

THE
GOVERNMENT OF THE
TURKS & CAICOS ISLANDS

TCIA

TURKS AND CAICOS ISLANDS
AIRPORTS AUTHORITY

**INTERMEDIATE INFRASTRUCTURE BUSINESS CASE FOR THE
REDEVELOPMENT OF THE HOWARD HAMILTON INTERNATIONAL
AIRPORT**

ANNEX 4: COST BENEFIT ANALYSIS



THE
GOVERNMENT OF THE
TURKS & CAICOS ISLANDS

**PROVIDENCIALES INT'L AIRPORT (PLS)
REDEVELOPMENT PROJECT
TECHNICAL, FINANCIAL AND LEGAL CONSULTANT**

Cost Benefit Analysis
26th September 2022

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CBA results

The PPP project for the development of the airport of Providenciales (PLS) is a project of improvement and investment for the country

Type of Project

Income Generating Project as it operates under private logic and is promoted by public institutions to provide economic benefits (or even social merits) and generates income for its self-sustainability

Project that generates "Qualitative Benefits" since the effects that it will have will produce an unquestionable benefit, but of difficult valuation

Purpose of Project

The purpose of the project is a **Real Investment**, since it is focused on physical construction works, purchase of equipment, expansions, modernization and improvement of facilities

Nature of the Project

The project is classified as an Improvement Project as it carries out construction works aimed at improving all aspects of the quality of service at the airport ensuring at the same time compliance with ICAO standards as well as improvement operational safety

Source: General Methodological Guide for the Formulation and Evaluation of Public Investment Programs and Projects

Among the benefits that the Turks and Caicos society will receive, there are direct benefits, generated by the investment of the project, and indirect benefits, additional, by the development and operation of the airport

CHAPTER

1

Methodology and main assumptions

CBA Results

Economic analysis, benefits cost ratio and risk assessment of the project is estimated through a VfM assessment complemented by a CBA analysis

Comprehensive Cost-Benefit Analysis

Quantitative Value for Money

- **The Public Value of the project** is estimated through the **Value for Money (VfM) assessment**
- The concept of Value for Money incorporates both **quantitative and qualitative aspects**, including elements of judgment on the part of the government. Consequently, Value for Money can be broadly defined as what an optimal combination of quality, quantity, attributes and cost of a project means to the government over its entire lifetime
- Through the application of the Public Sector Comparator, it is possible to obtain the Value for Money in its quantitative dimension, which is based on risk analysis and financial modeling for PPP projects
- This methodology consists of the **present value comparison of the cost of a project through Traditional Public Procurement (TPP) with the adjusted cost of the project through Public-Private Partnership (PPP)**, including the valuation of the risk retained and transferred to the private



Socio-Economic Profitability. Cost-Benefit Analysis (CBA)

- Cost benefit analyses (CBA) are designed to evaluate whether an alternative (PPP option) is better or worse than the base alternative (current status) from a socio-economic profitability perspective
- For the socio-economic evaluation of the project, the project considers the Net Present Social Value (NPSV), an analysis that considers qualitative aspects executed in early stages of project preparation and that has the stages of:
 - **Identification of social benefits of carrying out the project versus the "no project" scenario.** The study includes the quantifiable benefits for each option
 - **Identification of different categories of social costs** related to carrying out the project **versus the "no project"**
 - **Quantification of social costs and benefits**
 - Cost-benefit analysis and **calculation of indicators of socio-economic profitability of the project such as NPSV and Social Benefit-Cost Ratio (SBCR)**

The Value for Money (VfM) assessment is included in the Transaction Structure Report

The main assumptions of "PPP project" and "no project" scenarios are described in the next slides

“PPP Project scenario” considers high investments profile and the introduction of INT best practices that improve the operational performance of the airport

Assumptions for the PPP project scenario

PPP Project

Demand

- PLS has already recovered pre-pandemic offer levels and is expected to continue growing at a CAGR of 1.8% (2023-2053) reaching the market cap of 2.2 million annual passengers in the long term

Investment Plan

- CapEx investments of USD ~300m are considered driven by the construction of a new passenger terminal building with capacity for 2.5 Mpax
- Major maintenance CapEx investments of USD ~65m are also estimated

