

# FINANCIAL STRUCTURING OF INFRASTRUCTURE PROJECTS IN PUBLIC-PRIVATE PARTNERSHIPS A TOOL FOR DESIGNING FEASIBLE STRUCTURES<sup>1</sup>

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## INTRODUCTION

After twenty years, the approach to finance infrastructure investments in Latin America is coming back in its pendulum swing from mostly private towards a more public participation. The first part of the cycle was the shift from *étatisme* to privatization. The return of the pendulum is driven by decreasing enthusiasm about the private alternative, as suggested by opinion polls. The cycle started in the beginning of the twentieth century, when the majority of governments of the Latin American region viewed infrastructure as a special kind of service requiring government ownership and management. Infrastructure was consecutively presented as a natural monopoly, a public good, a prerequisite for development, or a citizen's entitlement. Private participation or ownership of infrastructure projects was exceptional and not even considered as a serious choice. With a few exceptions, Latin American public utilities were poorly managed and unable to recover cost of service. The provision of other infrastructure services -mainly transportation- was biased toward building new assets (at maintenance's expense). Fiscal pressures mounted due to the combination of bailouts of government-owned utilities, cost overruns of civil works and the extra costs of rebuilding assets that were improperly maintained. By the end of the eighties, the *étatist* model of public infrastructure provision had collapsed in most of the region's countries.

Coinciding with this crisis, the theory of economic incentives reached its pinnacle. Private participation in infrastructure looked appealing and somehow inevitable. On the positive side, the Latin American region pioneered the attraction of private participation in infrastructure, accounting for about half of the total US\$786 billion investment in developing countries between 1990 and 2003. Technical studies show that, on balance, privatization and other forms of private participation have had a positive contribution to welfare, in spite of its implementation problems.

With the benefit of hindsight, we can say that over optimism and conceptual simplification pushed the private alternative across the board, even in circumstances where competition or independent regulation had little chance to deliver. Private participation in infrastructure declined steadily after 1998 (from US\$70.8 billion in 1998 to US\$15.7 billion in 2003), failing to make up for generalized public cutbacks in infrastructure that affected the region. Consequently, total investment in infrastructure has declined as well, yet the requirements look intimidating: infrastructure outlays of about US\$ \$117 billion/annum (about 6% GDP) would be needed for Latin America to reach Korea's current level of infrastructure per worker in 20 years.<sup>3</sup>

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<sup>2</sup> This paper draws on a more comprehensive version of an IDB publication jointly written by the authors with Peter D. Raymond, Darío Quiroga and Javier Marcus of PricewaterhouseCoopers (Vives et. al. 2006).

<sup>3</sup> Authors' calculations based on Fay and Morrison (2005).

The encouraging aspect of the swing's return is the acknowledgement that the alternatives to finance infrastructure cannot be reduced to the "private vs. public" dichotomy, as the discussion was often framed during the nineties. The irony of this admission is that conceptual simplification prevails, as the PPP label has been glued to a single mode of doing things, mostly driven by the British PFI model. A mix of confusion and high hopes about the role of public-private partnerships (PPPs) is everywhere, as well. In this paper we emphasize that the label PPP covers almost all arrangements as there is always some private and public involvement, PPP is a continuum of options that accommodate the public and private contributions. In this paper we emphasize the different structures that must be devised to encompass the relative participations of each party and emphasize the need to match these participations to project characteristics, local context and financial arrangements. This is crucial to clarify the scope of PPPs, calibrate expectations and withstand the pressures of returning to the mistakes of the *étatist* scheme as a response to the social discontent faced by the real or perceived failures of privatization.

### **PPPs AND THE LIMITATIONS OF LOCAL CONTEXT**

Arrangements between public and private actors to deliver a wide variety of services have been used for a very long time. The Roman Empire and medieval kingdoms frequently appealed to external funds and expertise to build and maintain their roads and waterworks (Magnusson 2001). Since the 17<sup>th</sup> century, France has used concessions to privately fund infrastructure (canals being the first works financed this way). In the early years of the Republic, the US relied on private turnpike companies to construct highways operated as toll roads.

The list of historical examples is full of variety and adaptation to specifics. Contrastingly, the current wave of enthusiasm about PPPs suffers from the "one size fits all" syndrome. In the most widely publicized version of PPPs, originated in the United Kingdom with the Private Finance Initiative (PFI), a government contracts with the private sector to deliver services on its behalf. A private sector firm selected competitively is sometimes created to provide these services, which often involves building new infrastructure. The firm has to build, operate, maintain and finance the asset, and provide the service for the long term in exchange for recurrent payments from the public sector. At the end of the contractual period the operation of the asset reverts to the government.

But this first-best, plain vanilla variety of PPPs will only deliver under very stringent conditions:

- First, there must exist sufficient public funds for the government to comply with its payments schedule, with almost no risk of default.
- Second, the rule of law, represented by the judiciary system, regulatory institutions and the dispute resolution mechanisms must be solid enough to minimize the chances of *ex post* opportunistic behavior.

These circumstances do not generally exist in developing countries, where contracts have been breached, arbitrarily changed during the life of the contract, or, very frequently, renegotiated. Most risks are considerably larger and the mitigation tools relatively less developed. Additionally, the vagaries of the budget process are often translated into fund reductions for new investment and maintenance of public assets. The plain vanilla variety of PPP overlooks outright and creeping

expropriation risks, inability to adapt to changing circumstances and public payments credibility; and it is of little help to develop high impact projects in difficult contexts.

The importance of local conditions on modality choice is shown clearly in the observations of Rodrik (2004) made with regard to the vigor of private investment in China:

Private entrepreneurs were effectively partners with the government. In a system where courts cannot be relied upon to protect property rights, letting the government hold residual rights in the enterprise may have been a second-best mechanism for avoiding expropriation. In such circumstances, the expectation of future profits can exert a stronger discipline on the public authority than fear of legal sanction. Private entrepreneurs felt secure not because the government was prevented from expropriating them, but because, sharing in the profits, it had no interest to expropriate them.

As it is clear, a financing mechanism requiring eventual recourse to the legal system (a BOT scheme, for example) would likely fail in this context, even in the presence of strong risk mitigation tools.

In this paper we present the continuum of financial solutions available by examining the conflicts that the private and the public sectors face under various configurations of local conditions that have a significant impact on the investment decisions, and including the application of risk mitigation tools.<sup>4</sup> The approach and tools are meant to serve as a guide to assisting governments and investors in evaluating different options to establish a successful public-private partnership, considering the political and economic realities of each country and within the feasible risk mitigation tools that can be implemented. The principles and analyses presented here, while comprehensive, cannot be considered to cover all possible cases. They are still being researched and refined, thus, feedback and comments are encouraged.

