LOW-CARBON
URBAN
MOBILITY

FINAL REPORT

2021

Implementação: IABS

Realização: gef

BID Banco Interamericano de Desenvolvimento

MINISTÉRIO DO DESENVOLVIMENTO REGIONAL

PÁTRIA AMADA BRASIL GOVERNO FEDERAL

Table of Contents

BASIC INFORMATION ABOUT THE PROJECT

Operation	**Low Carbon Urban Mobility for Large Cities**
Operation Number	BR-G1006
Implementer Agency	Brazilian Institute for Development and Sustainability, IDB
Team Leader	Castro, Ana Beatriz Figueiredo
Loan Number	GRT/FM-14717-BR, GRT/FM-17892-BR
Sector/Subsector	TR-UNM - TRANSPORT-NON-MOTORIZED URBAN TRANSPORT
Loan Instrument	Non-Refundable Financing Proposal
Country	Brazil
Signed on	April 08, 2015
1st Disbursement	November 12, 2015
Last Disbursement	September 24, 2021
Project End Date	October 8, 2021
End of the Grace Period	January 08, 2022

1. INTRODUCTION

1.1. The rapid growth of the Brazilian economy, the consequent increase in motorization and the inefficiency of public transport systems have led to an escalation in traffic congestion, air pollution, greenhouse gas emissions and other negative externalities derived from the use of cars in urban areas. The increase

in the number of cars moving around on the urban road network, to the detriment of traffic and non-motorized modes of transport, contributes to the deterioration of travel conditions for all users, especially in large and medium-sized cities. Brazil has some of the biggest cities in the world. São Paulo, the seventh largest city in the world, and 24 other cities with more than 700,000 inhabitants are home to 25% of the country's population[1].

1.2 The Brazilian fleet of vehicles, including automobiles, motorcycles, light commercial vehicles and buses, reached 38 million in 2013[2]. In the state of São Paulo alone, more than 2,000 new cars are added per day[3]. At the same time, in the city of São Paulo, the total number of transfers in private vehicles increased by 21% from 2007 to 2012. This trend is even more worrying, given that the increase in the private vehicle fleet occurred mainly in the low-income sector of the population. This population, who live in the periphery of cities, replaced the use of public buses (whose demand increased by only 8% in the same period) with private cars and motorcycles for their daily transport needs.

1.3. In 2007, the Brazilian government launched the Growth Acceleration Program (PAC), a major investment plan. The objective of the Urban Mobility Investment PAC for the 2014 World Cup was to support the 12 host cities of the FIFA World Cup matches to improve their public transport systems. The project had a funding budget of US$ 5.7 billion (R$12 billion) to finance the infrastructure of the 12 selected mass transit projects in the World Cup Host Cities.

1 IBGE, 2013
ttp://www.ibge.gov.br/home/estatistica/populacao/estimativa2013/estimativa_dou.shtm.
2 National Union of the Automobile Components Industry (Sindipeças),
2013 - http://www.sindipecas.org.br/arquivos/RFCB2013.pdf.
3 Bazani, A. 2014 - http://www.antp.org.br/website/noticias/ponto-de-vista

LOW-CARBON
URBAN
MOBILITY

1.4. In 2011, the Brazilian Government launched the PAC for Urban Mobility in Large Cities, with a total cost of US$ 15.2 billion, which will benefit the 24 largest cities in the country (those with more than 700 thousand inhabitants), which are home to about 50.6 million people, that is, twenty-five (25) % of the population. These projects will improve public transport and benefit 39% of metropolitan residents. The projects include all transport systems, i.e., bus rapid transit, LRT (Light Rail Transit), transport trains and subway. The Ministry of Regional Development is responsible for coordinating, approving, monitoring and evaluating all urban transport systems financed by the Urban Mobility PAC.

1.5. However, Urban Mobility PAC projects only include financing for their infrastructure and are rarely articulated with sustainable mobility strategies that incorporate complementary measures and considerations in terms of adaptation to climate change and mitigation of its effects. Consequently, within the Urban Mobility PAC, there are no proposals of measures according to the "avoid-shift-improve" paradigm; or any other criteria intended to improve the resilience of transport systems. On the other hand, sustainable transport indicators and the assessment of the reduction of greenhouse gas emissions obtained thanks to the infrastructure financed by the PAC are not among the assessment requirements of the Ministry of Cities to consider investment proposals from municipalities.

1.6. During the 15th Conference of the Parties (COP 15) to the United Nations Framework Convention on Climate Change (UNFCCC), Brazil expressed its determination to contribute to an ambitious international initiative to combat climate change. In December 2009, the Brazilian government promulgated the Climate Change Law, which establishes the principles, objectives, guidelines and

mechanisms for the implementation of public policies on climate change in the country. The law creates a framework that supports the action of federal, state and local governments on climate change. In this context, the government has made a voluntary national commitment to reduce greenhouse gas emissions in Brazil by between 36.1% and 38.9% by 2020, compared to a typical case.

1.7. Despite the Brazilian Government's clear commitment to achieving sustainable mobility and accessibility and addressing the challenges posed by climate change, the shortcomings are also evident. Insufficient training, lack of adequate tools and adequate information at the national and municipal levels constitute a huge barrier to the realization of sustainable urban transport systems in Brazilian cities that encourage public and non-motorized transport and discourage the use of cars. Few cities have the technical, institutional and
operational conditions to formulate comprehensive plans and projects, as evidenced by the lack of master plans for mobility. On the other hand, there is also a lack of actions to develop this knowledge, in order to expand technical capacity and the use of methodologies to measure and control greenhouse gas emissions to assess aspects of climate change in urban transport. This situation renders ineffective any initiative aimed at directing investments
in urban transport to meet the objective of the Climate Change Act.

1.8. In this context, the project sought to develop tools and demonstrate the inclusion of climate change considerations in the design and evaluation of urban transport investments in Brazil, specifically targeting the adoption of low-carbon transport programs by large cities in Brazil and the mobilization of investments in low-carbon urban mobility. It also

LOW-CARBON
URBAN
MOBILITY

involved the dissemination of knowledge and technical reference materials to provide urban transport planning bodies with the basis for implementing better sustainable urban mobility projects
.

1.9. To this end, the project aimed to develop, based on the best international practices, a national technical and regulatory framework for the promotion of sustainable urban mobility in large Brazilian cities, thus optimizing the large investments of the PAC in transport systems for (BRT, subway and trains) and maximizing the benefits that can be provided by reducing GHG emissions.

