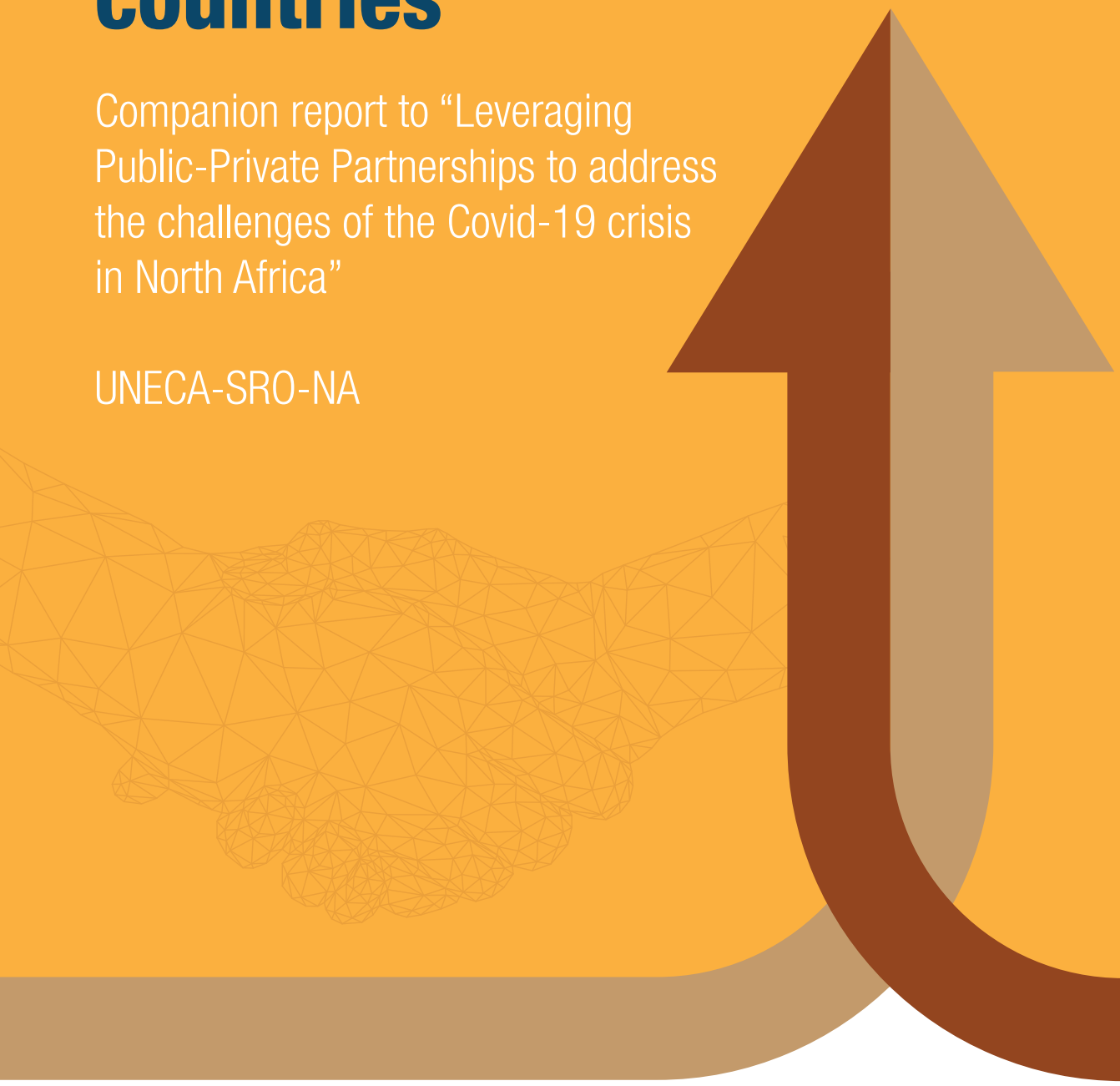
Understanding promises and main issues related to Public-Private Partnerships (PPPs) in developing countries

Companion report to "Leveraging Public-Private Partnerships to address the challenges of the Covid-19 crisis in North Africa"

UNECA-SRO-NA



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This report is a companion paper to the report "Leveraging Public-Private Partnerships to address the challenges of the Covid-19 crisis in North Africa" by ECA- North Africa. It presents more extensively PPPs and their key success factors.

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Contents

1. What are PPPs?

We can regroup public contracts into the three "tools" available to governments: concession contracts, availability-based contracts, and traditional procurement. Only the first two tend to be considered as public-private partnerships (PPPs). But the last one is also permitting cooperation between the government and private entities and might bring value to provide public services of good quality.

1.1 Concession contracts

Through concession contracts, a public legal entity entrusts investment needs and the management of a public service to a private entity[1] in return for a payment based on the results of the service operations. **Traditionally the commercial risk is transferred** to the private service provider. End-users are usually those who pay the concessionaire, although shadow tolls, where the government pays the concessionaire in proportion to the number of users, are sometimes also used. In Europe, concession contracts have been employed since the XVIIth century and are used widely for mass catering, water and sanitation, district heating, transport, sports facilities, etc.

[1] It is of course possible for a government, whatever the tool that is considered, to contract with a public entity. In this case however we talk about institutionalized public-private partnerships.

Box 1. Concession Based PPP

Tangier Mediterranean Port - Container Terminal I and II | Start of operations 2007

Tanger Med is a major international port hub and a gateway for Morocco's imports and exports. It was the first port to be developed as a public-private partnership (PPP) in Morocco. The 30 years concession for terminal I, which consists of a build, operate, and transfer model, was granted in 2005 to APM Terminals Tanger, a subsidiary of APM Terminals Group, one of the world leaders in the management of container terminals, and of AKWA Group, a leader in Morocco in the distribution of fuels, gases and fluids. The total investment made by the concessionaire in superstructure and materials is around 140 million EUR.

The second container terminal (TC2) is operated as well through a 30 years concession contract granted in 2006 to the consortium EUROGATE TANGER, ContshipItalia, (Europe's leading port operator) and to the two maritime companies MSC and CMA-CGM, respectively 2nd and 3rd global transporters of containers.

Source: Tmpa.ma (2021). Tanger Med Port Authority – GROUPE TANGER MED – Containers Activity. [online] Available at: <https://www.tmpa.ma/en/activites-services/activite-conteneurs/> [Accessed 9 June 2021].

1.2 Availability-based contracts

Through availability-based contracts, a public entity entrusts investment needs and the management of a public service to a private entity in return for a payment from the public entity conditioned to key performance indicators. This kind of contractual agreement was first used in the 90's in the UK (Private Finance Initiative (PFI) contracts) and was then adopted all over Europe. Availability-based contracts are employed for major construction projects (educational establishments, train stations, etc.), urban infrastructures (street lighting, roads, etc.) and even sport and cultural facilities (theatres, stadiums, swimming pools, etc.). They are particularly suitable for "social infrastructures" when it is not easy to make end-users pay for services or when it is not efficient and or possible to transfer to the private contractor the demand risk.

Box 2. Availability Based PPP

The Ouarzazate Concentrated Solar Power I (CSP) | Start of operations 2015

The project aims at installing CSP on a large scale in order to generate cost reductions and associated economic benefits of clean energy. Under a 25 years availability based PPP, in a build-own-operate-transfer (BOOT) model, the concessionaire is financed by commercial lenders and investors while the government is financed by international financial institutions.

The government of Morocco will contribute with USD 883 million, largely in the form of operational subsidies. Specifically, the government has engaged in a power purchase agreement: the Moroccan Agency for Solar Energy will buy energy from the private partner and the Moroccan Government will subsidize the agency for the annual difference between the cost of CSP power and the national electricity price, which is paid to the agency.