Even though the setting of the paper originates in the water and sanitation sector, the framework is by no means restrictive in scope and could be deployed in other infrastructure sectors. We chose the application to the water sector as we considered it to be more complex, because of the wide ranging political implications of the service and also because many of the projects tend to develop at a sub-national level where complications are even larger. The application to energy and transportation would then be a simpler solution than the ones presented.

The following definitions will be used in this paper. *Local conditions* or *variables* refer to specific components of a country's or an area's business climate that have a significant impact on the conditions for investment and investment decision making. Throughout this paper we will assume that *local conditions* are fixed in the short run, but could change in the medium term as a result of improvements in the business climate and/or the quality of institutions. *Modalities* or *project modalities* refer to the spectrum of public to private participation alternatives that could be applied to finance a given project. *Tools* refer to instruments that could be used with the *modalities* to mitigate specific risks. *Project structure* refers to the specific combination of *modalities* and *tools*

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<sup>4</sup> In doing so we substantially extend the basic analytical framework drafted by Benavides and Vives (2005).

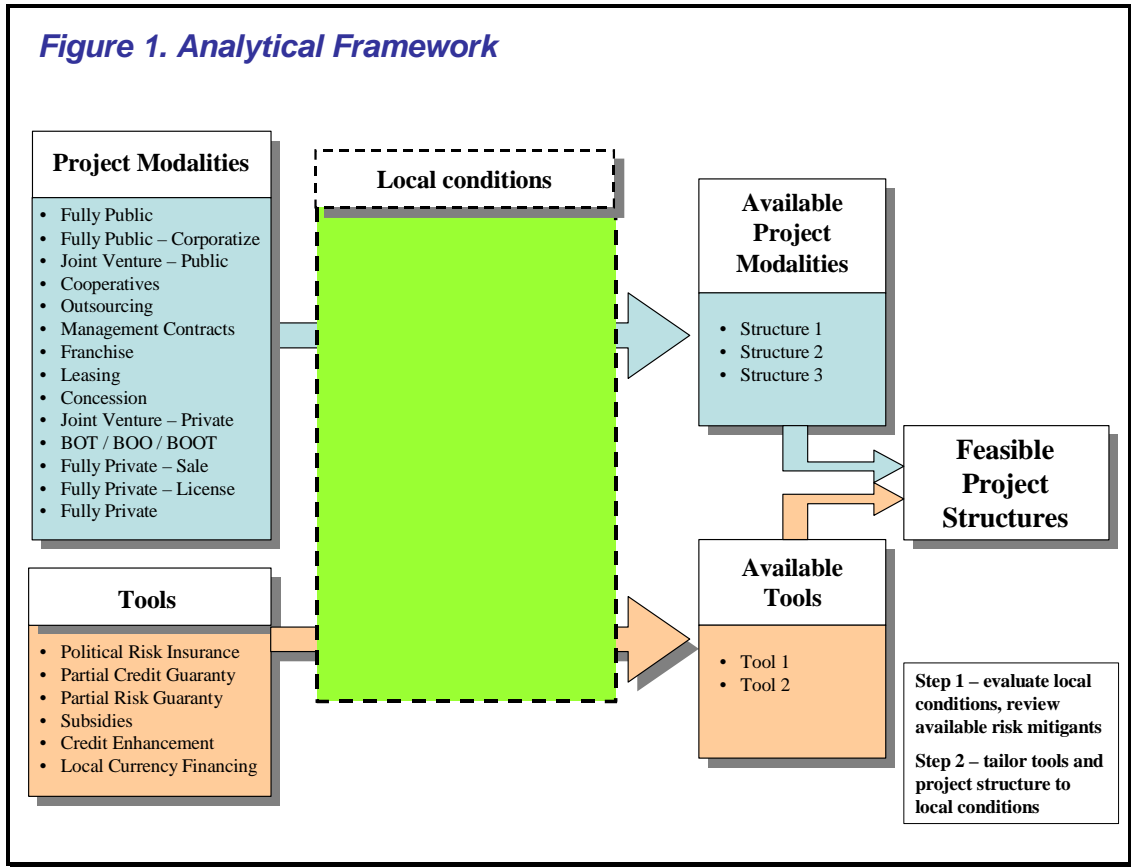
(when they can be instrumentally combined) in a given project to better cope with the risks and threats posed by the *local conditions*.

### **A NEW ANALYTICAL FRAMEWORK: PRINCIPLES**

While many conditions affect an investor's willingness and ability to participate in infrastructure investments, three factors have generally had a significant impact on the success of such involvement. These are: the presence or absence of local conditions favorable to investment, the type of modality used and the application of risk mitigation instruments.

The analytical framework depicted in Figure 1 shows how these three critical components can interact at a high level to shape a successful project structure. Simply put, local conditions dictate much of what can be successfully accomplished in any given country or project. Many projects have failed by ignoring the full extent of local conditions. The modality used to set up the project and the risk instruments available must address issues raised by the local conditions. A careful analysis of such conditions, therefore, is the starting point for determining which modalities may be successful. Risk mitigation tools may then expand the range of possible modalities by mitigating risks that are raised in the local environment. The absence or underdevelopment of some risk mitigation tools can make some project modalities unfeasible.