Aeronautical and commercial revenues

- Aeronautical revenues projected to grow at a CAGR of 1.4% between 2028 and 2053 due to the traffic growth and the new proposed airport fees (DOM departing pax and PBB)
- Commercial revenues assumed to increase with the opening of the new terminal in 2028 improving the unit revenue as a result of introducing international best practices (1.7% CAGR 2028-2053)

Operating expenses

- Operating expenses are assumed to decrease to benchmark levels throughout the concession period due to economies of scale and the commissioning of a new terminal building, resulting a CAGR of 0.8% (2023-2053)

“No Project scenario” estimates that the operational performance remains as it is, with minor enhancements on commercial development and efficiencies

Assumptions for the no project scenario

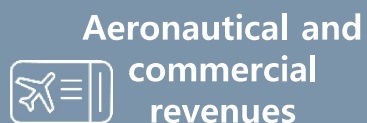
No Project



- PLS is already over 2019 traffic levels, and close to its maximum capacity. It is assumed that without project the traffic will have a lower increase, i.e., an organic growth after reaching the maximum airport's capacity is considered (annual growth of 0.5%)



- Only “quick wins” CapEx investments are considered, which are expected to be fully operational by 2025 including the existing terminal expansion and the RWY turn-pad
- Maintenance CapEx investments estimated in the PPP scenario are maintained



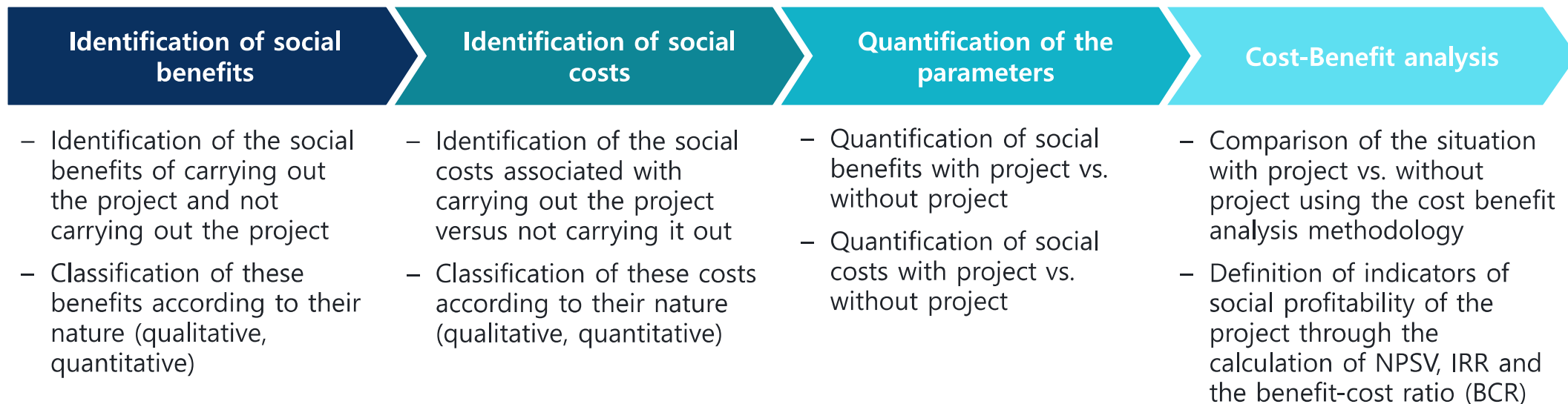
- Lower growth in aeronautical revenues are expected due to organic traffic growth while new proposed airport fees (DOM departing pax and PBB) are not included
- The resulting unit commercial revenue per passenger is increased after commissioning of the “quick wins” investments, thereafter an annual growth of 1% is assumed



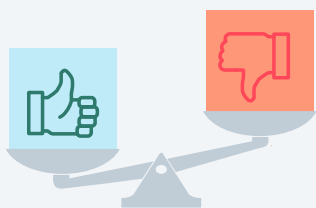
- Resulting unit operating cost per passenger includes some small operational efficiencies (annual decrease of 0.2%) but no major changes on the operational performance has been taken into consideration

For the socio-economic evaluation of the project, the NPSV (Net Present Social Value) and the Benefit-Cost ratio (BCR) have been used