Source: Global Infrastructure Hub (2018). Noor Ouarzazate I Concentrated Solar Power Plant. Showcase projects. [online] GIHUB. Available at: <https://cdn.gihub.org/umbraco/media/1923/gih_showcaseprojects_noorouarzazate_art_web.pdf> [Accessed 9 June 2021].

1.3 Traditional public procurement contracts

Through traditional public procurement contracts, a public entity entrusts investment needs or the management of a public service (but not both) for which it is responsible to a private entity in return for a payment from the public entity. Because there is generally no bundling in public procurement contracts, they are usually simpler than concession and availability-based contracts (i.e., short term contracts without any "partnership"). In addition, in some countries some "global" traditional public procurement contracts exist, without any delayed payment. In such contracts, **the risk is not transferred to the private provider**, unless payment is conditioned to key performance indicators (performance-based contracts).

Box 3. Traditional public procurement contract (performance based)

The Rabat Salé tramway project | Start of operations 2012

The main rationale for this project was the degradation of traffic in the Rabat Salé twin cities. Total investment was about 300 million euros including equipment, infrastructure and rolling stock. The financing is ensured through 50% equity and the remaining part as loans from Agence Française de Développement (AFD) for 43 million euros, European Investment Bank for 100 million euros and a 9 million euros subsidy provided by EU (Facilité d'Investissement pour le Voisinage).

The chosen scheme involved awarding an operation, and maintenance contract (O&M) for a period of six years (renewable once) to Transdev, a subsidiary of the French Caisse des Dépôts et Consignations (about 80 million euros). The project involves transfer of technical risk to the private partner, but demand risk remains with the public sector. The operator is remunerated on the basis of the costs incurred by the operation (personnel, maintenance and upkeep of fixed installations, etc.). A bonus-malus system was set up to regulate its remuneration. If the performance indicators set are not met, the remuneration will be lower. In the opposite case, if the operation's objectives are exceeded (number of passengers, energy consumption, etc.), a bonus will be paid in addition to the remuneration.

Technically, the project has been a huge success, with the use of modern and effective rolling stock (provided by Alstom) significantly improving the area's perception of public transportation. In 2019, the operation and maintenance contract with Transdev was renewed for another 10 years, just like the first O&M contract, Transdev assumes industrial risk and engages to maintain quality standards.

Source: Maroc Press (2012). Casa Tram n'assumera que le risque industriel. [online] Available at: <http://www.maro-cpress.com/fr/leconomiste/article-9126.html> [Accessed 9 June 2021]. and Transdev (2018). Portfolio of Expertise -Light Rail. [online] Transdev. Available at: <https://www.transdev.com/wp-content/uploads/2018/09/Portfolio-of-ex-pertise-Light-rail-09-2018-EN.pdf> [Accessed 9 June 2021].

It should be noted that it is not always easy, looking at several infrastructure projects, to distinguish between those funded through concession, availability-based and traditional public procurement contracts. Very often, governments decide to use a mix of them, or what can be called "hybrid forms". Some infrastructure projects financed through traditional public procurement contracts might involve long-term contracting and a need for partnerships between the public and the private entities. Also, some concession contracts contain specific contractual provisions to ensure minimum benefits in order to restrain the transfer of the operating risk. Lastly, some availability-based contracts entail payments depending on the demand. This suggests that the frontier between simple contracts, complex partnerships

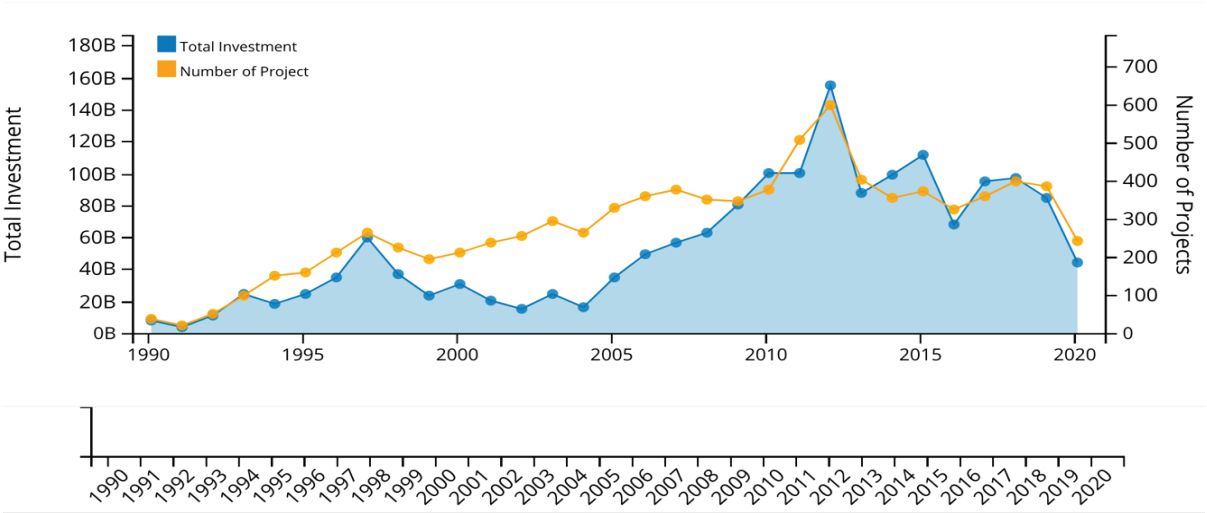
and between contract types is blurred and cannot be reduced to concession and/or availability-based contracts.

1.4 PPPs in Developing Countries

In developing countries, we observe an increase of investments financed through PPPs since 2004 (See Figure 1-1) with a maximum peak of more than 150 billion $ investments in 2012.

While PPP projects are hard to put in place since they require robust regulatory and institutional architectures, high levels of technical capacity, political will and social consensus, they are on the agenda of African policymakers: PPPs are seen as an effective means to overcome infrastructure bottlenecks in order to achieve sustainable growth (EIU, 2015). Furthermore, private financing of public services and infrastructures seems to be a path to explore in order to recover from Covid19 crisis.

Figure 1-1 : Developing countries (PPPs only) 1990- 2020(H1)



Source: PPI database, April 2021.

2. The promises of PPPs

2.1 PPPs in order to attract private funds / investment gaps / SDGs

The first and obvious promise of PPPs is to attract new funds in order to finance infrastructures and public services. Clearly, North African countries are characterized by an investment shortage that was pre-existing the Covid19 crisis.

In developing countries more broadly, approximately one billion people lack access to electricity, 2.4 billion people, about one third of the world population, are using unimproved sanitation facilities, and 660 million lack access to an improved water source. In Africa, more than 3 trillion $ that is needed in order to meet SDGs. Many of the poorest countries are unable to mobilize on their own the resources needed to bring key services to the population. Hope has been put on attracting resources from the private sector, through public-private partnerships (PPPs). To date, however, of an approximate global amount of $1 trillion invested annually in developing countries, only 9 to 13 percent corresponds to the private sector (Fay et al. 2019).

2.2 PPPs in order to provide public services more efficiently

In addition to bringing new funding sources for infrastructures, PPPs might help to improve the efficiency of public service provision.

2.2.1 Benefiting from private providers' expertise

PPPs are a way for governments to outsource the provision of public services. Outsourcing is an opportunity for public authorities to benefit from private providers' expertise and to focus on their "core business", namely, the supervision of public services rather than their provision. Public services can be delivered at a lower cost by experienced private operators. As stated by Jean Tirole, "The state no longer provides as much employment through public sector jobs as in the past, nor does it produce as many goods and services through public enterprises. It has transformed itself primarily into a regulator" (Tirole, 2017 pp. 10).