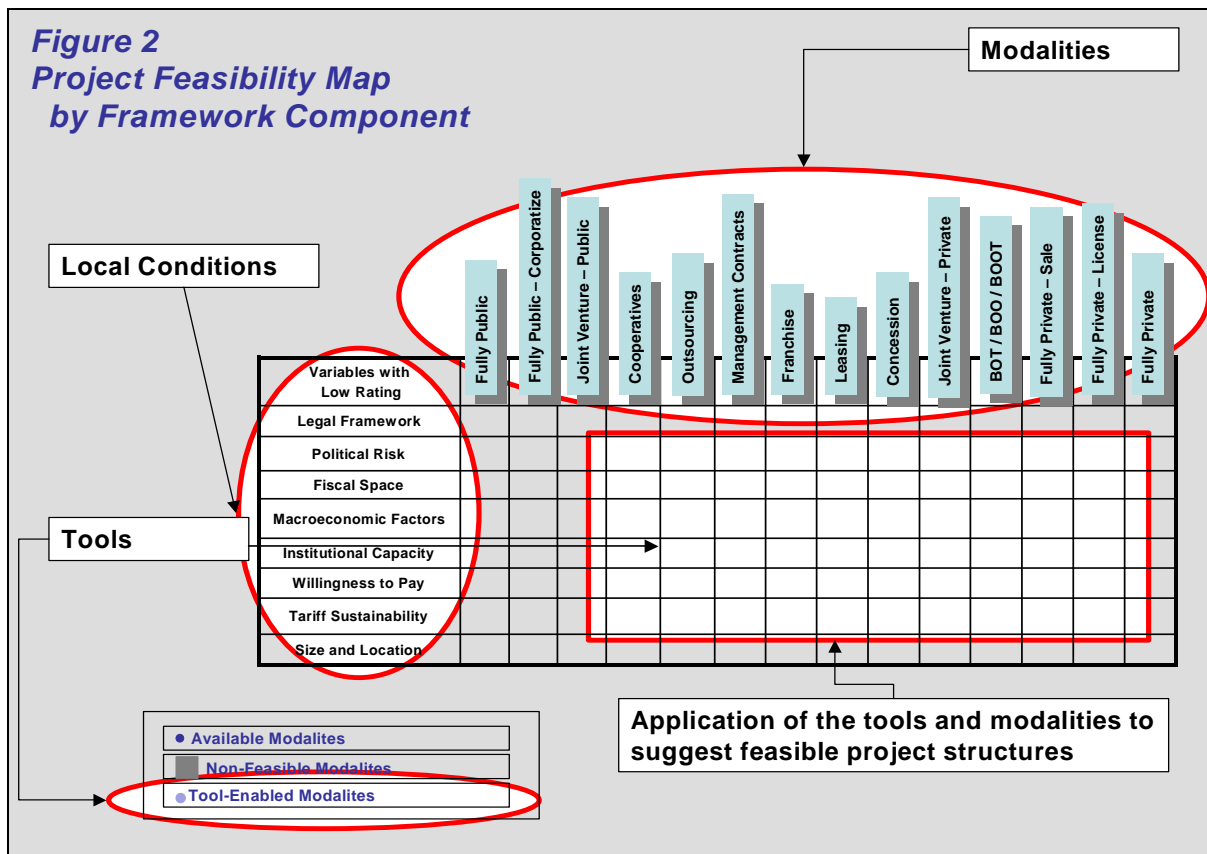
A great number of failures in investments in infrastructure, particularly in water and sanitation, can be attributed to the application of financial structures, mostly imported from other environments, without paying due attention to the *local conditions* described in this paper, taking for granted or severely underestimating their impact on the success of the project. The analytical framework presented considers the feasibility of different *modalities*, given the prevailing, or likely to prevail, local conditions and classifies them as being feasible, non-feasible or feasible only with enhancements or risk mitigants (*available tools*).



The analytical framework developed in this paper provides a tool for conducting such analysis. It encourages the reader to assess eight key local conditions (or variables) that have been proven to have a high degree of influence on the success of projects. Other significant variables may exist and each investment evaluation should consider those most relevant for the investor and the country, locality and project. This guide also reviews PPP modalities (that is the mix of public and private sector participation) and their potential application under various local conditions. It also evaluates how risk mitigation tools can enhance modalities, making additional alternatives possible.

The analysis proceeds systematically. An assessment is made of the limitations that local conditions create for private investment in the sector. Project modalities are reviewed for fit with local conditions, and project enhancement or risk mitigation *tools* are assessed for application. A project feasibility map (see Figure 2) is also generated. The project feasibility map relates local conditions with project modalities, incorporating available tools to assess and evaluate the most likely feasible project structures.

Figure 2 shows a blank project feasibility map and provides a guide to the sections of this paper that address each component of the map.



## DESCRIPTION OF FRAMEWORK COMPONENTS

The core framework components of local conditions, modalities, and tools are described in brief here.

### LOCAL CONDITIONS (VARIABLES)

Eight variables have been identified as having a significant impact on the viability of projects. These are a country's legal framework, fiscal space, political risk environment, macroeconomic conditions, institutional capacity, the willingness of users to pay for services, the sustainability of tariffs, and the size and location of the facility. Some of these variables compound each other (i.e., legal framework and political risk) and should be analyzed accordingly. These variables are illustrative of the most common factors that apply to all countries and all sectors, but the user is encouraged to change them or their definition to suit the case at hand.

Figure 3 provides a brief definition of the variables and their areas of high impact using as an example a water and sanitation (WSS) project.

**Figure 3 Selected Variables**

Identified Variables	Defined in This Paper As	Area of High Impact
Legal Framework	The capacity of the courts, the body of	- Conflict resolution

**Figure 3 Selected Variables**

Identified Variables	Defined in This Paper As	Area of High Impact
	laws, regulation and complementary institutions (including the existence of alternative resolution mechanisms) to enforce contracts	<ul style="list-style-type: none"> <li>- mechanisms</li> <li>- Legal treatment of water, water infrastructure, and property rights, including collection rights and availability to enforce service suspension in the case of non-payment</li> <li>- Ability to seek recourse for breach of contract</li> <li>- Contract enforcement</li> </ul>
Political Risk	The likelihood that a project will be significantly affected by a change in the political conditions of a given country or municipality	<ul style="list-style-type: none"> <li>- Political interference with projects, including expropriation or partial expropriation breach of contract, transfer and convertibility issues</li> <li>- Collateral impacts due to civil unrest or war</li> </ul>
Fiscal Space	The financial capacity of the national and/or subnational entities to sustainably and credibly support a project.	<ul style="list-style-type: none"> <li>- Availability of public capital to expand service provision to new areas</li> <li>- Ability to finance ongoing maintenance of the infrastructure</li> <li>- Ability to support a project with a government funded subsidy stream</li> </ul>
Macroeconomic Factors	Economic volatility that includes the possibility of currency devaluations or high inflation as a consequence of international shocks or unsustainable macroeconomic policies.	<ul style="list-style-type: none"> <li>- Devaluation and other macroeconomic events that affect the economic viability of a project as well as its value</li> </ul>
Institutional Capacity	Institutional capacity refers to four general topics: (i) the existence of a reliable water regulator; (ii) its capacity to implement the regulatory framework; (iii) the quality of sector authorities to provide technical support to water firms; (iv) the prevalence of corruption in the country and water and sanitation sector.	<ul style="list-style-type: none"> <li>- The ability to set, enforce and monitor a rational regulatory regime, including the tariff regime</li> <li>- Lack of local capacity and technical knowledge that can limit the operations of the utility, or can affect how the project is implemented</li> <li>- Corruption levels affect accountability, transparency and trust, reducing investor confidence</li> <li>-</li> </ul>
Willingness to Pay	The beliefs and attitudes regarding water as a naturally free commodity; the acceptance of private services for utilities; and/or acceptance of foreign investment. This definition goes beyond the existence of an economic demand for water and sanitation.	<ul style="list-style-type: none"> <li>- Ability of service provider to collect and set tariffs on a cost recovery basis</li> </ul>