1.10. The project was designed to address the lack of standardization in the design of low-carbon transport projects, as well as methodologies for evaluating them, and for monitoring related emissions, in order to promote sustainable urban mobility.

1.11. The project is in line with the objectives of the IDB's Integrated Strategy for Climate Change Mitigation and Adaptation, and Sustainable and Renewable Energy (document GN-2609-1), which serves
as a guide to increase support for climate change adaptation and mitigation activities in the Latin American and Caribbean region. It is worth noting that the same applies to the following objectives of the IDB's Country Strategy with Brazil for the 2012-2014 period (document GN-2662-1):

(i) stimulate social and production inclusion;
(ii) improve the country's infrastructure;
(iii) promote the development of sustainable cities;
(iv) improve the institutional capacity of public entities, and;

(v) increase the sustainable management of natural resources and actions for adaptation to climate change and mitigation of its effects.

1.12. The strategy also proposes to act in support of all federal initiatives included in the PAC, and prioritizes the following aspects:

(i) collective transport, through the operational rationalization of services, improvement and implementation of bus lanes and expansion of transport capacity;

(ii) non-motorized transport, through measures aimed at improving the infrastructure for pedestrians, people with special needs and cyclists, and;

(iii) sustainable mobility, aiming to promote the use of modes of transport that produce less pollution and technologies that are cleaner.

2. PROJECT COMPONENTS

2.1. The project was organized into four sequential and integrated components aimed at implementing sustainable mobility initiatives in Brazil, with three executive technicians for the project and a fourth technicians in charge of administrative/operational aspects. In principle, the different components were structured as follows: Component 1 dealt with the consolidation of a database and information on sustainable urban mobility and an institutional diagnosis, which resulted in an overview of the legal framework necessary to motivate the execution of projects related to low-carbon urban mobility, through the development of knowledge about urban low-carbon emissions, with an emphasis on reducing emissions in urban mobility, and on monitoring

LOW-CARBON
URBAN
MOBILITY

GHG emissions. Component 2 sought to develop and validate methodologies to demonstrate the effectiveness of the low-carbon urban mobility and the assessment thereof, in addition to implementing a comprehensive non-motorized movement infrastructure. Component 3 sought to train public management teams and structures in municipalities, states and other stakeholders through activities to disseminate and publish the knowledge produced and consolidated in components 1 and 2.

2.2. Component 1. Sustainable Urban Mobility Framework for Large Cities in Brazil (US$1,076,330 - initially planned). This component aimed to produce a summary framework and socio-environmental guidelines to support the reduction of greenhouse gas emissions and the inclusion of criteria for adaptation to climate change in urban transport projects. It addressed urban mobility issues in general, covering concepts related to non-motorized transport, transport demand management, priority actions for public transport, smart transport systems, best practices in urban mobility and the

estimation and evaluation of greenhouse gas emissions resulting from urban mobility. The proposed activities will improve the ability of federal and municipal governments to implement new policies to reduce greenhouse gas emissions produced by urban mobility, and will better prepare the Ministry of Regional Development to influence municipal urban transport projects and policies.

2.3. Along with the framework, six guidelines were formulated as a technical reference to consider the emission of greenhouse gases and local pollutants, which will serve

urban transport agencies across the country to support the design and evaluation of the program. Two existing guidelines were revised and four new guidelines were developed. These guidelines addressed the following topics:

(i) non-motorized transport;
(ii) transport demand management;
(iii) priority measures for public transport;
(iv) intelligent transport systems;
(v) Best practices in urban mobility, and;
(vi) estimation and evaluation of greenhouse gas emissions
from urban mobility. Adapting to and mitigating climate change and reducing the effect of greenhouse gas emissions will be the backbone of the guidelines.

2.4. Component 2. Demonstration pilot projects (US$1,523,522.09 - initially planned). This component was initially planned encompassing the following elements: (i) design of a tool to assess potential for the reduction of emissions in new urban transport projects; (ii) formulation of pilot strategies for non-motorized transport and transport demand management; and (iii) implementation of a pilot project to improve public transport and standards for non-motorized transport. These pilot projects will not only bring direct benefits, but will provide information on the implementation of the emissions assessment tool, and the framework and guidelines formulated within Component 1, with the aim of improving the quality of these outputs.

2.5. The first subcomponent included four outputs:

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL

(i) the design of an emission reduction estimator, which consists of a tool (system) of simplified use, for the preparation of prognoses, used to evaluate future projects of public interest. These estimates will assist the Ministry of Regional Development in the evaluation of applications for federal funding;
(ii) an interface to improve the monitoring of greenhouse gases and local pollutants produced by transport projects
;
(iii) a methodology for ex-post evaluation of transport projects, and;
(iv) the application of the methodology for the ex-post evaluation of transport projects in pilot projects.

2.6. The second subcomponent included the formulation of (i) a strategic plan for managing transport demand and (ii) a strategic plan for non-motorized transport. These plans are a preliminary step that establishes the political guidelines and qualitative objectives to guide the municipality with regard to the preparation of an urban mobility plan that can be a reference for other Brazilian cities. These strategies will provide information for the guidelines and serve as a model for other cities, thus multiplying the impact of the intervention.

2.7. The third subcomponent included the implementation of a pilot transport project in the context of the larger program with parallel financing resources, which comprises two bus rapid transport corridors partially financed by the Bank. The

city will establish measures to improve public transport and the non-motorized transport standards in these corridors, which will include operational,

technological and accessibility-related improvements in projects financed by PAC17 in terms of overall performance and reduction of greenhouse gas emissions.
2.8. It is worth mentioning that this implementer institution was not responsible for this component, as informed in item 1.16, because the IDB was directly responsible for the execution thereof, which is why the technical and financial progress and execution data were not discussed in this report.
2.9. Component 3. Capacity building and publicizing (US$ 610,431 - initially planned). This component strengthened the capacity of public officials and relevant actors at the local level, in sustainability practices for the assessment and monitoring of urban mobility and greenhouse gas emissions. These training activities were an initial step in supporting the institutions involved in the implementation of urban mobility policies and projects, in order for them to incorporate the climate change considerations that will be required according to the new guidelines to be established by the Ministry of Regional Development through the proposed planning and technical structure.
2.10. This component consisted of:
(i) Three workshops for public officials and relevant actors at national and local levels in the assessment and monitoring of urban transport emissions, which addressed the main aspects of transport-related emissions, multimodal modeling and estimation of emissions from transport projects;
(ii) Five sustainable urban mobility workshops, covering non-motorized transport, transport demand management,