Box 4. Central Asia-South Asia Regional Electricity - CASA-1000

The CASA-1000 is a project aiming to provide the infrastructure - 1 222 km of transmission network - to export electricity produced by hydropower plants in Kyrgyzstan and Tajikistan to Pakistan and Afghanistan. With an approximate cost of US$1.2 billion, the project is successfully managing to create large-scale, cross-border power grids benefiting from a combination of multilateral financing and private sector expertise.

Due to its complexity, the Project was divided into ten contracts that were each competitively tendered. The last of the ten tenders was completed in 2020 and electricity is expected to start flowing before the end of 2024.

It was established that the transmission utility of each country will be responsible for the assets located in their respective country. However, the four countries involved had to select an international company to design, build, operate and maintain the high voltage DC system for cross-country coordination - one of the most critical components of CASA-1000. This part of the project has been awarded to the Swiss company ABB and to its consortium partner Cobra Instalaciones y Servicios Spain.

Sources: World Bank. 2016. Q&A: Central Asia-South Asia Electricity Transmission and Trade Project (CASA-1000). [online] Available at: <https://www.worldbank.org/en/news/speech/2016/05/10/central-asia-south-asia-electricity-transmission-and-trade-project-casa-1000> [Accessed 15 June 2021] and World Bank. 2018. The CASA-1000 Project Crosses Another Important Milestone. [online] Available at: <https://www.worldbank.org/en/news/press-release/2018/09/24/the-casa1000-project-crosses-another-important-milestone> [Accessed 15 June 2021].

Lower costs from private contractors might be explained by their experience but also by economies of scale. One can easily understand that the in-house provision of public services does not enable the same economies of scale as contracting out as soon as you consider local governments. Operators that are present in several markets can realize economies of scale, which is not the case for local public authorities, as they only operate in a single market, unless the optimal output level — beyond which the average costs increase — is low or the public body is sufficiently large to be able to realize economies of scale itself.

2.2.2 Transferring risk to private providers

Besides this, one advantage of PPPs is for the public authorities to transfer risks to the private partner when appropriate, that is to say when the private party is more efficient at bearing it.

Box 5. Risk sharing in the Metro Line 4 of São Paulo, Brazil

In order to connect the central business district with the main residential, medical, and academic areas, the São Paulo state government has decided to add a new line to the existing metro network through a PPP. The new Line 4 (the "Yellow Line") would cross the São Paulo metropolitan area in a southwest-northeast direction and integrate the metro with the city's suburban rail and bus systems. With a total extension of 12.8 kilometers, it added about 21 percent more capacity to the metro system.

The public sector was responsible for the construction of the São Paulo Subway Line 4, while the private sector was responsible for the operation and maintenance, as well as for the supply of trains and signaling and control systems. The project was divided in two phases, the first one required an investment of $392.15 million, including $309.2 million in debt and $82.95 million in equity, while the second one demanded a total investment of US$ 600.90 million.

The private partner consortium, named ViaQuatro, comprises the Companhia de Concessões Rodoviárias of Brazil (68 %), Montgomery Participações of Portugal (30 %), RATP Developpement de France (1 %) et Benito Roggio Transportes de Argentina (1 %). Project financiers include the Inter-American Development Bank (IDB), Banco Santander, Southern Missouri Bancorp, KfW, Banco Espírito Santo, BBVA and Société Générale and West LB as coordinators.

A study conducted by the government of São Paulo and the World Bank's International Finance Corporation in 1997 indicated that **the project would not be attractive to private investors** because of the great uncertainty of traffic demand. For this reason, risk allocation is an essential feature of the project.

In this case, **the allocation of tunneling and track delivery risks was found to be more cost-effective if handled by the public sector,** similarly other key risks were successfully shared with the private sector. The government offered three types of support:

- a financial subsidy,
- a parity exchange rate guarantee (transferring currency risk to the public sector), and
- a minimum demand guarantee scaled between 10 and 40 percent of expected demand (reducing demand risk).

The bidder that accepts the lowest subsidy payment would be declared the winner.

According to the concession agreement, ViaQuatro will receive its revenue from the metro fare, adjusted annually for inflation. It would receive 100% of the full fare for passengers using Line 4 only and 50% of the fare for passengers using Line 4 in conjunction with other metro and bus lines. In addition, ViaQuatro would receive annual availability payments of $44.1 million from the government.

Source: Edward Farquharson & Clemencia Torres de Mastle & E.R. Yescombe & Javier Encinas, 2011. "How to Engage with the Private Sector in Public-Private Partnerships in Emerging Markets," World Bank Publications, The World Bank, number 2262, June.

2.2.3 Introducing competition

Outsourcing is also considered to guarantee a certain level of cost control that is more difficult to reach with in-house provisions, because internal services are generally not put in competition with potential external contractors. When performed properly, the opening to competition that is realized as part of the outsourcing process thus forces potential partners to disclose information regarding their costs by offering a price.

2.2.4 Reducing political interferences

In addition, public organizations are more subject to political interference, which potentially diverts them from the pursuit of their objectives (Boycko, Shleifer, et Vishny 1996). Outsourcing is then viewed as a way to reduce political interference by rendering them more difficult for governments.

2.2.5 Securing maintenance expenses and efficiency over the project life (for concession and availability-based contracts only)

Lastly, by offering a comprehensive "package deal" to a single operator through PPPs, the public authority encourages the operator to take the complementarities between the different stages of the project into account. Such a consideration may influence the investments that are set up as well as the operator's incentives to ensure that the different stages combine efficiently so as to reduce the infrastructure lead time (i.e., the "interface risk" associated with coordinating all stages of a project: design, construction, and operation).

This translates into deadlines that are more likely to be met in the case of such agreements than under the traditional public procurement when the project relates to the creation of new infrastructure (NAO, 2009; PriceWaterHouseCoopers, 2011; Saussier & Tran, 2012; World Bank Group, 2014). Also, pooling all activities necessary to the execution of a project under a single contract encourages the operator to innovate in order to increase efficiency and generate more revenues.