**Figure 3 Selected Variables**

Identified Variables	Defined in This Paper As	Area of High Impact
Tariff Sustainability	Consumer ability to afford the full cost recovery tariffs for water provision	<ul style="list-style-type: none"> <li>- Affordability of tariffs for consumers will have an impact on the long-term sustainability of a project and the method used for structuring it (i.e., to involve shadow tariffs, subsidies, output based aid (OBA), etc.)</li> </ul>
Size and Location	The effects of the size of a project and its location on decisions regarding asset ownership, project modality, exit strategies, and configuration of a specific project's structure	<ul style="list-style-type: none"> <li>- Size can affect access to investors and to business resources provided by a sovereign or subsovereign government</li> <li>- Location in urban, peri-urban or rural areas, can define the type of providers that efficiently supply water</li> </ul>



**Figure 4. Spectrum of Public to Private Options  
Allocation of Responsibilities According to Modality**

	O&M	Commercial Risk	Capital Investment	Asset Ownership	Duration
State Companies	●	●	●	●	Indefinite
Cooperatives	●	●	●	●	Indefinite
Corporatized Cooperatives and State Companies	●	●	●	●	Indefinite
Outsourcing	●	●	●	●	< 1 year
Generic Management	●	●	●	●	3 to 5 years
Franchising	●	●	●	●	
Leasing	●	●	●	●	8 to 15 years
Typical Concession	●	●	●	●	25 to 30 years
BOT	●	●	●	●	20 to 30 years
BOO	●	●	●	●	20 to 30 years
Divestiture by License	●	●	●	●	Indefinite
Divestiture by Sales	●	●	●	●	Indefinite
Private Supply	●	●	●	●	Indefinite

**Allocation of Responsibility**      ● Private   ● Public   ● Public and private

## PROJECT MODALITIES

Project modalities refer to the spectrum of public to private participation possible in a given project. Figure 4 presents this range and the allocation of responsibility between the public and private sectors under different modalities, as well as the typical duration of contractual arrangements with the private sector under that modality.

In general, with strong local conditions, greater private participation is possible as risks to investors and lenders tend to be lower. A strong capacity to enforce contracts, for instance, makes most of the tools for risk mitigation effective, and hence allows a broader range of project structures that can be arranged to suit the local conditions. With weak local conditions (including the ability to enforce contracts), private participation options will tend to fall into the type of self-enforcing agreements. An international WSS operator/investor may choose to pursue a management contract in one country and a concession contract in another due to very different investment conditions in each country. While they may prefer concession structures overall, they will not risk equity capital when conditions are not deemed suitable for that form of private participation.

## TOOLS

A number of risks can be mitigated through the use of risk mitigation instruments or tools. Figure 5 provides a list of some of the more commonly available tools and a short description of their uses.

**Figure 5 Selected Tools**

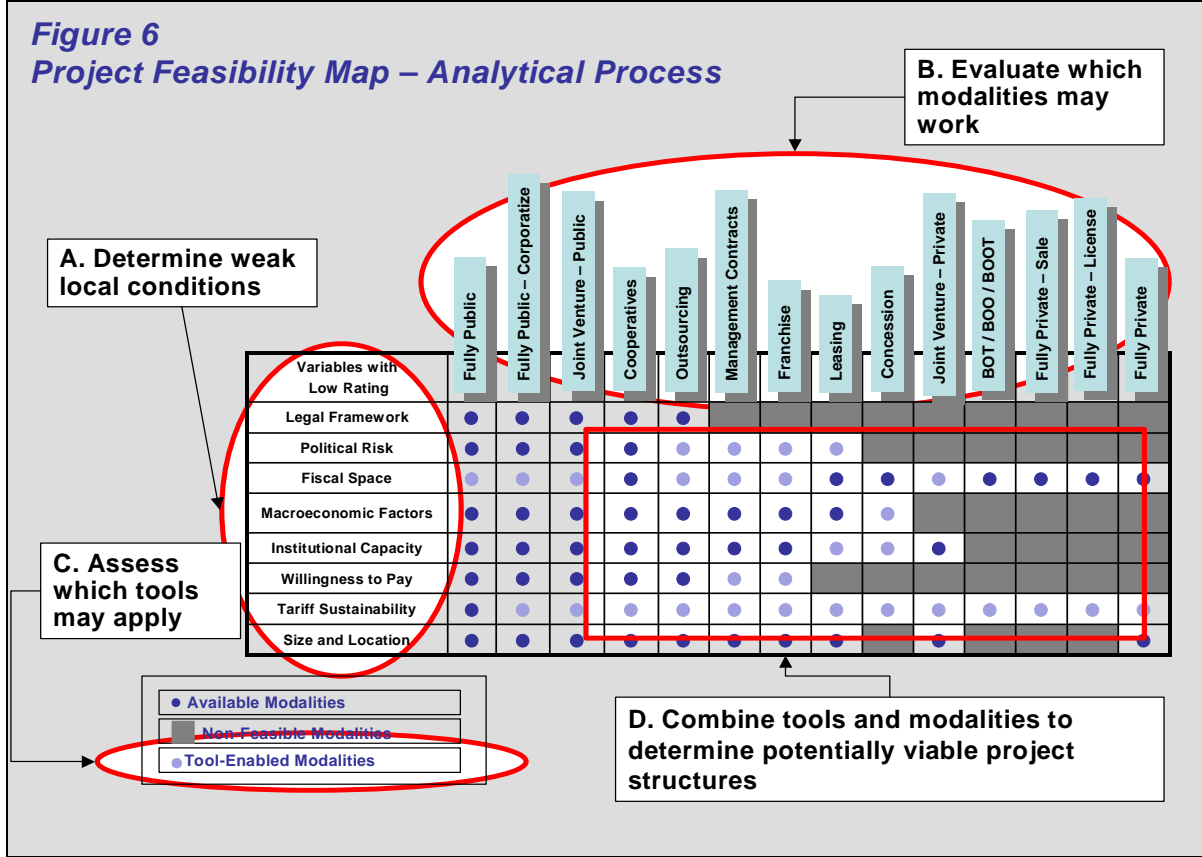
<b>Tools</b>	<b>Brief Description and Scope</b>
Political Risk Insurance (PRI)	PRI provides coverage against risks with respect to expropriation, political violence, and currency transfer and convertibility.
Partial Credit Guarantees (PCG)	PCGs are guarantees that represent a promise of full and timely debt service payment up to a predetermined amount (usually not the full value of the debt). Useful to address macroeconomic risks or lack of an appropriate fiscal space.
Partial Risk Guarantees (PRG)	PRGs are guarantees to mitigate risks associated with specific government counterparty uncertainties. They are issued by the multilateral development banks, which are counter-guaranteed by a host-country government.
Subsidies	A transfer from a government or development community to a provider or consumer to assist the water sector in providing a public need. Subsidies vary greatly in application. Four main categories include: international grants or output-based aid (OBA), special purpose funds, government subsidies and cross-subsidies. Subsidies help to mitigate lack of affordability or willingness to pay risks.
Credit Enhancement	The strengthening of a borrower’s balance sheet through insurance, guaranties, collateral and other means to facilitate financing/funding. Credit enhancement facilitates the ability of a provider to raise debt finance (reducing risks associated with the fiscal space) or raise other funds. Can also be used to increase credit capacity and improve borrowing conditions such as longer maturities that cover the life of a capital asset.
Local Currency Financing	The use of local currency to finance projects. Used to minimize the effects of currency devaluation on project sustainability by matching the borrowing currency with the revenue currency, and thus allowing for a more stable source of finance for projects that often have only local currency revenues (macroeconomic factors).
Arbitration Rules	The contract should contain various provisions for arbitration in the event of disputes between the provider and either the regulator or the corresponding government. Those rules could include the creation of an expert panel to analyze any disputes that may arise.
Off-take contracts	Contract between the provider and the government whereby the government guarantees a minimum purchase level. The agreement is a commitment to take or pay for a specific amount of water at a specified tariff. This type of agreement is commonly used in the construction of water treatment plants. It can be used to increase tariff sustainability by giving a minimum amount of revenue to the providers.