priority actions for public transport, smart transport systems and best practices in urban mobility;
(iii) the publication of technical guidelines formulated as part of Component 1, and;
(iv) two promotion seminars, one at the beginning of the project, with the aim of encouraging the participation of relevant stakeholders, and another at the end, to disclose the project results and the knowledge produced within the scope of the Project.
(v) organization of two remote courses about the topics covered in the Technical Reference Notebooks. The purpose of the Active Mobility course is to allow students to understand and consider the importance of bicycling and walking mobility in urban planning, in the formulation of public policies that are in accordance with
the National Policy on Urban Mobility. Identify infrastructure elements and tools for planning, sources of funds and financing, monitoring and evaluation. The purpose of the Information Management for Urban Mobility course is to present the concepts and improve the use of information management in urban mobility. Both are intended for technicians, managers, public servants (at the federal, state, municipal and district levels) and people in the private sector, such as public transport operators, among others, as well as other actors and institutions linked to the transport and urban mobility sector.
(v) organization of two remote courses about the topics covered in the Technical Reference Notebooks.
The purpose of the Active Mobility course is to allow students to understand and consider the importance of bicycling and walking mobility in urban planning, in the formulation of public policies that are in accordance with
the National Policy on Urban Mobility. Identify infrastructure elements and tools for planning, sources of funds and financing, monitoring and evaluation. The purpose of the Information Management for Urban Mobility course is to present the concepts and improve the use of information management in urban mobility. Both are intended for technicians, managers, public servants (at the federal, state, municipal and district levels) and people in the private sector, such as public transport operators, among others, as well as other actors and institutions linked to the transport and urban mobility sector.

3 were updated and readjusted due to sanitary issues
linked to the Covid-19 Pandemic and social distancing restrictions. Therefore, activities scheduled to take place in person have been converted into remote activities, carried out virtually.

2.12. The following is a summary table of the components for which the IABS is responsible:

Component	Output	Breakdown
	1.1. Proposed regulatory framework for the internalization of the reduction of atmospheric emissions within the scope of the Ministry of Regional Development -	
		1.2.1. Technical Reference Notebook of Non-Motorized Transport - Bicycles
Component 1: Sustainable urban mobility framework for large Brazilian cities		1.2.2. Technical Reference Notebook of Non-Motorized Transport - Pedestrians
	1.2. Technical Reference Notebooks - prepared.	1.2.3. Technical Reference Book for Travel Demand Management (TDM)
		1.2.4. Technical Reference Notebook of Prioritization of Collective Public Transport in the Road
		1.2.5. Technical Reference Notebook for Intelligent Transport Systems (ITS)
		1.2.6. Technical Reference Book for Low Carbon Urban Mobility
	1.3. Training course for the technical staff of the Ministry of Regional Development.	
		3.1.1. On-site Courses (training for Municipal Governments and Partners)
Component 3: Strengthening of capacities and dissemination	3.1. Training activities implemented.	3.2. Remote courses (training for Municipal Governments and partners)
	3.2. Publication of technical reference manuals and technical reports	
	3.3. Dissemination Strategies	
Component 4: Administration and Auditing		Administration and Auditing

3. PACT

3.1. The cooperation agreement signed by the Brazilian Federal Government (Ministry of Regional Development), through the National Secretariat for Mobility and Urban Services (SEMOB) and IABS, aimed to establish a cooperation regime for the performance of activities related to the Project of Urban Mobility with Low Carbon Emissions in Large Cities, which consists of contributing to the development of technical and knowledge tools aimed at planning and implementing sustainable urban mobility in Brazilian cities. The Agreement was entered into by virtue of the Memorandum of Understanding signed on May 19, 2004, between the IDB and the Secretariat of the Global Environment Facility (GEF), for direct access to the resources of the Global Environment Facility, through transfers.
3.2. Indeed, the Cooperation Agreement has the following specific objectives:
(i) Development of technical tools
(ii) Organization of technical training for managers and public agents
(iii) Preparation of technical publications
(iv) Implementation of a strategy to spread the word about the activities and technical materials produced
(v) Dissemination of good practices on planning, implementation and management of sustainable urban mobility actions in Brazil and worldwide.
3.3. The Institute of Energy and Environment (IEMA) was initially the

agency in charge of implementing the Project, as established in the Non-Refundable Financing Agreement entered into on April 8, 2015, between the Inter-American Development Bank, IEMA and the Federative Republic of Brazil, through the then Ministry of Cities.
3.4. On April 20, 2018, through Official Letter 166/2018/SEMOB-MCIDADES from the then Ministry of Cities, the Republic requested the Bank to extend the execution/implementation and disbursement deadlines for the Project, both to April 8, 2020, in order for the activities included in the scope of the Project to be fully implemented.
3.5. However, on August 3, 2018, IEMA informed the Bank that it had no interest in remaining as the the agency in charge of executing the Project. Subsequently, through official letters 279/2018/SEMOB-MCIDADES and 291/2018/SEMOB-MCIDADES from the then Ministry of Cities, dated respectively August 23, 2018 and September 13, 2018, the Republic requested the Bank to change the implementer agency of the Project and expressed its interest in assigning the Brazilian Institute of Development and Sustainability (IABS) as the implementer agency of the Project. Thus, the Non-reimbursable Investment Financing Agreement GRT/FM-14717-BR was signed by and between the IDB and IABS on April 5, 2019, to be effective until April 8, 2020.
3.6. In January 2020, the Amendment number 1 was made to the Non-reimbursable Investment Financing Agreement GRT/FM-14717-BR, which establishes that the Bank will directly implement US$ 2,432,286.91 of the Contribution resources and that, therefore, such Contribution funds would not be disbursed to the IABS. Thus, the Bank would directly implement the resources