3. Pitfalls and necessary conditions of success

3.1 PPPs are complex contractual agreements

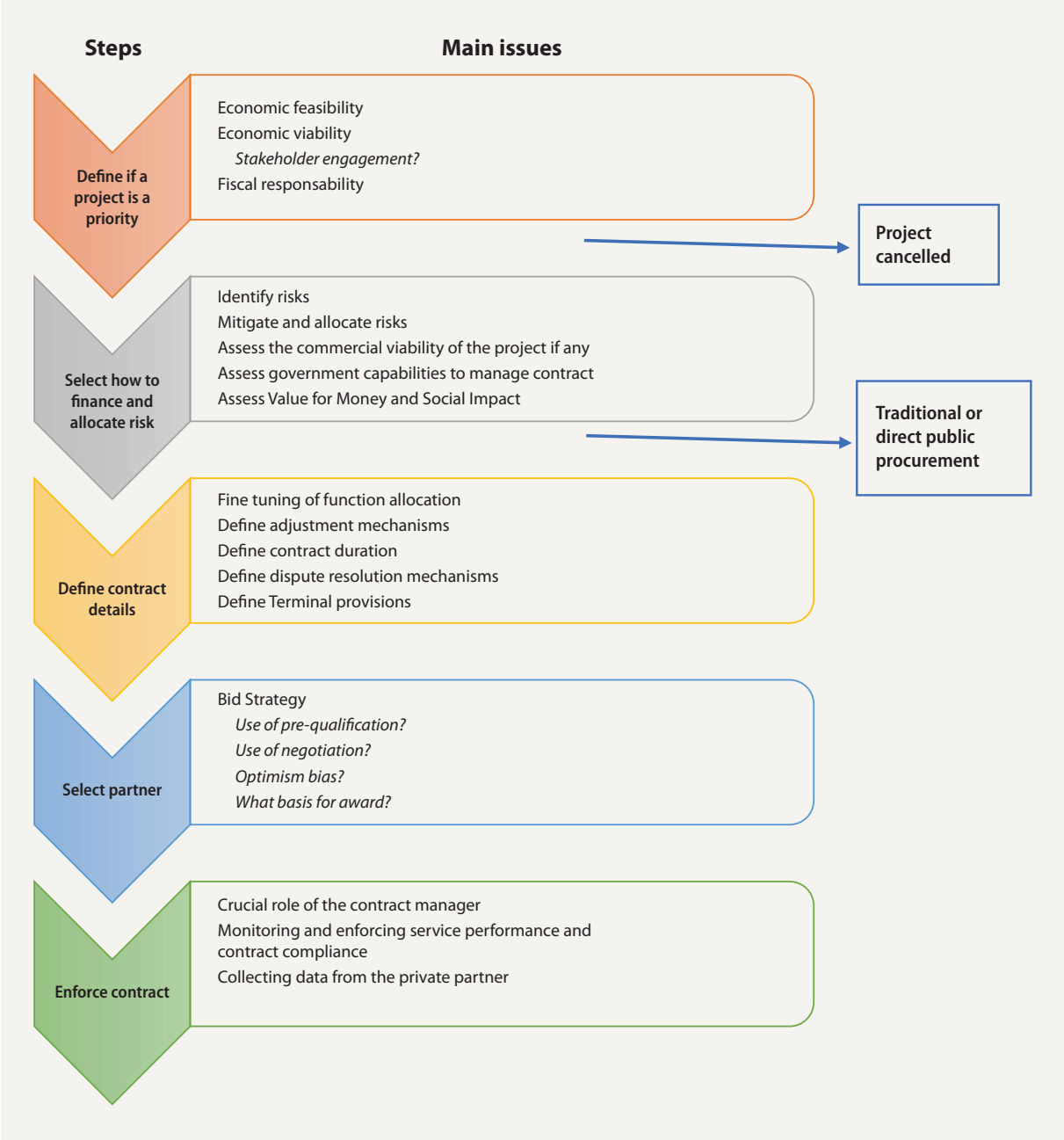
While public-private partnerships can bring a number of benefits they are not immune to failure. Their complexity makes them particularly vulnerable at every step of their implementation (See Image 1.).

3.2 Defining if a project is a priority.

Potential projects must undergo an appraisal process to ensure that developing and implementing them makes sense. Assessing the **feasibility of the project**, that is to say whether it makes sense as a policy and investment, irrespective of the procurement model is a way to confirm that the project fits in with national development and sector strategies, policy priorities, and sector and infrastructure plans. In addition to looking at the feasibility of the project, a socio-economic evaluation of the project is needed.

The fiscal responsibility of public authorities is also important — that is, whether the project's overall revenue requirements are within the capacity of users and the public authority to pay for the infrastructure service. This involves checking the fiscal cost of the project—both in terms of regular payments and fiscal risk—and establishing whether this can be accommodated within prudent budget and other fiscal constraints. Having estimated the cost of direct payment commitments, the government needs to decide if they are affordable.

Image 1. Key steps in order to finance efficiently a public infrastructure project



Source: adapted from (World Bank, 2017).

Box 6. The Five Case Model

In order to improve project selection, both for PPP and no-PPP projects, the United Kingdom has developed a methodology for project assessment called the Five Case Model. The model suggests that the project is analysed through five different cases, which are, according to the United Kingdom Green Book, the following:

- **The Strategic Case**—What is the case for change, including the rationale for intervention? What is the current situation? What is to be done? What outcomes are expected? How do these fit with wider government policies and objectives?
- **The Economic Case**— What is the net value to society (the social value) of the intervention compared to continuing with Business As Usual? What are the risks and their costs, and how are they best managed? Which option reflects the optimal net value to society?
- **The Commercial Case**—Can a realistic and credible commercial deal be struck? Who will manage which risks?
- **The Financial Case**—What is the impact of the proposal on the public sector budget in terms of the total cost of both capital and revenue?
- **The Management Case**—Are there realistic and robust delivery plans? How can the proposal be delivered?

Source: UK Government, 2020. Infrastructure Business Case: International Guidance. London: UK Government, Infrastructure and Projects Authority. Available in: https://www.gov.uk/government/publications/the-green-book-international-guidance

Global contracts come with benefits such as reducing the chances that public authorities give priority to projects in accordance with their own ideology or that favor some interest groups to the detriment of the society as a whole. This is because global contracts demand that the total cost of the project is estimated ahead and cannot be hidden, consequently increasing transparency and social control in public spending. However, new forms of political opportunism can arise from global contracts. Because of the transfer of project costs in time (few payments at the beginning of the contract and many in the end of the project), public authorities can judge the cost of PPPs thinking exclusively on the short term, or in the period of their mandate, and not on the global costs of the contract (Brux and Saussier, 2018).

However, a bad project that is not useful for citizens is unlikely to be a success, whatever the way it is financed (i.e., through PPPs, or not). Selecting projects at the national level, and coordinating projects at subnational level is an important part of a PPP strategy and might be devoted to a specialized entity such as a PPP task force.

3.3 Allocating risks

Many risks are associated with PPP projects (World Bank, 2017). Just to name a few:

Site—risks associated with the availability and quality of the project site, such as

the cost and timing of acquiring the site, needed permits for a road, the effect of geological or other site conditions, and the cost of meeting environmental standards.

Design, construction and commissioning—risk that construction takes longer or costs more than expected, or that the design or construction quality means the asset is not adequate to meet project requirements.

Operation—risks to successful operations, including the risk of interruption in service or asset availability, the risk that any network interface does not work as expected, or that the cost of operating and maintaining the asset is different than was expected.

Demand, and other commercial risk—the risk that usage of the service is different than was expected, or that revenues are not collected as expected.

Regulatory or political—risk of regulatory or political decisions that adversely affect the project. For example, this could include failure to renew approvals appropriately, unjustifiably harsh regulatory decisions, or in the extreme, breach of contract or expropriation.

Change in legal or regulatory framework—the risk that a change in general law or regulation adversely affects the project, such as changes in general corporate taxation, or in rules governing currency convertibility, or repatriation of profits.

Default—the risk that the private party to the PPP contract turns out not to be financially or technically capable to implement the project.

Economic or financial—risk that changes in interest rates, exchange rates or inflation adversely affect the project outcomes.

Force Majeure—risk that external events beyond the control of the parties to the contract, such as uninsurable natural disasters, war or civil disturbance, affect the project.

Asset ownership—risks associated with ownership of the assets, including the risk that the technology becomes obsolete or that the value of the assets at the end of the contract is different than was expected.

After full identification of project risks, a **mitigation process** is necessary—wherein, based on a cost-benefit analysis, some project characteristics or procedural steps may be adjusted. For instance, additional geological surveys or traffic studies may be conducted before the tender to reduce uncertainty and contain bidding costs. Performance requirements that are not critical to project success and may create unacceptable risk to private operators may be eliminated.

Allocating project risk efficiently is one of the main ways of achieving better **value for money** (Vfm) through PPPs. A central principle of risk allocation is that each risk should be allocated to whoever can manage it best: who is the best able to control the likelihood of the risk occurring; who is the best able to control the impact of the risk

on project outcomes; who is the best able to absorb the risk at lowest cost.

Certain types of risk cannot be transferred through the PPP contract. For example, the private party will always bear certain political risks—in particular, the risk that the government will renege on the contract or expropriate the assets or benefits (See section 3 for a discussion concerning Morocco).

Also, the **extent of risk transfer to the private party is limited**: the equity holders of the private party to the PPP contract—the PPP company (special purpose vehicle)—are only exposed up to the value or their equity stake.