While not all these tools and instruments are available or equally applicable, their use can make a significant difference on the final risk profile of a project for a private participant. In fact, their application can enable more PPP modalities than might otherwise exist without them.

**CREATING THE PROJECT FEASIBILITY MAP – APPLICATION OF THE TOOLS AND MODALITIES FOR WEAK LOCAL CONDITIONS**

This section outlines how the framework components can be used to evaluate the potential viability of various project structures for a given PPP opportunity.

Figure 6 shows the analytical process that should be followed.



## ASSESS LOCAL CONDITIONS

The analysis begins with an assessment of the local conditions variables. A variable ranked as low (or weak) indicates that there are higher risks to a project. Higher risks associated with low local conditions ratings limit the number of feasible project structures possible.

A table such as the one illustrated in figure 7 may be used to score local conditions. Using publicly or privately available indicators of the quality of the local conditions<sup>5</sup> that investors feels more appropriate, they establish a standard minimal acceptable criteria for the local condition ("a" in the table below) and then evaluate the local condition as either "meeting/exceeding" or "not meeting" the criteria.<sup>6</sup> A score of "not meeting" the criteria would indicate a "weak" variable.

It is important to note that each investor will likely have his/her own interpretation of a minimum acceptable level, which will depend on risk appetite, country exposure and other factors. As an investor, however, the minimum level required should serve as a threshold marker for risk assessments. This may further be expanded to draw comparisons among other countries, localities or projects. For a project designer, the minimum level required could be used to select the operating

<sup>5</sup> Appendix A of the Vives et. al. (2006) paper gives examples of these indicators

<sup>6</sup> Some investors may prefer a scale to a binomial scoring system.

profile that it would like to have for the project, trying to mimic conditions that have successfully attracted investment in other countries or regions of the same country.

**Figure 7. Rating Variables with Indicators**

Variable	Indicator(s)	Minimum Level Required (a)	Local Conditions (b)	Rating or Perception of Local Conditions (a) > (b) = low AND (a) < (b) = high
Legal Framework				
Political Risk				
Fiscal Space				
Macroeconomic Factors				
Institutional Capacity				
Willingness to Pay				
Tariff Sustainability				
Size and Location				

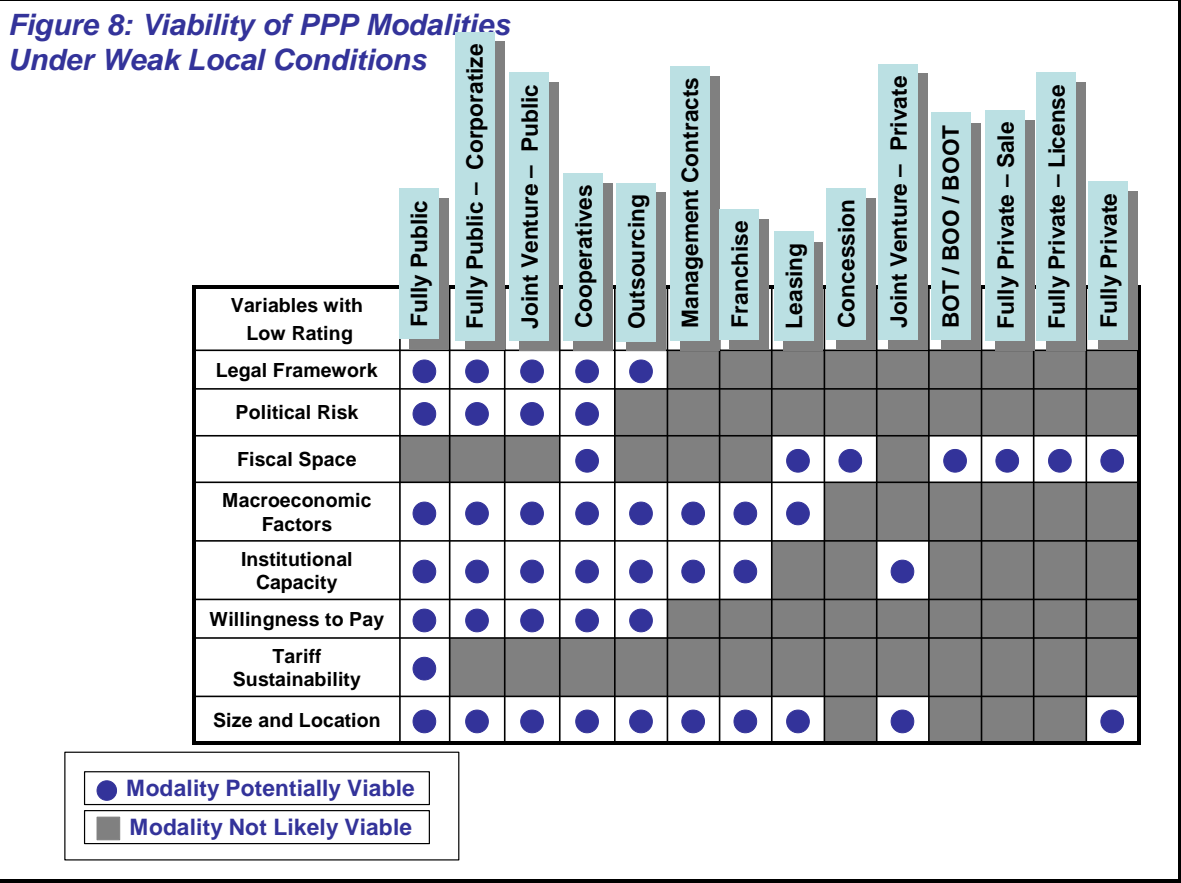
Each variable should be evaluated accordingly and a determination made as to which local conditions are viewed as weak and which not.

