# PFRAM 2.0

**Strengthening Infrastructure Governance in Public Infrastructure**

**CEF—November 12-15, 2019**

**Proposed Exercises**

The examples included in this document do not represent real PPP projects that have been approved or gone through an appropriate appraisal exercise.

Proposed exercises

We are positioned in the last quarter of 2016. Country PIMNIA is analyzing different options for fulfilling its investment plans. Its current PPP portfolio comprises only one project (signed in 2013). However, there are two additional projects that are planned to start in 2017, but the Finance Minister is concerned about the impact that their implementation will have on the country's fiscal sustainability, the risks associated with them and the reporting should be done. Therefore, he has asked your team to prepare an assessment of the whole portfolio and provide recommendations of the actions to take. The characteristics of each of these projects are detailed below.

## PROJECT 1 – HOSPITAL (P1)

Country PIMNIA has decided to renew its hospital infrastructure. To do so, it plans to rehabilitate its most complex hospital through a PPP as Build Operate and Transfer (BOT). Although the useful life of a hospital is estimated to be 30 years, the government has decided to award the contract for only half of that time. The government expects to award this contract on January 1st, 2017.

This will be a government funded project, and the control of the asset will remain in the Ministry of Health. The private partner debt leverage is 70% of the cost of the hospital. At this debt level, the local banking sector has signaled that the project could be financed at an annual rate of 8.96%.

The estimated construction cost of the hospital is DOM[1] 38,538 million and the construction will span over a period of three years, in equal amounts per year.

To minimize the burden on users of the hospital services, the government has decided to fund the project through an availability payment fixed at DOM 80,000 per user, which will be adjusted in line with inflation on a yearly basis. This fee will be paid to the private partner for the construction and maintenance of the hospital building and will not include medical services, which will be provided by the government (Ministry of Health). The government payment is not linked to the number of services provided to patients. The demand for hospital services has been estimated at 120,000 patients per year.

The maintenance cost of the hospital is estimated to start at DOM 1,800 million for the first year of operation and increase with the change in the price level (inflation), estimated through the GDP Deflator. At DOM 2,600 million, operation costs represent approximately 25% of the hospital's revenues, and will also increase with inflation.

To support the private partner, the government decided to provide a debt guarantee of 50% of the private partner loan.

[1] DOM = domestic currency

The following table summarizes the main parameters for this project[2]:

| Contract & Asset Characteristics | | Project Revenues | |
|---|---|---|---|
| Year of PPP Start | 2017 | Fee per user (DOM thousand) | 80 |
| Type of Contract | BOT | Annual fee adjustment | Inflation |
| Length of contract (years): | 15 | Hospital demand (thousands of patients) | 120 |
| Construction cost (DOM millions) | 38,538 | | |
| Construction period (years) | 3 | Demand adjustment | None |
| Construction start (contract year) | 1 | **Project Costs** | |
| Asset useful life | 30 | Maintenance (DOM million) | 1,800 |
| **Financing** | | Maintenance cost adjustment | Inflation |
| Leverage (debt to equity) | 70%-30% | Operation cost (DOM million) | 2,600 |
| Interest rate on debt | 8.96% | Operation adjustment | Inflation |
| Debt guarantee | 50% | | |

Use the PFRAM to show the impact of this project on government's:

- Liabilities
- Net lending / borrowing (i.e., fiscal balance on accrual basis)
- Cash balance (i.e., fiscal balance on a cash basis)
- Government contingent liabilities

Use the Fiscal Risk Matrix to understand the fiscal risks that the government is exposed to related to this contract.

Questions for further analysis:

1. Discuss the following concepts: capacity of the asset, demand for services, government payment mechanism. In this case the three concepts are the same. What would be implication if they are different?
2. If demand increases with population, it could growth beyond the 120,000 defined in the contract. What inconsistency appears in this case?
3. Can the government control demand? What are the incentives to do so?

## PROJECT 2 – SUSPENSION BRIDGE (P2)

This is the only project that has been constructed so far. As part of the improvements to the road infrastructure in Country PIMNIA, in 2013 the government commissioned the construction of a suspension bridge connecting the coast highway to the city center. The bridge would provide an alternate entrance to the city, reducing congestion for travelers between the city and the northwest coast, but is also expected to be used by travelers from the city suburbs. Because the bridge would provide an alternate and faster route, the government opted for a user-funded arrangement, in which the private partner's revenues would result from the fee paid by users and not from an availability payment made by the government.

The bridge is to be completed by the end of 2016 after four years of work. By the end of this period, the total construction cost will be DOM 15 billion. The operation and maintenance of the bridge is expected

[2] Enter the information in the PFRAM following the same units presented in all tables in this document.

to be DOM 600 million and DOM 300 million, respectively and will increase on an annual basis with the change in inflation.

The company who won the bid was a consortium with the major shareholders being an international construction company. The usage fee was set at DOM 1,800 per car for the year 2017 and would be linked to inflation. Demand was estimated to start at 700,000 cars and increase with GDP throughout the contract's duration.

To help keep fees low, the government agreed to provide a minimum revenue guarantee to the private partner. The stream of revenue to be guaranteed was estimated using the forecasted series of the fee per car and the of the demand. A reduction in the revenue received by the private partner below 90% of the level set by these two estimates would trigger a compensation from the government.