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL

allocated to the consulting firms provided for in subitem (b), paragraph 3 (IMPLEMENTER AGENCY), INTRODUCTION of the Special Provisions of the Agreement, which would correspond to Component 2.
3.7. In April 2020, Amendment number 2 was made to the Non-Refundable Investment Financing Agreement GRT/FM-14717-BR, extending the project execution period and the period for disbursement of resources until October 8, 2020.
3.8. Subsequently, in October 2020, Amendment number 3 was made to the Non-reimbursable Investment Financing Agreement GRT/FM-14717-BR, extending the project execution period and the period for disbursement of resources until October 8, 2021, in order to guarantee the execution of the Project activities.
3.9. The period initially established for the execution of the project was extended, through amendments to the original agreement. The first Amendment to the Non-reimbursable Investment Financing Agreement of the Global Environment Facility, dated December 30, 2019, introduced modifications to the Agreement GRT/FM-1417-BR, establishing that the IABS was responsible for implementing components 1 and 3 and the IDB would be in charge of implementing Component 2 directly, using a maximum budget of US$ 2,432,286.91 (two million, four hundred and thirty-two thousand, two hundred and eighty-six dollars and ninety-one cents), for the execution of the following activities:

(i) Consulting services for the preparation of studies on rail transport systems in urban environments
(ii) Consulting services for logistics guidelines aiming at lower carbon emissions
(iii) Specialized consulting services for the development of

a friendly version and interface between the tool and a database system at the Ministry of Regional Development
(iv) Specialized consulting services for the preparation of studies and strategies on Electromobility
(v) Specialized consulting services for the organization of an Electromobility workshop.
3.10. Indeed, of the original amount of US$ 6,000,000.00 (six million dollars), the IDB was left in charge of the amount of US$ 2,432,286.91 (two million, four hundred and thirty-two thousand, two hundred and eighty-six Brazilian Reals and ninety-one cents).
3.11. The second contractual amendment, dated April 17, 2020, established that the project execution term expires on October 8, 2020, which is the maximum term for disbursements and for filing requests for approval of outputs. The third contractual amendment extended the execution of the project for another year, establishing that the final deadline for disbursements was October 08, 2021. This deadline was not changed later and became the final date for execution of the project and for filing requests for approval of disbursements and outputs.

4. FIDUCIARY CONTEXT OF THE IMPLEMENTER AGENCY

Historical Context of the Agent in Charge of Executing the Program

4.1. Established in 2003, the Brazilian Institute for Development and Sustainability (IABS) is a non-profit organization, certified as a Civil Society Organization of Public Interest

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL

(OSCIP), which brings together various actions, arrangements and experiences in the pursuit of sustainability. Its objective is to contribute to the sustainable development, the reduction of inequalities, the fight against climate change and the guarantee of access to such benefits for present and future generations (learn more at www.iabs.org.br).
4.2. Since 2006, it has been acting as a facilitator in the reception and management of international cooperation funds, receiving technical and financial resources, using them according to the decisions of partners and beneficiaries and rendering accounts to stakeholder(s), in tandem with the strategic, technical and administrative supervision of the entire process.
4.3. With strict governance criteria, the IABS has several collegiate bodies, and that provides an opportunity for democratic decisions thought through several heads. This format also includes levels of administrative and financial control.
4.4. According to our Statute, the Ordinary and Extraordinary Assemblies are the top collective-decision bodies, in which all the partners participate. To ensure the agility necessary for everyday decisions, the IABS has a Decision-making Council that plays a strategic role, both for the institute and especially for the projects.
4.5. Executive decisions are made by a multifaceted Board of Directors, with Directors specialized in specific areas. The result is that the decisions are cohesive and thought through from different angles. Indeed, in the execution, the IABS has specialists in a wide variety of areas, including managers, advisors and people to support the management, administrative-financial and technical team.

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL

4.6. In addition to the decision-making and executive bodies mentioned above, the IABS, with the purpose of ensuring the correctness of its procedures and accounts, maintains a Permanent Audit Council, which is in charge of doing the internal control and auditing of the institute's finances.

4.7. The IABS has entered into contracts and agreements with various national and international, public and private organizations, and it has rendered proper accounts of the amounts received in accordance with contractual terms, depending on the source to which such resources refer. It maintains a specific bank account for each contract/project, operating it exclusively at the request of the respective expense controller. It records all expenses in accordance with applicable law. It organizes the corresponding documentation in a specifically designated file, conventionally or electronically registered.

4.8. In this project, we use our Purchasing and Contracting Regulation and its annexes, duly approved and authorized by the IDB. It is worth mentioning that the IABS's Purchasing and Contracting Regulations were designed and written by a specialized team, and they were reviewed by and received support from the most diverse sectors of the Institute, in order to understand the latent needs of teams and projects, always in due accordance with the law and based on the best principles of transparency.

Main Accounting Policies

4.9. With regard to internal, external and registration controls, the IABS, as the implementer agency, maintains an adequate process of internal accounting, financial and administrative controls. The accounting procedures are organized in order to provide the

documentation necessary to verify transactions and facilitate the timely preparation of financial statements and reports.

Preparation Basis

4.10. The financial statements that include the statement of cash flows, statement of accumulated investments and explanatory notes, were prepared following the cash basis accounting method, recording revenues upon receipt of funds (resources) and recognizing expenses when they effectively represent expenses paid in cash (cash).

Period of the financial statements

4.11. The financial statements are being presented from the date of signature of the technical cooperation agreement letter (April 05, 2019) to the executive closing date of the project (October 08, 2021), comprising part of the 2019 fiscal year, the full 2020 fiscal year and part of the 2021 fiscal year. At this point, it is worth remembering that until the closing date of this report, the second-audit output is still pending payment, because it can only be paid after the presentation of the external-audit reports.

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL

Currency

4.12. Disbursements in dollars made by the IDB are credited upon prior settlement of the exchange contract by Banco do Brasil, in the specific account for managing this resource in the local currency (Brazilian Real). To calculate the conversion of expenses incurred in local currency into the currency of the agreement (US dollar):

Disbursement/Refund	Date	Exchange rate	USD	BRL
1st Disbursement	25/09/2019	4,1600	200.000,00	832.000,00
2nd Disbursement	23/10/2020	5,6045	258.668,79	1.449.709,23
3rd Disbursement	16/06/2021	5,0256	96.651,05	485.729,52
4th Disbursement	24/09/2021	5,3220	242.889,11	1.292.655,84
Total			**798.208,95**	**5.060.094,59**

4.13. The financial statements are being presented in the US dollar currency, considering the conversion rates in effect on the date of each disbursement, as indicated.

Available Funds

4.14. The funds available are deposited in the bank account of the Agreement and are the result of disbursements made by the IDB, deducting all expenses incurred, and computing the income from financial investments (local resource), on that date, as evidenced in the Execution Results

Financial (below), which was clearly demonstrated to the IDB through the monthly financial statements and rendering of accounts.