**EVALUATE WHICH MODALITIES MAY WORK**

After the initial assessment of the variables, project modalities need to be considered. While an investor or government may have a specific project modality in mind (for example, a concession), not all modalities will work successfully where there are weak local conditions.

Figure 8 shows which modalities are more likely to be successful (all other things being equal) when local conditions are considered weak. Reading vertically it can be seen that no modality, not even a fully public sector utility, is likely to succeed if all local conditions are considered weak.<sup>7</sup> But it can also be seen that there are a number of modalities that are more likely to succeed even when there are multiple weak local conditions.

<sup>7</sup> A box with a circle indicates a potentially viable modality even if the corresponding condition is weak.

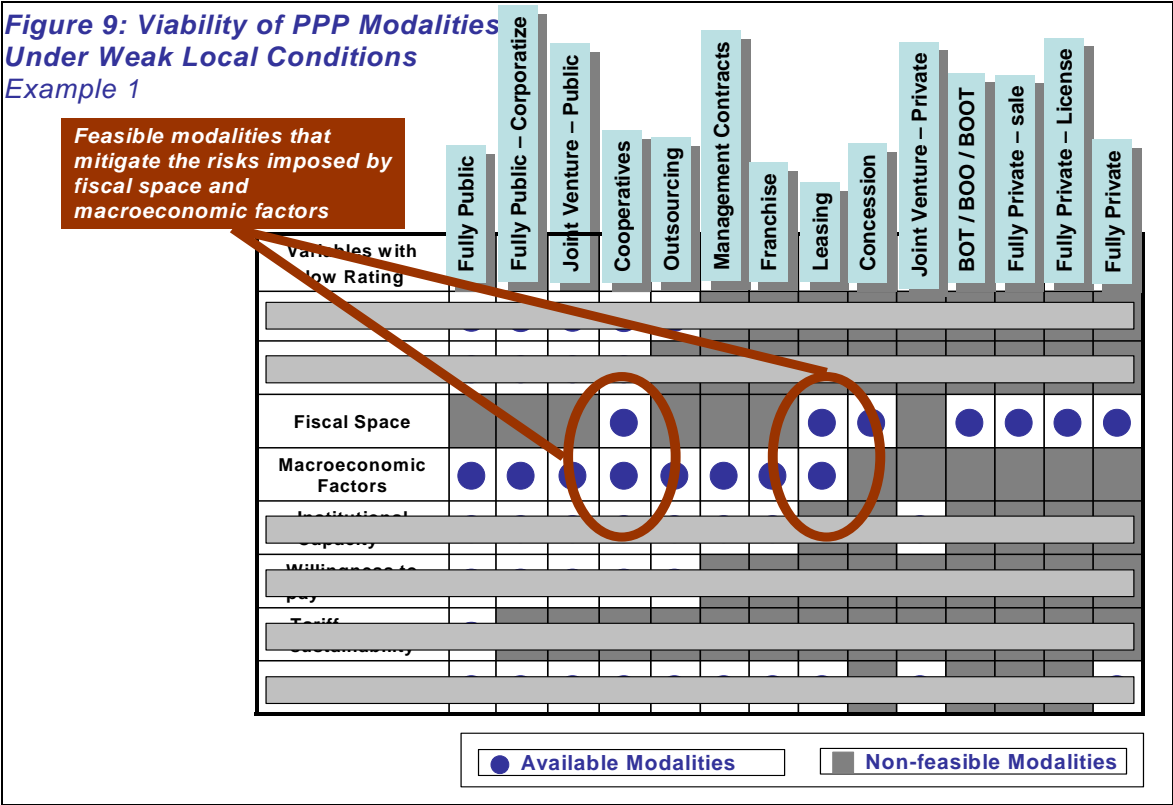


For example, Figure 9 shows that when both the fiscal space and macroeconomic factors are ranked low, leasing and cooperative modalities may provide the most feasible structures (both leasing and cooperative modalities have positive indicators in both fiscal space and macroeconomic factors).