Finally, before deciding how to finance a project, the government should be aware that public capacities needed for managing public services are not the same when it comes to managing a contractual relationship with a private provider (we come back on this xlater on). Whether the contracting agency has the authority, capacity, and fiscal resources to prepare and tender the project, and to manage the contract during its term is crucial. This requires an appraisal of the current capacity of the procuring authority including its leadership, and the identification of future needs. This includes the costs of hiring external experts and transaction advisors, and of strengthening the leadership of the project team.

There is a tendency for governments to transfer as much as possible risk to their private partner. It does not come without any cost. By providing credit for such projects, banks earn somewhat low returns when compared to equity, and therefore are particularly risk averse. This is one of the reasons why, when considering risk allocation, the public authority must consider that allocating more risk with the private partner implies more expensive credit or equity, which translates into higher project costs, and eventually less interested lenders in the project (Farquharson et al., 2011). An example of poor risk allocation is to allocate the demand risk with the private partner when the public sector is the one in control.

Consequently, the public sector must be willing (and be able) to consider the best allocation of risks in order to ensure that banks are willing to finance the project. It is therefore necessary that Procuring Authorities understand the corporate structure of a Private Partner in a PPP, in order to assess which risks can be optimally transferred to the Private Partner. Private contractors must also be reliable and demonstrate expertise in the intervention field of intervention in order to attract investors. A fine tuning of risk allocation is required for the efficiency of PPPs. Such an approach is not always natural for governments.

Box 7. Risk transfer and performance-based contracts

One crucial question is who should bear the risk in public-private partnerships. The answer is the party best able to manage it should bear the risk.

Through availability-based contracts, the private party is paid depending on the availability of the infrastructure. If performance targets are not met, he is penalized. If performances are over-met, he receives no additional bonus. Thus, risk associated with the completion of key performance indicators (KPIs) is partially transferred.

- Performance-based contracts are another way to transfer risk to private parties and to increase incentives to perform well. In this remuneration format private revenues are based, at least partly, on the achievement of predetermined outcomes. This is one path of improvement proposed by Fabre et Straub (2019) to improve PPPs' efficiency.
- Under a traditional, "input-based" contract, a private firm contracts with the government in order to carry out a series of tasks and is paid according to a price schedule. There is no direct link between what the private firm is paid, and whether the level of leakage actually goes down. The contractor will still get paid for the full contractual amount as long as the work has been done, regardless of the outcome.

Under a performance-based contract, the contractor does receive some payment against completion of works, but a portion of its remuneration is also conditional to achieving specific targets for leakage reduction for example. So, if it completes the work program in full but no significant reduction in leakage is achieved, the utility will pay only a portion of the contract agreed remuneration.

Under a performance-based contract, the contractor has greater flexibility to decide which measures to undertake in order to achieve targets. This leaves room for innovation and creative solutions which the government may not have thought about. And it creates incentives for the contractor to focus on actions that have the greater impact on performance.

Also, if KPIs are rightly chosen, performance-based contracts can lead to social improvements.

Box 8. Performance Based Contracts in the Road Sector

Brazil's Experience

Main features:

i) global prices contracts, instead of classic detailed input-based contracts, with transfer of responsibility in the design and execution of rehabilitation works to the contractors; (ii) a remuneration based on contractors' performance to achieve predetermined outputs, instead of inputs (means and material); and (iii) an increased commitment of contractors to quality through self-control instead of an Employer-led control.

With road infrastructure growing older, maintenance (and rehabilitation) became a crucial issue in the management of the Brazilian federal and state level road networks. In the mid-seventies, maintenance was gradually transferred to the private sector starting through traditional unit-price contracts. However, this model brought performance issues and the Federal government, together with the State of Rio Grande do Sul, approached the World Bank to find better solutions.

Performance based contracts (PBC) seemed like a good solution to increase private sector commitment and accountability for the quality of the services while also reducing management burden on the public sector. Hence, a model of performance-based contracts for road maintenance and rehabilitation was structured for around 10 percent of the federal paved road network and around 50 percent of the state paved road network in the State of Rio Grande do Sul in early 2000. The model progressively extended to about 9,750 km of the federal paved road network.

The performance-based contracts were designed in order to bring rationalization and generate economies of scale. This was done by standardizing engineering designs with a specifically adopted norm, by bidding together maintenance services and rehabilitation works under contracts covering larger extensions, and by increasing contract duration up to the maximum 5 years authorized under the Brazilian public procurement law.

Another goal of PBCs was to increase accountability on the contractors' side. For that, rehabilitation works and maintenance services were included in the same contract, contractors were made accountable for the quality of the road condition in the long run and bidders were expected to propose optimized technical solutions rather than proposals of payment for quantities of material and services inputs. Finally, PBCs also aimed at fostering increased credibility in the sector. Indeed, contracts overall management was both eased and improved at all steps of the project cycle through simplified procedures.

Source: The World Bank Group, 2010. Performance Based Contracts in the Road Sector: Towards Improved Efficiency in the Management of Maintenance and Rehabilitation. Transport papers. WASHINGTON, D.C.: The World Bank.

3.4 Defining contract structure

One key element in contract structure is the payment scheme. Tariff formulas in PPP contracts can be controlled by contract, regulation, or a mix of both. A necessary complement to defining the payment mechanism is **defining how performance will be measured**, monitored, and enforced. For example, the government's payment may be conditional on the availability of the asset, with a view to transferring most operating risk to the private sector. This risk transfer can only be achieved in practice if the standards defining "availability" are clear and practicable.

A well-designed contract is clear, comprehensive, and creates certainty while allowing for a reasonable degree of flexibility for the contracting parties. Because PPPs are long-term, risky, and complex, PPP contracts are necessarily incomplete—that is, they cannot fully predict future conditions. This means the PPP contract needs to have flexibility built in to enable changing circumstances to be dealt with as far as possible within the contract, rather than resulting in renegotiation or termination. The aim of PPP contract design is therefore to create certainty where possible, and bounded flexibility where needed—thereby retaining clarity and limiting uncertainty for both parties. This is achieved by creating a clear process and boundaries for change. Building into the contract mechanisms for handling changes, such as extraordinary reviews of tariffs, or changing service requirements is crucial.

Financial equilibrium clauses are also especially important. They entitle an operator to changes in the key financial terms of the contract to compensate for certain types of events beyond their control. Adjustments are based on a mutually-agreed financial model that is maintained over the lifetime of the contract. Unexpected changes are typically defined as force majeure (major natural disasters or civil disturbances), factum principis (government action) and ius variandi (unforeseen changes in economic conditions).

If the contract is facing turbulences that are beyond the adaptation possibilities (e.g., Covid19), it is important to envision **dispute resolution procedure, that is to say** to define institutional mechanisms for how contractual disputes will be resolved, such as the role of the regulator and courts, or the use of expert panels or international arbitration.

The main challenge in defining contract terms is to generate trust by reaching two contradictory objectives: securing the relationship by getting a steadfast commitment from the parties while retaining a certain level of flexibility that is necessary to allow contractual adaptations to the economic, financial, and statutory environment during the implementation phase. Some innovative solutions exist and are implemented such as the LPVR solution (See Box 9.).