4.15. The Agreement expressly provides for an administrative fee in the amount of 15% (fifteen percent), to be deducted from the payment of each output, duly approved by the IDB and the MDR.

National Counterpart Funds

4.16. There are no counterpart resources in this project. However, the amounts shown above as interest received (investment yield) are considered to be counterpart funds for financial purposes for the execution of the project. Indeed, expenses such as bank fees, taxes and other administrative and financial costs not provided for in the Work and Acquisitions Plan.

Contingencies

4.17. There are no records of in-court or out-of-court claims, known to the management, either in defense of rights or against the project's management until the date of preparation/approval of the financial statements and presentation of this report.

5. RESULTS OF THE FINANCIAL EXECUTION OF EACH COMPONENT

STATEMENT OF ACCRUED INVESTMENTS (EXPRESSED IN US$)						
Activities	**Budget In force**	**Refund**	**2019**	**2020**	**2021**	**Accrued from the Period**
Overall amount of the project	**1.023.487,14**					
Component 1: Technical and Normative Framework for Low-Carbon Urban Mobility in Large Cities	**467.448,88**					
Social and Environmental Guidelines applied to Urban Mobility	**54.030,96**	**0,00**	**0,00**	**38.069,73**	**15.920,72**	**53.990,45**
Prioritization of Public Collective Bus Transport	**66.802,88**	**0,00**	**0,00**	**66.778,29**	**0,00**	**66.778,29**
Qualification of the Public Collective Transport System by Bus	**41.330,46**	**0,00**	**0,00**	**41.330,46**	**0,00**	**41.330,46**
Innovation and Management of Knowledge for Mobility and Electromobility (Information Management - ITS)	**64.400,00**	**0,00**	**0,00**	**0,00**	**62.600,14**	**62.600,14**
Transition to Zero-Emission Urban Mobility	**49.455,53**	**0,00**	**0,00**	**41.224,75**	**8.207,69**	**49.432,44**
Peer review for the Notebooks: Bicycle Mobility, Public Transport, Information Management and Transition to Zero Emission Mobility	**72.545,47**	**0,00**	**0,00**	**39.148,31**	**33.356,95**	**72.505,26**
Hiring of a specialized technical professional	**10.953,63**		**0,00**	**8.207,69**	**14.003,93**	**22.211,62**
Unallocated resource	**57.925,08**					
	467.448,88 1	**0,00**	**2.2221,54**	**262.586,09**	**153.07,74**	**417.885,37**
Component 3: Training and dissemination of knowledge	**525.954,78**					
Online courses and lives	**27.183,37**	**0,00**	**0,00**	**7.969,67**	**10.196,84**	**18.166,51**
Online courses (Distance education)	**82.579,79**	**0,00**	**0,00**	**0,00**	**73.573,59**	**73.573,59**
Publication of the six technical reference books developed in Component 1	**145.719,22**	**0,00**	**0,00**	**54.709,66**	**84.608,55**	**139.318,21**
Expenses for sending materials to states and municipalities	**6.808,00**	**0,00**	**0,00**	**0,00**	**6.482,53**	**6.482,53**
Virtual events	**119.707,76**	**0,00**	**0,00**	**0,00**	**112.701,47**	**112.701,47**
Unallocated resource	**143.956,64**					
	525.954,78	**0,00**	**0,00**	**62.679,33**	**1 287.562,98**	**350.242,31**

Component 4: Administration and Auditing	30.083,48					
Management and transportation expenses	23.884,66	0,00	0,00	19.413,07	4.671,82	24.084,89
Technical audit service	6.198,82	0,00	0,00	0,00	875,14	875,14
	30.083,48	0,00	0,00	19.413,07	5.546,96	24.960,03
	100,00%	0,00%	$ 2.221,54	$ 344.678,49	$ 446.197,68	$ 793.087,71

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL

6. FULFILLMENT OF THE PROJECT'S OBJECTIVES AND GOALS

6.1. The achievement of the objectives and targets are described in the table below. It is worth mentioning that the objectives and goals referring to Component 2 are not listed, since they are supposed to be directly implemented by the Interamerican Development Bank - IDB.

Output		2015	2016	2017	2018	2019	2020	2021	EOP 2021
1.1 Output 1.1: Proposed regulatory framework for internalization of the reduction of atmospheric emissions in the MDR, prepared.	P			1					1
	P(a)				1	1	1	1	1
	A	0	0		0	0	1	0	1
1.2 Output 1.2: Technical Reference Notebooks, prepared.	P			6					6
	P(a)			5	4	4	4	2	6
	A	0	0	2	0	0	2	2	6
3.1 Output 3.1: training activities implemented.	P			1					1
	P (a)			1	0	0	0	0	1
	A	0	0	1	1	0	0	0	1
	A	0	0	0	1	0	0	0	1
3.1 Output 3.1: training activities implemented.	P			8					8
	P (a)				9	0	7	4	8
	A	0	0	1	1	0	2	4	8
3.2 Output 3.2 - Publication of technical reference books and technical reports.	P			6					6
	P (a)				6	6	6	4	6

	A	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**6**
3.3 Output 3.3 Dissemination Strategies	**P**			**1**					**1**
	P (a)				**1**	**0**	**2**	**5**	**6**
	P	**0**	**1**	**0**	**0**	**0**	**0**	**5**	**6**

4 Key:
P = Initially planned. It is the value that was agreed upon after the start-up mission, that value will not change over the life of the project.
P(a) = Updated schedule. Initially, it is equal to P and will be changed throughout the project, according to the updating/rescheduling needs.
A = Current. It is the realized value. Ideally, the value should be equal to P(a).