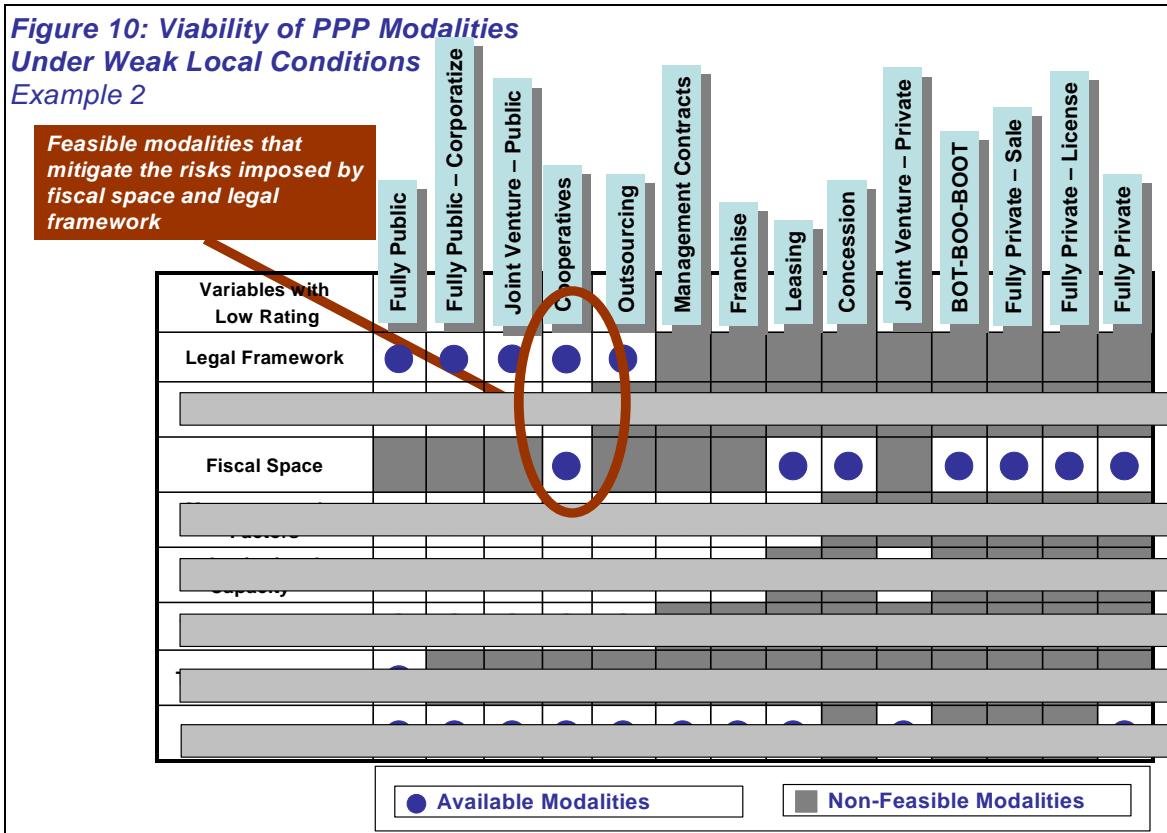
Weak macroeconomic factors expose investors to potential devaluation, interest rate and inflation risks. Weak fiscal space indicates that public sector resources to support subsidies, tariff or toll payments, investments or other public funding are limited. A cooperative modality is a co-investment of users to operate and maintain a facility. In general, given that the investors are the users, they have an inherent interest in the output of the system (more so than outside investors) even under unstable macroeconomic conditions. Cooperatives may also be less sensitive to limitations on public sector resources because they often use pooled resources to invest in a facility.

Leasing limits government’s capital investment and debt repayment requirements, making these modalities less sensitive to macroeconomics factors. Depending on the tariff regime and revenue requirements, leasing can include public funding streams (subsidies) or not. In principle, it does not rely on them, making fiscal space less of a limitation. Other modalities of private participation such as outsourcing, management contracts and franchising mitigate the macroeconomic risk but expose the government to potential financial support requirements in the operation of the facility in an environment where it is not possible for the general and local budget to sustain the water utilities (low fiscal space).

Figure 9 illustrates this more clearly, highlighting the two variables specifically.



Any combination of weak variables and modalities can similarly be evaluated quickly using this chart. The case of weak legal framework and weak fiscal space is highlighted in Figure 10, showing that a cooperative is the modality most likely to provide a viable project alternative.



**ASSESS WHICH TOOLS MAY APPLY**

In the above examples, modalities involving private capital are likely to be less feasible. However, the application of risk mitigation tools may enable options for private investment that would not otherwise exist. Each project will require its own assessment of available tools and how they may enhance project feasibility. However, Figure 11 shows, in principle, which tools and risk mitigation instruments are available and can help address identified local condition variables.

**Figure 11. Application of Project Enhancement Tools**

Variables with Low rating	Project Tools Available												
Legal Framework												●	
Political Risk	●				●								
Fiscal Space		●					●	●	●				
Macroeconomic Factors		●			●						●		
Institutional Capacity				●								●	
Willingness to Pay							●	●					
Tariff Sustainability			●				●	●	●				●
Size and Location							●						

- Political Risk
- Partial Credit Guarantee
- PRG – Market Risk
- PRG – Exchange Liquidity
- PRG – Regulatory Risk
- Subsidies
- Cross-Subsidies
- Output Based Aid
- Credit Enhancement
- Local Currency Financing
- Arbitration Rules
- Off-taking

● Project Tools Available



So, for example, where there is low fiscal space a project may be able to take advantage of a partial credit guarantee, cross subsidies, output based aid, and/or credit enhancement. However, project enhancement tools do not provide wide coverage across multiple local conditions. As a result, this may point to areas for further tool development on the part of the local and international financial community.

#### COMBINE TOOLS AND MODALITIES TO DETERMINE POTENTIALLY FEASIBLE PROJECT STRUCTURES

With the identification of weak local conditions, the evaluation of possible modalities and the review of available risk mitigation instruments, it is possible to construct the project feasibility map.

Taking the two examples from Figures 9 and 10, we can see what modalities become possible when specific local conditions are weak but risk mitigation tools are available.

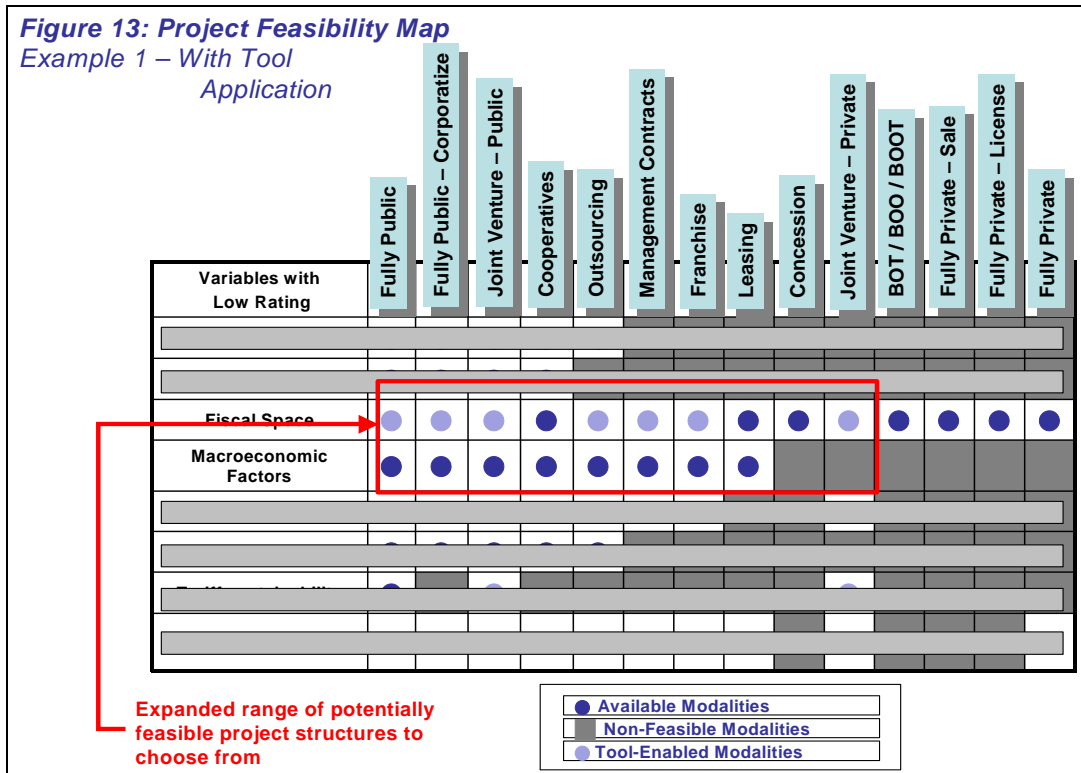
Figure 12 lists the additional available project modalities when risk mitigation tools are applied. However, it is necessary to understand that this figure assumes that all tools are available, an assumption that is not always true. The purpose of the figure is not to provide specific solutions but to suggest potential arrangements and allow for a better understanding of the relationships among the variables, tools and structures. Analyzing a specific variable in the figure, one can see the additional project modalities that are typically available for such low-rating variables. Adding the risk mitigation instruments pertaining to a specific variable, more project modalities can be considered for developing potentially feasible project structures.