The following table summarizes the main parameters for this project:

| Contract & Asset Characteristics | | Project Costs | |
|---|---|---|---|
| Year of PPP Start | 2013 | Maintenance (DOM million) | 300 |
| Type of Contract | BOT | Maintenance cost adjustment | Inflation |
| Length of contract (years): | 29 | Operation cost (DOM million) | 600 |
| **Construction Costs** | | Operation adjustment | Inflation |
| Construction cost (DOM millions) | 15,000 | **Project Revenues** | |
| Construction period (years) | 4 | Fee per car (DOM thousand) | 1.8 |
| Construction start (contract year) | 1 | Annual adjustment | Inflation |
| Useful life (years) | 100 | Demand forecast (Thousand cars) | 700 |
| **Financing** | | Annual Adjustment | GDP growth |
| Leverage (debt to equity) | 70%-30% | **Government Guarantee** | |
| Interest rate on debt | 8.12% | MRG (of Expected revenue) | 90% |

Use the PFRAM to show the impact of this project on government's:

- Liabilities
- Net lending / borrowing (i.e., fiscal balance on accrual basis)
- Cash balance (i.e., fiscal balance on a cash basis)
- Government contingent liabilities

## Project 3 – International Airport (P3)

The final piece of the transportation revolution in Country PIMNIA is the building of a new international airport. The government decided to build a new terminal and runway because the existing infrastructure is too close to the city and is therefore too expensive to expand, but more importantly poses an important risk in case of an emergency.

Following the example of neighboring countries which have successfully implemented PPPs for the renewal of their air transportation terminals, the government has prepared a project that is expected to be signed on January 1, 2017 with a duration of 26 years. The construction of the two main assets of the new terminal, the runway and the terminal building should take 3 years, and will both need to start on the first year of the contract. The estimated price tag of each asset is DOM 90,000 and DOM 370,000, respectively, with an estimated useful life of 50 years each.

The new terminal will greatly increase the capacity for air travel in the country. The numbers of passengers to use the facilities is expected to reach 3 million in the first year of operation. The sizeable increase from the current levels is supported on the robust growth of tourism to Country PIMNIA and in

general the whole region. Coupled with the enhanced road network, this airport is expected to quickly become the main hub of operations for the region, which would explain the increase in demand. To be conservative, the authorities have estimated that passenger demand should grow with GDP. The fee that the private partner will receive has been estimated at FX 15 and will be linked to the nominal exchange rate.

The new terminal will also provide a variety of services to both passengers and other visitors which should prove to be a more important source of revenue for the private partner. The average income per visitor is estimated at DOM 25,000, which should increase with the change in local prices. The number of visitors is estimated to be about 1.35 million per year.

The operation of the airport will have three main components. First, maintenance of the new infrastructure will amount to DOM 8,500 million per year and should increase with the annual inflation rate. Second, the actual operation of the airport, excluding traffic control which will continue to be responsibility of the national air travel regulatory agency, is estimated at DOM 10,000 million and will also be linked to inflation. The third and final component is a revenue sharing agreement with the government to start on the year 2023, three years after the start of operations. In that year, the private partner will share revenues with the government in the amount of FX 20 million. The annual sharing amount will increase onwards with the NER.

Given the importance of this project for the competitiveness of the country, the government has agreed to provide a debt guarantee for the full amount of the debt stock of the private partner. The financial sector will provide support for the project by lending up to 75% of the total cost of the project at a rate of 7.95%.

The following table summarizes the main parameters for this project:

| Contract & Asset Characteristics | | Project Revenues | |
|---|---|---|---|
| Year of PPP Start | 2017 | **Service 1: Passengers** | |
| Type of Contract | DBOT | Fee per passenger (FX thousand) | 0.015 |
| Length of contract (years): | 26 | Annual fee adjustment | FX |
| **Construction Cost** | | Demand (Thousand passengers) | 3,000 |
| **Asset 1: Terminal** | | Adjustment for passengers' demand | GDP |
| Construction cost (DOM million) | 370,000 | **Service 2: Visitors** | |
| Construction start (contract year) | 1 | Average income per visitor (DOM thousand) | 25 |
| Construction period (years) | 3 | | |
| Asset useful life (years) | 50 | Adjustment for visitors' income | Inflation |
| **Asset 2: Runway** | | Demand (Thousand visitors) | 1,350 |
| Construction cost (DOM million) | 90,000 | Adjustment for visitors' demand | GDP |
| Construction start (contract year) | 1 | | |
| Construction period (years) | 3 | **Project Costs** | |
| Asset useful life (years) | 50 | Maintenance (DOM million) | 8,500 |
| **Financing** | | Maintenance adjustment | Inflation |
| Leverage (debt to equity) | 75%-25% | Operation cost (DOM million) | 10,000 |
| Interest rate on debt | 7.95% | Operation adjustment | Inflation |
| **Government Guarantee** | | **Revenue Sharing Agreement** | |
| Debt guarantee (% of debt) | 100% | Revenue sharing 2023 on (FX million) | 20 |
| | | Adjustment | NER |

Use the PFRAM to show the impact of this project on government's:

- Liabilities
- Net lending / borrowing (i.e., fiscal balance on accrual basis)
- Cash balance (i.e., fiscal balance on a cash basis)
- Government contingent liabilities

Questions for further analysis and discussion:

1. Estimate the termination cost of this PPP in 2025.