6.2. The conclusion of the proposed regulatory framework for the internalization of the reduction of atmospheric emissions (Product 1) is directly linked to the objective of contributing to sustainable development and to combating climate change.
6.3. The preparation of the five Technical Reference Notebooks and the Reference Notebook of Transition to Zero Emission Urban Mobility contribute to the objectives of cooperation in preparing technical publications and offering technical training to managers and public agents, who are the target audience of the publications.
6.4. With the change in the implementer agency and dismemberment of Component 2, as well as due to the temporal expansion of the project, some activities were postponed, and their schedule was updated P(a), as shown in the table above.
6.5. Another factor that severely impacted the project's activities was the COVID-19 Pandemic and the imposition of the necessary restrictions after March 2020. As a result, activities initially planned to happen in person were converted into online/remote activities. The change, however, did not jeopardize the achievement of the objective of technically training managers and public agents that work in Urban Mobility.
6.6. The Technical Notebooks of Demand Management (GDM) and On-foot Mobility were implemented by the first implementer entity (IEMA) and then revised and adjusted by the IABS.
6.7. On the other hand, the Technical Notebooks on Bicycle Mobility, Information Management, Transition to Zero Emission Mobility and Prioritization of Collective Public Bus Transport

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL

were delivered in the second half of 2021, in the events that will be indicated below. The holding of events was part of the strategy to publicize the activities and technical materials produced, contributing to this objective.
6.8. The Training Course for the technical staff of the Ministry of Cities, currently the Ministry of Regional Development - MDR, was run and fully completed by the first implementer institution (IEMA).
6.9. Because of the Covid-19 pandemic, in-person courses were converted into online and remote courses. In 2020, the Demand Management (GDM) and On-foot Mobility courses were delivered. In 2021, the Bicycle Mobility and Information Management courses were carried out, completing the courses in the online format.
6.10. In 2021, two self-learning courses (distance education) were produced. These courses, which are on Active Mobility and Information Management, will be available on the moodle platform.
6.11. The Technical Handbooks on Mobility Demand Management, On-Foot Mobility, Bicycle Mobility, Information Management, Transition to Zero Emission Mobility and Qualification of the Collective Public Bus Transport System, were designed, approved and published in 2021.
6.12. In August 2021, the Webinar on Active Mobility was held, with the launch of the Technical Notebooks for Walking Mobility and Bicycle Mobility.

6.13. In September 2021, the Urban Mobility Management Webinar was held, which featured the launch of the

Technical Reference Notebooks about Mobility Demand Management and Information Management.

6.14. In the same month, between the 20th and 24th of September 2021, the Mobility Week was held, with daily events:

- 09/20/2021: Mobility Infrastructure Webinar.
- 09/21/2021: Low Carbon Mobility Webinar, with the International Seminar for the Launch of the Notebook on Transition to Zero-Emission Mobility.
- 22/09/2021: World Car-Free Day, with the launch of the Brazil Bicycle seal.
- 09/23/2021: Urban Mobility Information System (SIMU), with the Launch and Presentation of the SIMU Platform.
- 09/24/2021: Launch of the Urban Mobility Advisory Forum, the "Institutional Development of Urban Mobility" Webinar and Closing of the Mobility Week.

6.15. The final Event of the Webinar series took place in October 2021, and featured the presentation of products and Tools developed within the scope of the project, such as the distance-education courses, E-Carbon Platform and the launch of the Technical Reference Notebook for Qualification of Collective Public Bus Transport System and Electromobility Guide.

6.16. The fulfillment of all the objectives and goals of the Project, as indicated in the table above, contributes to the dissemination of good practices on planning, implementation and management of sustainable urban mobility adopted in Brazil and in the world.

7. DEGREE TO WHICH THE CONTRACTUAL COMMITMENTS HAVE BEEN HONORED

AGREEMENT CLAUSES				
Clause	**Description**	**Expiration**	**Date of submission**	**Status**
4.06(a)1st Half of 2015	Project Monitoring Report	30-Jul.-15	21-Oct.-15	COMPLETED
4.05(a) 1st Half of 2015	Semiannual Progress Report	14-Aug.-15	26-Oct.-15	COMPLETED
2.02(a)	Project Operational Manual (MOP)	08-Oct.-15	14-Aug.-15	COMPLETED
2.02(b)	Technical cooperation agreement between the Beneficiary and the Implementer Agency.	08-Oct.-15	14-Aug.-15	COMPLETED
2.02(c)	Program Coordination Unit (UCP) - MCidades	08-Oct.-15	14-Aug.-15	COMPLETED
2.02(d)	Program Execution Unit (UEP) - IEMA	08-Oct.-15	14-Aug.-15	COMPLETED
3.01(a)	Beneficiary's Legal Opinion	08-Oct.-15	14-Aug.-15	COMPLETED
3.01(b)	Designation of People in Charge and Authorized Signatures	08-Oct.-15	14-Aug.-15	COMPLETED
3.01(c)	Resources in the budget for the first calendar year	08-Oct.-15	14-Aug.-15	COMPLETED
3.01(d)	Initial program report	08-Oct.-15	14-Aug.-15	COMPLETED
3.01(e)	Financial Information System of the program	08-Oct.-15	14-Aug.-15	COMPLETED
4.05(a) 2nd Half of 2015	Semiannual Progress Report	14-Feb.-16	11-Apr.-16	COMPLETED
4.02(b)	Annual Maintenance Plan	March 31-16	-	NOT REQUIRED
5.03 - S1	Financial Statements of the Project	31-Mar.-16	23-May-16	COMPLETED

Ratification	Clause For Ratification Fulfillment.	07-Apr.-16	08-Apr.-15	COMPLETED
4.06(a) - S2	Project Monitoring Report	30-Jul.-16	29-Aug.-16	COMPLETED
4.05(a) 1st Half of 2016	Semiannual Progress Report	14-Aug.-16	17-May-17	COMPLETED
4.05(a) 2nd Half of 2016	Semiannual Progress Report	14-Feb.-17	17-May-17	COMPLETED
4.02(b)	Annual Maintenance Plan	31-Mar.-17	-	NOT REQUIRED
5.03 - S2	Financial Statements of the Project	31-Mar.-17	29-Mar.-17	COMPLETED
4.06(a) - S3	Project Monitoring Report	30-Jul.-17	21-Jul.-17	COMPLETED
4.05(a) 1st Half of 2017	Semiannual Progress Report	14-Aug.-17	21-Jul.-17	COMPLETED
4.05(a) 2nd Half of 2017	Semiannual Progress Report	14-Feb.-18	09-Apr.-18	COMPLETED
4.02(b)	Annual Maintenance Plan	31-Mar.-18	-	NOT REQUIRED
5.03 - S3	Financial Statements of the Project	31-Mar.-18	29-Mar.-18	COMPLETED
4.06(a) - S4	Project Monitoring Report	30-Jul.-18	20-Nov.-18	COMPLETED
4.05(a) 1st Half of 2018	Semiannual Progress Report	14-Aug.-18	11-Jul.-18	COMPLETED
4.05(a) 2nd Half of 2018	Semiannual Progress Report	14-Feb.-19		NOT REQUIRED
4.05(a) 1st Half of 2019	Semiannual Progress Report	14-Aug.-19		NOT REQUIRED
2.02 (a)	Technical Cooperation Agreement between the Implementer and the Federative Republic of Brazil	05-Oct.-19	13-June-19	COMPLETED
3.01(e)	Financial Information System - IABS	05-Oct.-19	24-May-19	COMPLETED
2.02 (b)	Constitution of the Project Execution Unit (UEP) - IABS	05-Oct.-19	13-June-19	COMPLETED
3.01(a)	Informed Legal Opinions - IABS	05-Oct.-19	24-May-19	COMPLETED
3.01 (b)	Authorized Signatures - IABS	05-Oct.-19	24-May-19	COMPLETED
4.05(a) 2nd Half of 2019	Semiannual Progress Report	14-Feb.-20	20-Feb.-20	COMPLETED
4.05(a) 1st Half of 2020	Semiannual Progress Report	14-Aug.-20	14-Aug.-20	COMPLETED
4.05(a) 2nd Half of 2020	Semiannual Progress Report	14-Feb-21	25-Feb-21	COMPLETED
4.05(a) 1st Half of 2021	Semiannual Progress Report	14-Aug.-21	30-Sep-21	COMPLETED
2.04(b)	Deadline for the last disbursement	08-Oct.-21	24-Sep.-21	COMPLETED
2.04(a)	Project Execution Deadline	08-Oct.-21	08-Oct.-21	COMPLETED
4.05(c)	Final Assessment Report	08-Jan.-22	17-Dec-21	COMPLETED