Box 9. Avoiding Costly Renegotiations: The LPVR solution

(Engel, Fischer, et Galetovic 2001)

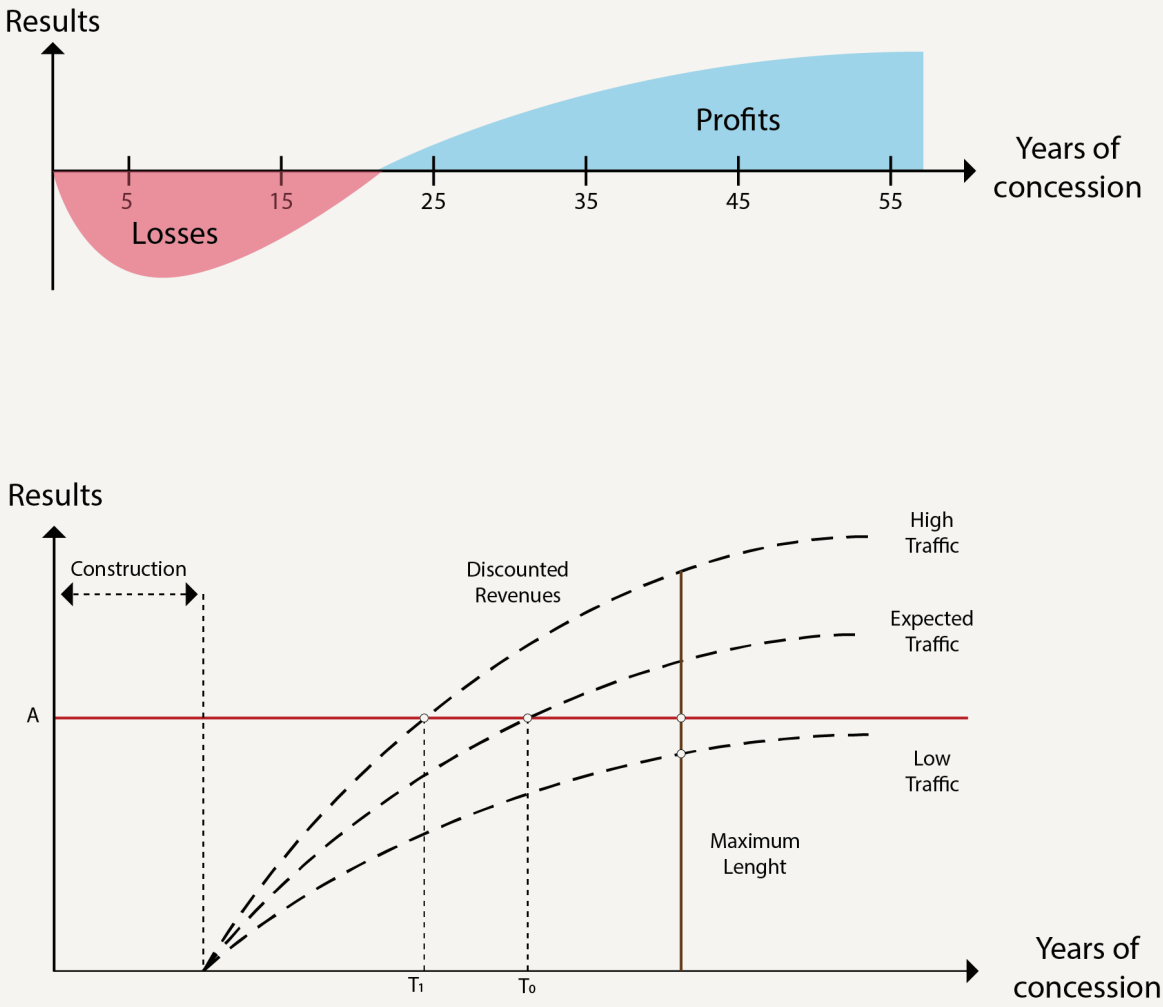
In a present value of revenues contract the duration of the agreement is not fixed from the outset, although a maximum duration may be specified by contract: the contract is awarded to the firm that asks for the smallest accumulated user fee revenue in discounted value, or what the authors call the Least Present-Value-of Revenues (LPVR). The contract stops when the PVR the parties contracted on is reached.

In the example illustrated by the graph below, concerning a project that requires a construction phase (which is not necessarily always the case), depending on whether the service provided by the operator meets high, average or low demand, discounted revenues differ. The duration of the contract fits this situation with an end in T1, T0 or the maximum length of contract as appropriate. By tying the length of the concession to the demand associated with the project, this type of contract compensates for the risk.

If there is a high demand, user fee revenue would accrue rapidly and the duration of the concession would be shorter than if the demand is lower. This clearly reduces the risk of the project and the required risk premium, even if some potential situation generating low traffic might exist and put the operator at risk (i.e., this is a condition for such contracts to fit as concession contracts).

This would also reduce opportunistic behaviors – leading to opportunistic renegotiations because, in case of conflict leading to contract termination, it is easy to know what compensation should be given: to buy back the project, the uncollected revenue (minus reasonable expenses for operations and maintenance) defines a fair compensation.

Lastly, such a mechanism helps the government to resist third-party opportunism, by allowing the government to stop the contract as soon as the private operator is making too many benefits.



Such flexible-term contracts using LPVR auctions became the standard since 2008, in Chile, to auction highways.

Box 10. Chile, Rutas del Loa II

Start of works 2020

The aim of the build–own–operate–transfer (BOOT) project is to improve infrastructure and road safety standards on Route 25, which connects the city of Calama with the city of Carmen Alto. The construction will generate an average of 370 direct jobs per month, contributing to the economic reactivation of the region. The project, which was awarded to Ruta del Loa Sociedad Concesionaria S.A. has an official budget of USD 300.000.000.

The concession was awarded according to a Least-Present-Value-of Revenues model and will be concluded once when it achieves an amount of total revenues equal to USD 494.676.372. It will, however, respect the maximum term of 40 years.

The concession contract defines a range of minimum guaranteed revenues by the state, which start to apply after the provisional start-up of the first sector of the road for a term of 24 years and considers an amount in Unidades de Fomento (UF - a non-circulating currency which has an exchange rate respect to the Peso constantly adjusted for inflation) that grows 3.5% per year. A maximum base toll rate is also defined: it is adjusted by consumer price index + 1.0% for the first 29 years of operation.

Source: CPI (2020). Se inicia construcción de Segunda Concesión Rutas del Loa - CPI. [online] Available at: <https://www.infraestructurapublica.cl/se-inicia-construccion-segunda-concesion-rutas-del-loa/> [Accessed 9 June 2021]. and Ministerio de Obras Públicas - CHILE (2017). Bases de Licitación de La Concesión Vial Rutas de Loa. https://concesiones.mop.gob.cl/proyectos/Documents/Ruta%20El%20loa/2017/Bases%20de%20Licitaci%C3%B3n.pdf.

3.5 Managing bid process

Once the details of the contractual agreement have been set, the government needs to decide about a procurement strategy. Indeed, when an infrastructure is procured through a public-private partnership, it will put a private provider in a monopoly situation for a long period. It is thus necessary to organize a competition for the market when this is possible in order to have and apply a competition price for the contract duration. Direct negotiation should be limited to very specific cases. To attract bidders and have a competition price, the government has several options.

One of the first questions is whether or not using a **pre-qualification process** to select the firms or consortia that will participate in the bidding process. Clear qualification requirements can encourage experienced firms to participate, and to invest in preparing quality proposals, as it reduces the risk that the bid process will be undermined by low-quality firms submitting very low bids. But, on the other hand, it may reduce competition and facilitate cartels.

Another issue concerning the bid process is whether to use a single-stage process to select the preferred bidder, or a multi-stage process in which proposals and the

bidding documents may be reviewed and iterated: A multi-stage process can have advantages over a single-stage process for complex projects, particularly where there is room for innovation (competitive dialogue procedure)

Lastly, what should be the basis for the project award? Whether to rank proposals and choose the preferred bidder based on a single financial or value-related criterion (after screening for technical merit), or some weighted evaluation of financial and technical criteria is an important question that is related to the quality of the country institutions (i.e. corruption issues).