Methodology for socio-economic evaluation of the project



Cost-benefit analysis



The methodology used for the cost-benefit analysis is the calculation of the NPSV (Net Present Social Value), which results from the difference between the social economic benefits (BSt) and costs (CSt) generated in a public investment project over time, taking into account the social discount rate (SDR), which is set at 15.00%, and the initial investment incurred (I₀).

$$NPSV = -I_0 + \sum_{t=1}^t \left(\frac{BSt - CSt}{(1 + SDR)^t} \right)$$

The NPSV is calculated by assigning monetary values to social benefits and costs, discounted by an appropriate social discount rate. Projects with NPSV > 0 increase the social value of resources and are generally preferred for implementation as PPPs

Source: ALG analysis based on the IDB Technical Note "Comprehensive cost-benefit analysis to evaluate the convenience of applying PPP schemes in Latin America and the Caribbean"

The cost-benefit analysis will allow to analyze the social viability of the project based on the evaluation of quantifiable aspects (benefits and costs)



The main quantifiable benefits of the project are linked to demand, tourism development and employment generation (1/2)

Identification and ranking of the project social benefits (1/2)

Social Benefit	Type
<p>Increased attraction of passenger demand</p>	 Quantitative
<p>Improvement of the image projected internationally of TCI as a high-yield tourist destination through the country's entrance doors</p>	
<p>Operational enhancement as a result of introducing international best practices</p>	 Qualitative
<p>Improvement of the quality of life in the surroundings of the airport environment by maintaining the airport's perimeter and its fencing</p>	
<p>Increased level of services for passengers and accompanying friends and relatives</p>	





Source: ALG Analysis

The qualitative benefits are linked to improving the quality of life of the population, as well as contributing to a positive and inclusive perception of the aviation industry



The main quantifiable benefits of the project are linked to demand, tourism development and employment generation (2/2)

Identification and classification of the social benefits of the project (2/2)

Social Benefit	Type
Strengthen technical operational capacities of the airport and increase of the number of direct and indirect jobs	 Quantitative
Generation of an increase in the local and regional economy	 Qualitative
Contribution to tourism development in TCI	 Quantitative
Reduction and minimization of environmental impacts linked to people's health (noise and emissions)	
Incorporation of the perspective that PLS should be a driving force for change in the environmental management of the territory, since they are conceived as sustainable infrastructures: <ul style="list-style-type: none"> – Environmentally certified by international organizations – Efficient use of resources and prevention of pollution – That take into account the conservation of biodiversity and the sustainable management of living natural resources 	 Qualitative

Source: ALG Analysis

The environmental aspects have a social component directly or indirectly in aspects of health and safety of people and are classified as qualitative benefits



Quantitative social costs of the project include expansion, major maintenance investments and operational costs

Identification and classification of the social costs of the project

Social cost	Type
-------------	------

Investment costs (Capex): costs related to airport expansion and development:

- Expansion CapEx
- Major maintenance and replacement CapEx

Operational costs (Opex): those costs related to the operation and minor maintenance of the airport. Among them, the following costs are identified:

- staff
- maintenance
- supplies
- insurance
- professional services and
- other costs



Source: ALG Analysis

Note: By definition, social costs include investment and operating costs + other costs of a social nature

The social costs of the with-project scenario are those that would be incurred in carrying out the PPP