8. RESULTS OF IMPACT ASSESSMENTS AND EX POST REVIEWS

8.1. The IABS successfully implemented Components 1 and 3 (in addition to Component 4), which, as explained, were intended to improve the capacity of federal and municipal governments to implement new policies aimed at reducing greenhouse gas emissions produced by urban mobility. The established outputs were achieved. Component 2, which consisted of building a tool to assess the potential for the reduction of emissions, formulating pilot strategies for non-motorized transport and transport demand management, and implementing a pilot project to improve mobility, was not implemented by the IABS, as previously mentioned. Such

fact made it impossible for the Institute to measure the outcomes and impacts of the project, because, to measure these goals, it would be necessary to implement all the Components of the project (including information on all the outputs of Component 2), in addition to having a global view of the implementation of the entire project.

9. SOCIAL ECONOMIC EVALUATION OF THE PROJECT

Quantification of CO2 Emission Reduction

9.1 The real benefits of the Project, considered for the purpose of verifying its economic viability, refer exclusively to the Project's share as an element to expand CO2 emission reductions.

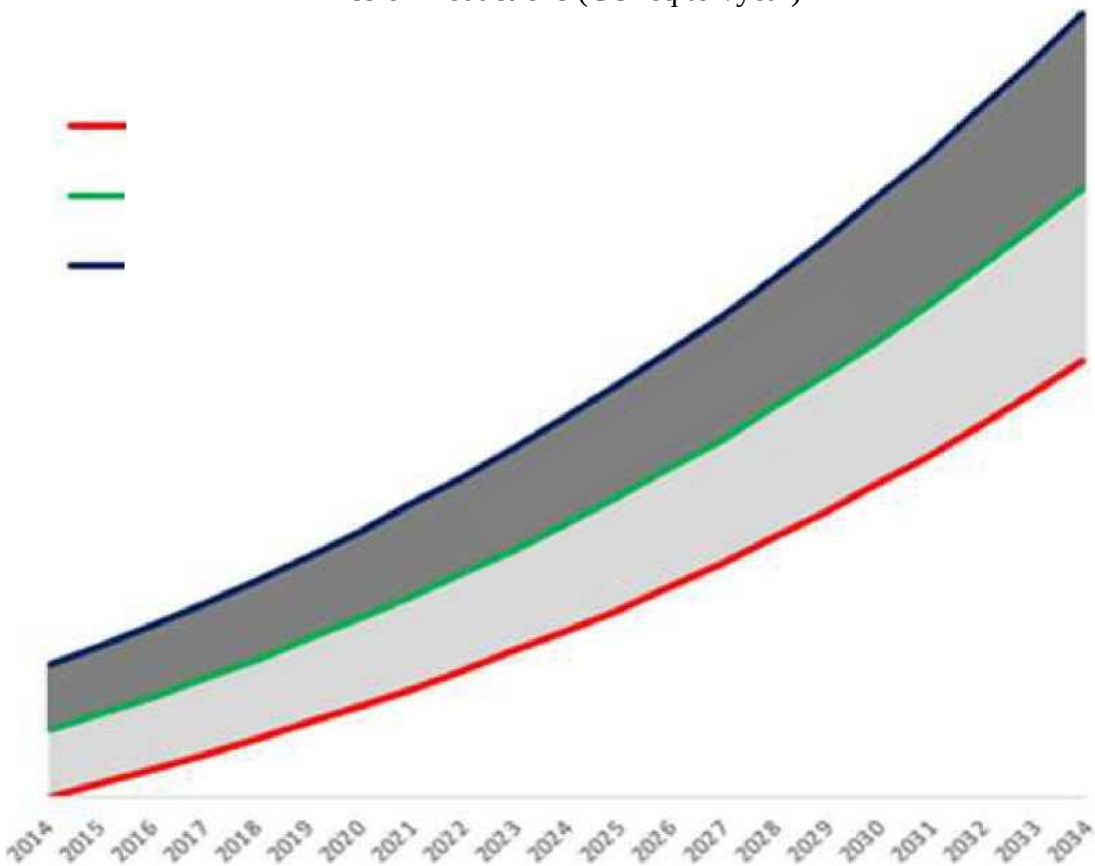
9.2. The estimate of this share was developed with the help of the Transport Emissions Evaluation Model for Projects - TEEMP, and is detailed in the report BRG1006_OPTIONAL06_InitialEmissionReductionEstimates.docx), from which the necessary information was extracted to verify the economic viability.

9.3. The ITDP TEEMP model was used to provide estimates of expected emission reductions as a result of the Low Carbon Urban Mobility for Large Cities program (BR-G1006), enabling the estimation of the Project's share.

9.4. Based on these results, the Project's share (Framework and methodologies impact) is verified in the set of four municipalities that make up the Pilot Program (Fortaleza, Brasília, Belo Horizonte and São Paulo) in a total of 1,481,863 tons

equivalents of avoided emission into the atmosphere over a period of 20 years (2015_2034). This total avoided emissions distributed over the period results in an average of 74,093 equivalent tons of CO2 per year.