The government's problem is to organize competition for the market in order to select the most efficient partner to procure infrastructure and/or deliver a service. This is challenging because the selection process, itself, may be complex. Moreover, if operators are selected according to price bids, then public authorities are vulnerable to "winner's curse", since the best offer may come from the most "optimistic" operator who unintentionally underestimates

Box 11. Overestimation of traffic in the Bangkok's Skytrain

The Bangkok Skytrain is a US$ 2 billion project consisting of a two-track elevated urban rail system designed to service an extremely dense area. The project was carried out through a 30-year Build-Operate-Transfer (BOT) PPP scheme. The public partner was the Bangkok Metropolitan Administration, while the private partner was the Bangkok Transit System Corporation (BTSC), which was formed in 1992 to implement the project. The BTSC was permitted to retain all revenue deriving from the system operation for 30 years. The concession contract had a fixed price, a specified delivery date, and performance standards.

Skytrain ticket fares were priced below the cost of a taxi, but above the cost of other public transportation services like buses. Additionally, the lack of fare integration between modes had a negative impact: turns out that the project was greatly oversized: actual traffic was less than a half of the forecasted traffic.

Even though the forecast predicted 600,000 riders per day for the opening of the system, the actual initial ridership was 25% of forecast. By 2006 ridership increased to 380,000 riders per day, still significantly below predicted levels. The result is that many trains are not used and that the project company ended up in financial trouble, reaching the point of default and business rehabilitation. Most importantly, resources were wasted.

Sources: Flyvbjerg, Bent. (2007). Policy and Planning for Large-Infrastructure Projects: Problems, Causes, Cures. Environment and Planning B: Planning and Design. 34. 578-597. 10.1068/b32111 and Enders, I. and Verougstraete, M., 2014. Traffic Demand Risk: The case of Bangkok's Skytrain (BTS). Public Private Partnerships Case Studies. [online] ESCAP United Nations. Available at: <https://www.unescap.org/sites/default/files/Case%201%20_Traffic%20Demand_%20Bangkok%20BTS.pdf> [Accessed 10 June 2021].

production costs or overestimates future revenues (The LPVR solution presented in Box 9 is also a way to mitigate winner's curse).2

Indeed, quantitative research covering 210 projects in 14 countries3 shows that 84 percent of rail passenger forecasts and 50 percent of road traffic forecasts are wrong by more than ±20 percent. Similarly, 9 out of 10 rail projects have overestimated traffic.

Alternatively, public authorities may also be victims of aggressive bids when prospective operators strategically underestimate production costs or overestimate future revenues in order to win the deal and then provoke renegotiations (See Graph 2) with a "captive" local public authority in the future (low balling strategy)).

Probably more importantly, those projects are not immune to collusion and corruption strategies, especially when they deal with large amounts of contracts. Mistrust of public institutions is growing everywhere, and the outsourcing of public services is in the center of corruption scandals that reinforce skepticism towards the public sector and their private partners. This is why preventing corruption is a necessary precondition for engaging in PPPs.

3.6 Managing contract enforcement and renegotiations

Managing PPP contracts involves monitoring and enforcing the PPP contract requirements and managing the relationship between the public and private partners. Managing PPP contracts differs from managing traditional procurement contracts. PPPs are long term and complex, and contracts are necessarily incomplete—that is, the requirements and rules in all scenarios cannot be specified in the contract. Therefore, the management of PPP contracts must be flexible in both available resources and skills to meet the whole-life expectations of the contract.

Contracts of the complexity and duration of PPPs will necessarily be incomplete. Incompleteness happens when contracting parties cannot perfectly describe actions and predict situations in the contract. The consequence of this failure is that non-verifiable actions cannot be enforceable by courts, for example (Farquharson et al., 2011). This situation gives room for severe disputes between parties that can destroy cooperation (Frydlinger et al., 2019) and/or culminate in the premature ending of the contract.

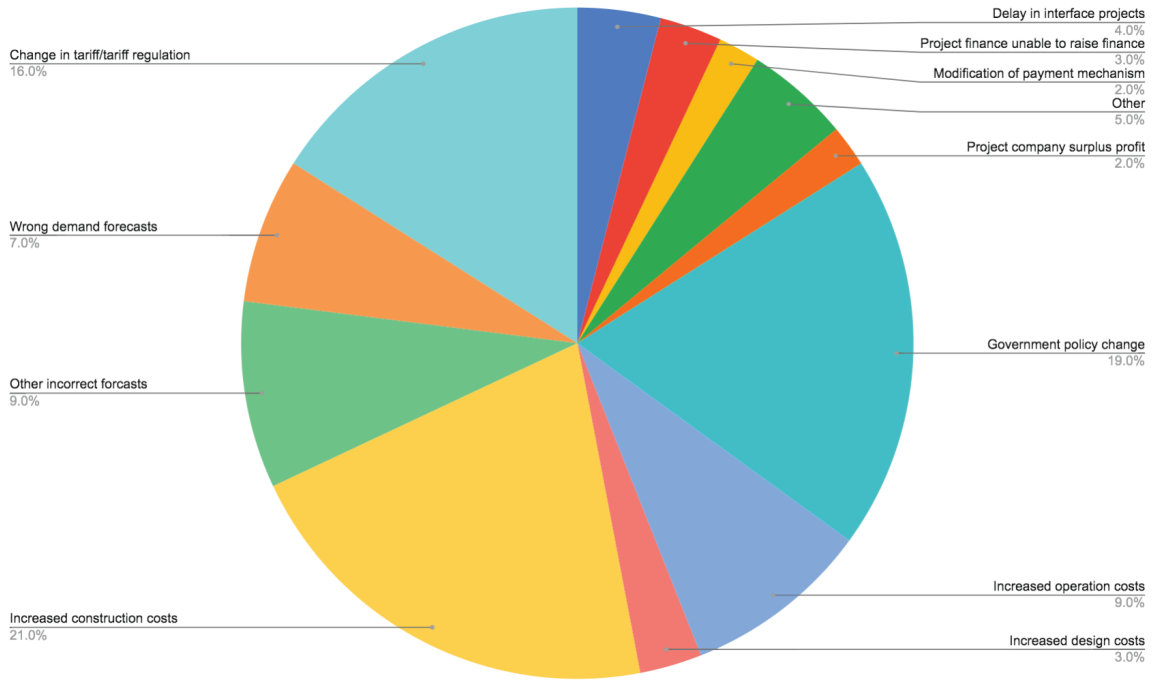
The impossibility of predicting future events such as technological disruptions, changes in demand for public services and more, also make PPP contracts particularly risky, since they tend to be considerably

[2] When the predicted demand of the winner is over-optimistic, the infrastructure will be over-dimensioned and projected revenues will not occur as predicted leading the winner to bankruptcy (winner's curse). Consequences can also come in the form of loan defaults and increase in service prices.
[3] Data from both developed and developing countries: Brazil, Chile, Denmark, Egypt, France, Germany, Hong Kong, India, Mexico, South Korea, Sweden, Tunisia, the U.K., and the U.S.

long, rigid agreements, and subject to unpredicted environmental changes. The higher the instability of a political, economic and social environment, the higher the costs of a PPP contract and the smaller the cost-benefit relationship of outsourcing services through PPPs will be. This is why contract enforcement and the overall quality of a country's judicial system is of utmost importance for PPPs.

The figure below presents main causes of renegotiations for 48 projects: increased construction costs, government policy change followed by change in tariff or tariff regulation are the two main sources of project renegotiation. Findings seem to suggest that part of the renegotiation derives from opportunistic behavior by both private and public sector to obtain additional benefits not agreed on the original contract approved (Bajpai et al., 2020).

Figure 3-1: Causes of renegotiation, based on 48 projects that experienced renegotiations



Adapted from: Bitran, E., S. Nieto-Parra and J. Robledo (2013), "Opening the Black Box of Contract Renegotiations: An Analysis of Road Concessions in Chile, Colombia and Peru", OECD Development Centre Working Papers, No. 317, OECD Publishing, Paris, https://doi.org/10.1787/5k46n3wwxxq3-en.

