal counsel to represent these governments when negotiating power deals. That assistance is directly tied to requiring the international law firm to train local lawyers to negotiate future deals. The international firms recognize that by getting involved in these transactions in these countries, they are not working themselves out of jobs, but rather are building partnerships that will generate new workflow for them in the future.

In addition, Power Africa brought together some of the top public and private sector energy sector lawyers in the world with African government lawyers to draft an annotated guide to negotiating power purchase agreements (PPA). The guide looks at key contractual clauses from the perspective of not just large international companies and banks, but also from the perspective of the partner governments. This treatise is designed to build capacity and ensure that all parties to a PPA are negotiating from a level playing field so that fair deals can be negotiated and that the deals will survive future government administrations.

Conclusion

There is almost limitless potential for infrastructure development projects in frontier markets throughout the world, and this limitless potential is matched by the trillions of dollars of private capital looking for a place to invest to build, operate and own these projects for the benefit of the governments and populations in these frontier markets. Only risk or the perception of risk holds these projects back. To the extent that public sector institutions such as multilateral development banks, development finance institutions, export credit agencies, development organizations, and regional and bilateral donors can work hand-in-hand with the private sector and partner governments to mitigate these risks, or at least reduce the perception of risk, these projects will advance and lift hundreds of millions out of poverty. To achieve this goal, however, public sector institutions must look critically at the risk mitigation tools they currently offer and think creatively to come up with new tools to help bring more projects to the point of bankability.

Appendix

Typical risks and possible mitigation tools along a project lifecycle

Risks	Mitigation Tools
<p>Early stage</p> <ul style="list-style-type: none"> - Insufficient published data to model risks or establish demand - Failure to obtain permits or other governmental approvals - Public opposition to the project - Lack of creditworthiness - Development of competing projects - Unavailability of needed inputs on financeable terms, such as raw material, fuel and water - Effects of the project on the environment and indigenous people - Political risks (i.e. pending elections, political instability in neighbouring jurisdictions, etc.) - Unavailability of political risk and commercial risk insurance - Changes in law - Lack of government track record in similar projects - Lack of overall business infrastructure - Weak state-owned enterprises (for example due to poor billing or collection systems) - Non-cost reflective tariff (political determination) 	<p><i>Private sector tools</i></p> <ul style="list-style-type: none"> - Involvement of host-country lenders and investors with local knowledge and experience - Setting up a joint venture which might include a local company or a political and developmental climate of the host country to provide local expertise or understanding of governments and financial institutions <p><i>Host government tools</i></p> <ul style="list-style-type: none"> - Host government guarantees or undertaking - Obtaining monetary board or central bank approvals <p><i>Public sector tools</i></p> <ul style="list-style-type: none"> - Engaging with the public through a public participation process - Involvement of local communities in the project - Country risk wrap from a relevant multilateral agency, development financial institution or export credit agency
<p>From agreement to financial close</p> <ul style="list-style-type: none"> - Inability to negotiate financeable agreements or concessions with the host country - Limited capacity of local legal, financial, technical and other consultants - Limited innovation 	<p><i>Private sector tools</i></p> <ul style="list-style-type: none"> - Setting up a joint venture with diverse companies with diverse skills and expertise to provide the framework for accelerating the negotiation process with governments and financial institutions - Establishing currency reserve accounts - Entering into currency hedge agreements - Involvement of host-country lenders and investors <p><i>Host government tools</i></p> <ul style="list-style-type: none"> - Host government guarantees or undertaking - Obtaining monetary board or central bank approvals <p><i>Public sector tools</i></p> <ul style="list-style-type: none"> - Offering grant-like funding to bridge financing gaps for a larger pool of projects

Risks	Mitigation Tools
<p>From financial close to breaking ground</p> <ul style="list-style-type: none"> - Price changes caused by currency fluctuations or inflation - Material shortages - Political risks - Currency risks - Expropriation - Changes in legal framework 	<p><i>Private sector tools</i></p> <ul style="list-style-type: none"> - Maintaining cash flow flexibility and reserves to cover currency fluctuations - Establishing currency reserve accounts - Entering into currency hedge transactions <p><i>Public sector tools</i></p> <ul style="list-style-type: none"> - Subsidization of insurance premiums - Providing mechanisms to improve oversight and ensure transparency
<p>From breaking ground to commissioning</p> <ul style="list-style-type: none"> - Price changes caused by currency fluctuations or inflation - Political risks - Currency risks - Changes in legal framework (e.g. tariff regime) - Necessity of a change in the work that is not contemplated in the construction price (i.e. change necessitated by technical design refinements) - Construction delays - Material shortages - Design changes required by law - Strikes 	<p><i>Private sector tools</i></p> <ul style="list-style-type: none"> - “All risk” insurance - Marine transportation insurance - Performance bond - Development bond - Maintaining cash flow flexibility and reserves to cover currency fluctuations - Establishing currency reserve accounts - Entering into currency hedge transactions <p><i>Public sector tools</i></p> <ul style="list-style-type: none"> - Subsidization of insurance premiums - Providing mechanisms to improve oversight and ensure transparency
<p>During operations</p> <ul style="list-style-type: none"> - Decrease in the availability of raw materials or fuel or a decrease in demand for the output of the project - Increase in price of raw materials or fuel - Technical problems - Inflation - Foreign exchange rates and convertibility - Transfer of exchange out of the host country - Strikes and other production risks - Supply risks (including electricity and water supply) - Regulatory changes - Political changes - Uninsured losses - Management inefficiencies 	<p><i>Private sector tools</i></p> <ul style="list-style-type: none"> - “All risk” insurance - Property casualty insurance - Liability insurance - Business interruption insurance - Escrow accounts - Working capital reserve - Gas supply guarantee - Maintaining cash flow flexibility and reserves to cover currency fluctuations - Entering into currency hedge transactions - Establishing offshore collateral account - Receipt of performance warranties from contractors - Independent engineer’s confirmation compliance with standards

Risks	Mitigation Tools
<ul style="list-style-type: none"> - Permit risks within the control of the government, such as a permit revocation, failure to renew permits and imposition of adverse terms - Expropriation risk (including creeping expropriation risk, by which the host government uses a combination of taxes, fees and other charges and devices to increase its share of the project's profits) 	<p><i>Host government tools</i></p> <ul style="list-style-type: none"> - Sovereign guarantee - Put call/option agreement - Indexed tariff - Obtaining monetary board or central bank approvals - Negotiate permit risk issues in implementation agreement with the host government <p><i>Public sector tools</i></p> <ul style="list-style-type: none"> - Political risk insurance (public agency) - Partial risk guarantee - Partial credit guarantee

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