CHAPTER

2

Methodology and main assumptions

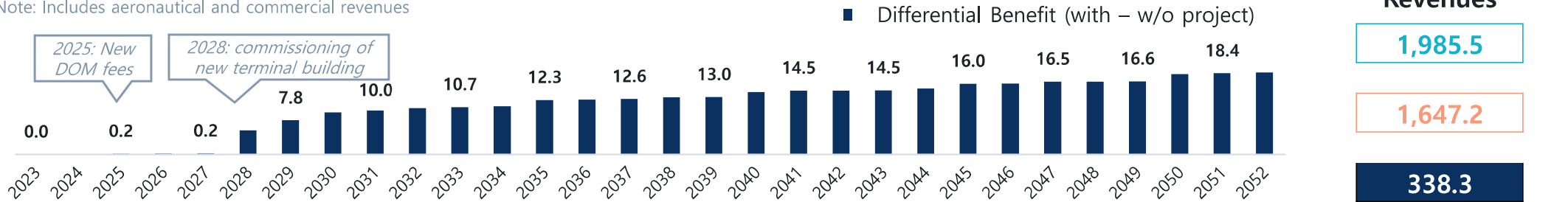
CBA Results



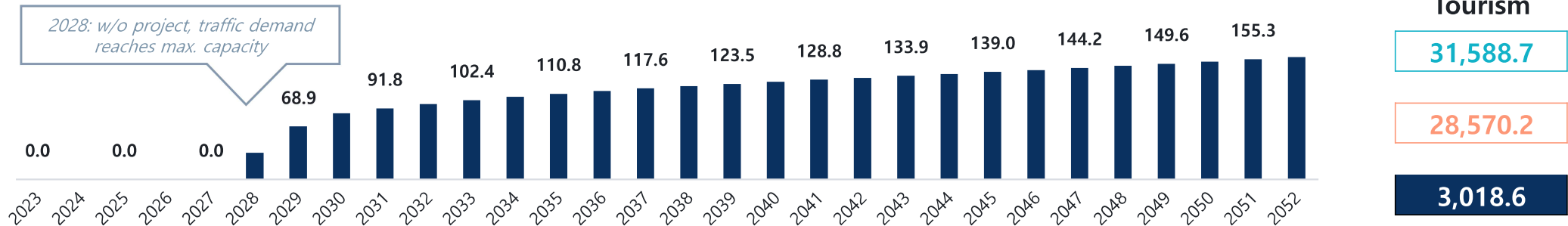
During the concession period the total differential social benefit obtained from the “PPP project” scenario vs. the “no project” scenario is USD 3.2bn...

Differential revenues with and without project (MUSD)

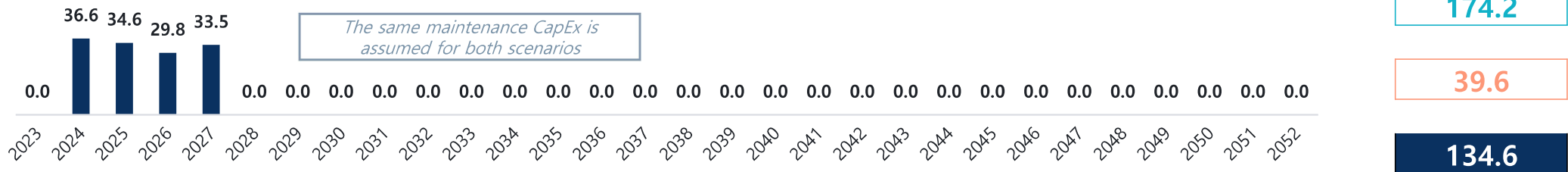
Note: Includes aeronautical and commercial revenues



Differential social benefit derived from tourism development with and without project (MUSD)



Differential social benefit associated to the generation of employment* with and without project (MUSD)