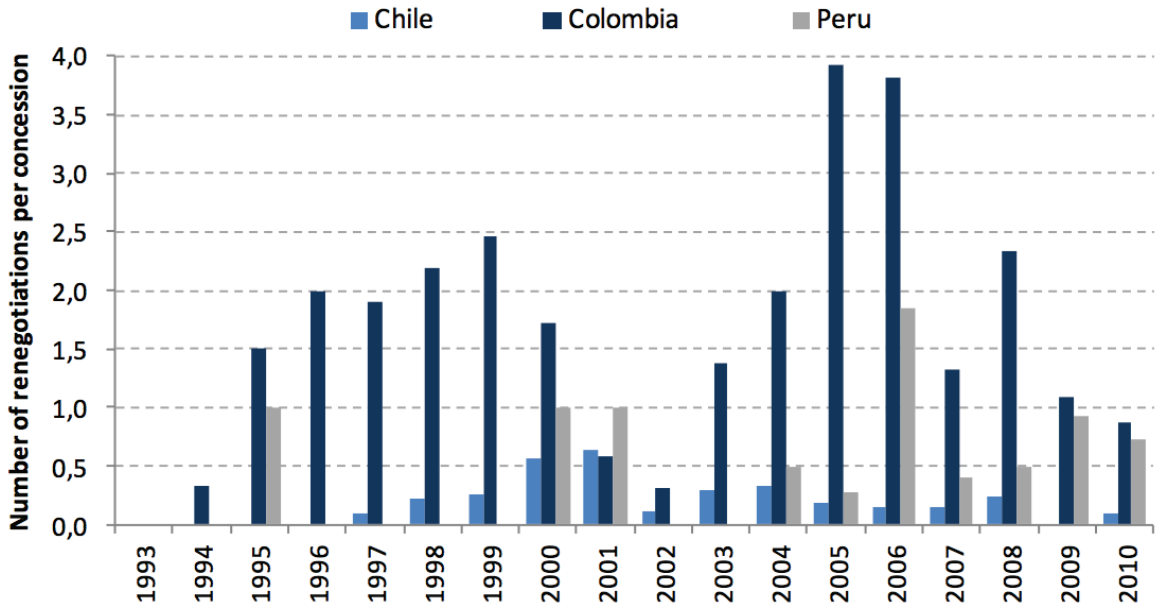
Figure 3-2 below demonstrates the frequent need for renegotiations in Chile, Colombia and Peru. Research accounting for 60 road concessions in the three countries shows that 49 of the concession contracts were modified at least once, and there was a total of 543 changes over the 17-year period of the study (Bitran et al., 2013). "Such high rates of contract renegotiation have raised serious questions about the viability of the concession model" in developing countries (Guasch et al., 2008) and may be explained by the lack of commitment of governments, mainly due to poor institutional framework (Laffont, 2005). Weak institutions damage the credibility of public authorities and, as a consequence, can favor opportunistic behaviors of the private party, such as imposing contract renegotiations that decrease the quality of the goods and services provided. Indeed, mentioned research on Latin American countries shows that, in Chile, two thirds of renegotiations resulted in a government payment to the concessionaire. Other renegotiations in the favor of the private party were also present, such as the increase in toll prices, the allocation of revenue guarantees, or new risks covered by the government (Bitran, et al., 2013).

3.7 Some necessary conditions for PPPs to deliver

3.7.1 Government Capacities

Because PPPs are complex contractual and financial arrangements, it is unlikely that governments will have the necessary skills and knowledge to structure the transaction, manage the contract execution

Figure 3-2: Renegotiations of Public-Private Agreements in road concession contracts (Chile, Colombia and Peru)



Source: Bitran, E., S. Nieto-Parra and J. Robledo (2013), "Opening the Black Box of Contract Renegotiations: An Analysis of Road Concessions in Chile, Colombia and Peru", OECD Development Centre Working Papers, No. 317, OECD Publishing, Paris, https://doi.org/10.1787/5k46n3wwxxq3-en.

and avoid pitfalls mentioned earlier. In addition, many PPPs are governed at subnational level: in OECD countries, this is 55% of procurement that is undertaken at sub-national level (OECD 2014).

Enhancing government capabilities at all administrative levels is important because they are at the core of a good PPP strategy. Complex contractual instruments require that new skills are learned by government personnel, such as negotiation, contractual and financial skills, focusing not on inputs, as governments are mostly used to, but on project outputs (UN Economic Commission for Europe, 2008). That is why the creation of dedicated PPP central units has been a key method used in OECD countries and might help developing countries. The roles of these units may include providing policy guidance, playing a "gate-keeper" function in deciding whether or not a project should move forward, technical support to procuring departments and agencies during project identification, evaluation and procurement, capacity building (including training public sector officials) and promoting PPPs in the public and private sector, as well as supervising the execution stage of contracts (i.e., manage renegotiations and provide ex post evaluations). Establishing a PPP unit in a cross-sectorial ministry is an interesting strategy both to quickly consolidate expertise and know-how on PPPs in the country and to ensure the consistency among different PPP projects in the country (Farquharson et al., 2011). Additionally, the PPP unit could be responsible for developing national PPP training programs to build the expertise of government officials around the country (UN Economic Commission for Europe, 2008).

3.7.2 High-level political commitment

Procuring by PPP as opposed to traditional procurement is fundamentally a political decision made at the highest levels of government. In order for the political level to lend its full-fledged support to PPPs it must first understand the benefits and myths of PPP procurement. In other words, PPPs should be pursued for the right reason, to create value for money and social benefits, and not as a second-best substitute for public procurement or for debt constraints reasons.

The signals sent by high-level commitment or the lack of such a commitment are read by both government officials and the private sector. Government officials will react to such motivations by taking the project less seriously while private sector developers and investors will be less willing to participate in the project. Political actors are sensitive to the views of their citizens. It is therefore easier for politicians to be committed to projects that are perceived by the population as providing a tangible benefit to their lives. Hence, this is an aspect of project selection that must be considered in addition to value for money: the project must plainly meet a social and economic need, and its delivery must be recognized as important by most shades of political opinions.

3.7.3 Institutional Structures and Legal/ Regulatory Framework

At all stages of the PPP process, there must be a clear and transparent legal framework that both the public and private parties trust. This will help minimize the risk of corruption and prevent unethical behavior. In addition, since PPP contracts are long-term commitments and as demand for public services may change, clear rules for renegotiation must be clear and applicable to all parties.

For the public, transparency helps to ensure that a project tender is fair and that the planned costs are open to public scrutiny. For private firms, access to PPP data, particularly from past tenders and from ongoing project evaluations, will provide a better chance for robust project development and competitive modelling. Transparency also has the potential to reduce opportunities for corruption. Indeed, transparency and integrity issues can be considered as particularly important challenges. In order for PPP contracts to be successful, governments must count with legal and institutional frameworks that hold decision makers accountable such as transparency portals, independent investigation authorities, effective law enforcement and other control systems. Additional measures such as periodical diagnosis of existing and potential drivers of corruption and risks are also essential (OECD, 2021).

Internal transparency of PPP contracts must be ensured by the legal and judicial system, guaranteeing that the involved parties have all the information needed to engage in a virtuous partnership. External transparency, concerning the availability of information on PPP contracts and projects to citizens is also of particular importance for the fluidity of the partnership as well as for ensuring good project selection. An interesting measure in this direction was taken by the Federal Government of Paraguay, which created a website with data on all public projects in the country, including PPPs and traditional procurement (Paraguay, 2021).

Additionally, it must be said that transparency must be a concern already in the project selection and prioritization phase, not only once the project is already designed and selected. Citizens should be heard concerning public investment needs and priorities, this is why some legislations on PPPs require that projects pass through a "public consultancy" phase, which foments public discussion and citizen engagement. An example is the Brazilian PPP law of 2014 (Brazil, 2004).

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