**Figure 12. Increasing Access to Project Modalities Through Tool Application - Selected List of Tools and Application**

If Low Rating in	Available Modalities without Risk Mitigation	Apply Available Risk Mitigations Tools	Additional Available Modalities with Risk Mitigation Tools Applied
Legal Framework	Fully Public Fully Public – Corporatize Joint Venture – Public Cooperatives Outsourcing	- Arbitration rules included in the legal framework	
Political Risk	Fully Public Fully Public – Corporatize Joint Venture – Public Cooperatives	- Political risk guarantee PRG – Exchange liquidity	Outsourcing Management Contract Franchise Leasing Concession
Fiscal Space	Cooperatives Leasing Concession – BOT/BOO/BOOT Fully Private	- Cross-subsidies - Output Based Aid - Partial Credit Guarantee - Credit Enhancement	Fully Public Joint Venture – Public Outsourcing Management Contract Franchise Joint Venture – Private
Macroeconomic Factors	Fully Public Fully Public – Corporatize Joint Venture – Public Cooperatives Outsourcing Management Contract Franchise Leasing	- Partial Credit Guarantee - Credit Enhancement - Local Currency Financing	Concession
Institutional Capacity	Fully Public Fully Public – corporatize Joint Venture – Public Cooperatives Outsourcing Management Contract Franchise Joint Venture – Private	- PRG - Regulatory risk - Arbitration rules included in the legal framework - Off-take Contract	Leasing Concession
Willingness to Pay	Fully Public Fully Public – Corporatize Joint Venture – Public Cooperatives Outsourcing	- Government Subsidies - Cross-subsidies - Off-take contracts	Management Contracts Franchise Leasing Concession
Tariff Sustainability	Fully Public	- PRG – Market risk - Government Subsidies - Cross-subsidies - Output Based Aid - Off-take Contracts	Joint Venture – Public Cooperatives Outsourcing Management Contract Franchise Leasing Concession Joint Venture – Private BOT/BOO/BOOT Fully Private
Size and Location (the structure will depend on the size of the providers)	Fully Public Fully public – Corporatize Joint Venture – Public Cooperatives Outsourcing Management Contract Franchise Leasing Joint Venture – Private Fully Private	Subsidies	

Figure 13, which is an extension to the example developed in Figure 9, provides the project feasibility map with tools that address the variables fiscal space and

macroeconomic factors. As can be seen, the addition of project enhancement tools makes more project modalities available for structuring the project.



In summary, Figure 12 was used to identify available tools to mitigate risks associated with the variables identified as weak. The additional modalities that became available through the use of the identified tools were then matched with Figure 8, the viability of PPP modalities under weak conditions. The combination of the two analysis finally defines the project feasibility map illustrated in Figure 13. With the application of the tools, the following eight project structures may now be feasible: fully public, fully public – Corporatize, joint venture – Public, cooperatives, outsourcing, management contracts, franchise, and leasing. The project design team could narrow down its opportunities by selecting the modality that better suits its political and business intentions. If the goal were more private involvement, then leasing would be the modality selected because it is the one with the most private responsibilities. However, if the objectives are to increase private involvement in management, then the franchise or management contracts modalities should be selected. Finally, a government that supports public corporations, would also support a fully public corporatized provider.

In many cases, the *raison d’etre* of private participation is to reduce the impact on public finances. While this is a lofty goal, the above analysis shows that this is not always possible, the extent of the financial involvement of the private sector will depend on the local conditions and the risk mitigation tools available.

## IMPROVING LOCAL CONDITIONS

These examples illustrate analyses of local conditions and application of the analytical framework at one point in time. This short-run, "static analysis" is important for understanding how to incorporate the three components of the analytical framework (local conditions, tools for risk mitigation and project modalities). However, it is also important to consider the dynamic evolution of local conditions as they improve (or deteriorate) in the medium term, creating evolving conditions for project success.

A dynamic analysis can illustrate the effects of changing a variable with a low rating to one with a high rating. As local conditions improve in this fashion, more tools and structures become available. This evolution of local conditions provides incentives for local regions to continue to improve conditions in order to make more options available for not only water projects, but other infrastructure and development projects also.

Anticipation of change in a sector can shape many viewpoints regarding current versus potential future options. Project designers should anticipate a "modernization" of contractual arrangements, if legally feasible, and if the benefits of the change are equitably shared between the contract parties. In addition, when those changes are expected to occur in the long run, it might be better to select a structure that keeps the option of modernization alive.

## CLOSING REMARKS

The analytical framework presented here can be a practical tool for use by investors and governments as projects are designed, implemented and improved<sup>8</sup>. The goal of this paper has not been to prescribe solutions or templates for the future development of infrastructure, but rather, to provide a methodology to design successful financial structures, with public and private participation, through the interaction of local conditions, project modalities and project enhancement tools. As a framework, it can be adapted to the conditions existing for a specific country, project and investor and the perceptions of the decision makers. While, it is not meant to substitute for thorough due diligence on the part of investors or governments, it should provide useful guidelines and insight for properly conducted due diligence examinations.

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<sup>8</sup> The paper by Vives et. al. (2006) applies the proposed framework to six hypothetical water and sanitation cases to devise feasible structures and to ten real cases to analyze the reasons for success and failure.

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