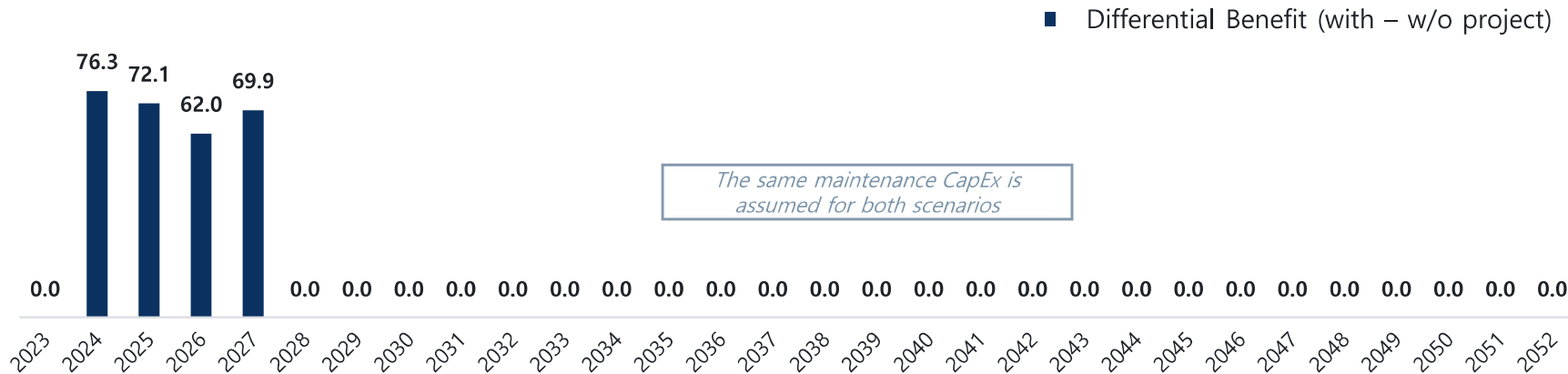


*Note: The generation of employment calculation is based only on the proposed investment, i.e., does not include the employment generated from the tourism to avoid double-counting (already considered in the benefits derived from the tourism)



...with a total differential cost of USD 351.1m, considering expansion and maintenance investments and operational costs

Differential investment with and without project (MUSD)



PPP project No project

Differential Benefit (with – w/o project)

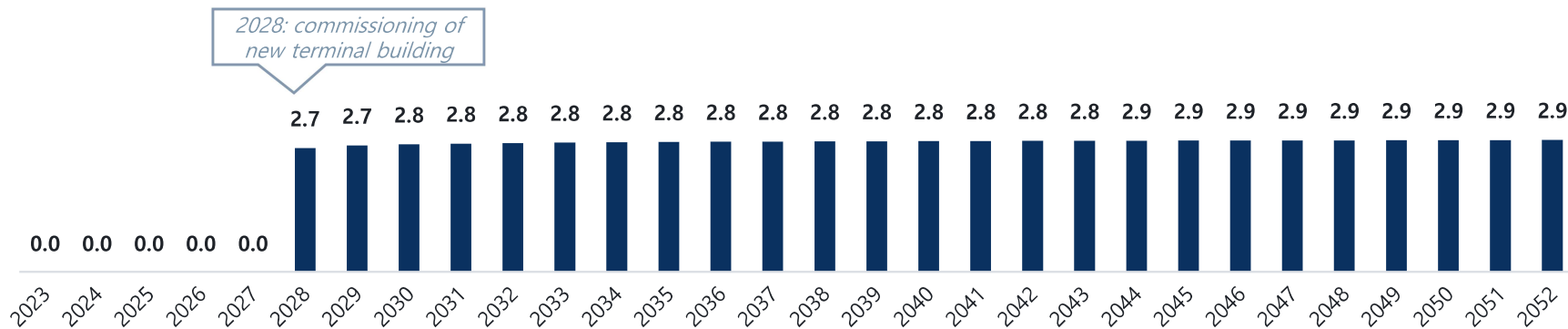
Capex

362.9

82.5

280.4

Differential operational costs with and without project (MUSD)



Opex

548.7

478.0

70.7

Source: ALG Analysis

The total costs increase by carrying out the project. However, the social benefits are also higher, and the social profitability of the project will be analyzed through a cost-benefit analysis



The results of the cost-benefit analysis indicate a higher NPV under the PPP modality with a higher BCR

Cost-Benefit Analysis (*Real MUSD*)

- The indicators of the social profitability of the project have been determined according to the cost-benefit analysis methodology and are:
 - **Net Present Value** (NPV)
 - **Net Present Social Value** (NPSV)
 - **Benefit-Cost Ratio** (BCR)
 - **Social Benefit-Cost Ratio** (SBCR)

Inputs (MUSD)	PPP	No project
Social Discount Rate (SDR)	15.0%	
Calculation period	2023-2052	
Total cumulative investment	362.9	82.5
Total accumulated social benefits	33,748.5	30,257.0
Cumulative social cost	911.6	560.5

Cost-Benefit Analysis	Unit	Values '23-52
Capex + Opex NPV	MUSD	184.3
Revenues + Social benefits NPV	MUSD	423.7
NPV	MUSD	239.3
NPSV	MUSD	204.9
Benefit-Cost Ratio (BCR)	x	2.3
Social Benefit-Cost Ratio (SBCR)	x	2.1

Source: ALG Analysis

The result of the cost-benefit analysis of the project yields a SBCR of 2.1, showing the convenience of executing the project under the PPP modality based on the defined structure

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