Emission Reductions (CO2eq ton/year)



9.5. This total of avoided emissions, distributed over the period with an average growth rate of 2.5% per year, results in the annual values presented in the following table.

9.6 Project's share in the CO2 emission reduction:

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL

Year	CO2 reduced	Year	CO2 reduced	Year	CO2 reduced	Year	CO2 reduced
2015	58.011	2020	65.634	2025	74.259	2030	84.017
2016	59.461	2021	67.275	2026	76.115	2031	86.117
2017	60.947	2022	68.956	2027	78.018	2032	88.270

2018	62.471	2023	70.680	2028	79.968	2033	90.477
2019	64.033	2024	72.447	2029	81.968	2034	92.739

Social Cost of Carbon

9.7. An item that is impossible to measure and very difficult to estimate, the Social Cost of Carbon (SCC), refers to the set of damages avoided when any activity is carried out in order to emit a smaller amount of CO2 in the atmosphere.
9.8. Here, we are not talking about the Carbon Market (Vers - Verified Emission Reduction) whose reference values vary according to the needs / possibilities of the markets that make use of this procedure, but rather about the meaning of the effects of the presence of CO2 in the atmosphere in terms of the impact on the population's quality of life. Studies carried out by US institutions have been calculating the economic costs of the damage caused by CO2 emissions and the resulting climate change.
9.9 For the purpose of evaluating this Project, we have adopted the value of US$ 43.5 (R$ 91.35, at an exchange rate of US$ 1 = R$ 2.10) per ton of carbon dioxide equivalent, referenced to the value of US $37, in 2007 dollars, for the year 2015, in the "*Technical Support Document: Technical Update of Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, of the Interagency Working Group on Social Cost of*

Carbon, United States Government"
9.10. The update of the dollar value in the period from 2007 to 2014 was done based on the indices associated with North American inflation, available at http://pt.globalrates.com/estatisticaseconomicas/inflacao/2013.aspx.
9.11 IPC / EEUU – Accrued in the period: 17,245%:

2007	4,810%
2008	0,910%
2009	2,721%
2010	1,496%
2011	2,962%
2012	1,741%
2013	1,502%

9.12. The value adopted for the CSC, in this evaluation, can be considered conservative, notably when compared to recent evaluations of the "Economics for Equity and the Environment Network - E3", available in "Climate Risks and Carbon Prices: Revising the Social Cost of Carbon" which presents values of US$ 900 per ton of CO2. (http://www.e3network.org/).
Established Assumptions
9.13. For the effective verification of the economic viability of the Project that is being evaluated (as specified in 1.1), without introducing any bias that invalidates this

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL

verification (such as the additions of costs or benefits that are not specific to it), the following assumptions were established.
9.14. The benefits considered will be exclusively those referring to the emission of CO2, (objective of the Project under analysis), and that are derived from the existence of the Project (therefore, only those referring to the increase in the efficiency of the interventions, due to the existence of the Project, as presented in item 2.1);
9.15. Only the interventions currently planned for the municipalities of Fortaleza, Brasília, Belo Horizonte, and São Paulo will be considered, interventions that are highly likely to be carried out, which places feasibility in favor of safety, since the procedures established by the Project must reach many other interventions in other Brazilian municipalities.
9.16. The scope of this study does not include to verify the economic feasibility of the interventions planned for these four
municipalities (which will be, in due course, the target of specific analyses), so it is assumed that they are economically viable in their basic situations (without the increases in costs and benefits derived from the Project under analysis);

9.17. The increases in resources that may occur in the interventions, due to the introduction of the specific concepts and guidelines of the Project under analysis, will not result in a situation of economic unfeasibility, and these increases in costs will be offset by additional reductions in passenger travel times, and fleet operating costs;
offset by additional reductions in passenger travel times and fleet operating costs;
9.18. The technological level of combustion engines, in terms of pollutant emission rates (specifically CO2)

has remained the same during the thirteen years of the analysis period (a sensitivity analysis of this specific assumption was made and is presented below); and
9.19. The minimum rate of attractiveness for this project is 12% per year, which is the usual rate for financing public works, with distributed social effects;
Results of the Economic Assessment

9.20 The distribution over time (13 years, three of which of implementation of the program and ten of consideration of the benefits), from the values of current expenses and benefits to social values (R$ 91.35 per ton of CO2 equivalent) determines an Internal Rate of Return (IRR) quite high of 38.55% per year, showing that the program, in economic terms, easily resists strong variations in costs and benefits for the verification of sensitivity.

	Costs (BRL thousand)	CO_2 reduction (ton.)	Valued benefit (BRL thousand)	Series (BRL thousand)
2015	-2.089,86			-2.089,86
2016	-6.279,89			-6.279,89
2017	-2.340,25			-2.340,25
2018		62.471	5.706,74	5.706,74
2019		64.033	5.849,41	5.849,41
2020		65.634	5.995,64	5.995,64
2021		67.275	6.145,54	6.145,54
2022		68.956	6.299,17	6.299,17
2023		70.680	6.456,65	6.456,65
2024		72.447	6.618,07	6.618,07
2025		74.259	6.783,52	6.783,52
2026		76.115	6.953,11	6.953,11
2027		78.018	7.126,94	7.126,94

IRR = 38.55% per year.
Economic net present value (NPV) of the project (12% discount rate): BRL 16,596,780

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL

9.21. For variations in the realization of both costs and benefits, in the form of: (i) 25% increase in costs; (ii) 25% reduction in benefits; and (iii) a combination of a 15% increase in costs with a 15% reduction in benefits, the IRR remains above 25% per year (respectively: 30.2%; 31.9%; and 29.8%).
9.22. In the evaluation of the most unfavorable situation, assuming 12% as the minimum IRR of viability indication (consistent with usual evaluations of public works financed in Brazil), even with a 65% reduction in benefits (the output being the social value of CO2 x the amount of CO2 reduced to 35% of the forecast - practically a third), the feasibility is positive. Thus, the lowest social cost value for the CO2 that keeps the project viable would be R$ 31.50 (US$ 15) per ton.
9.23. Regarding the evolution of the technological level of combustion engines, with regard to the emission rates of pollutants (specifically CO2), a simulation was run to check the situation in which we will have lower emission rates

(associated with lower specific fuel consumption rates), at a pace that lowers identified benefits to a rate of 3% per year. The data presented below are the results of this simulation.

Situation with significant evolution of the technological level of combustion engines

	Costs (BRL thousand)	CO_2 reduction (ton.)	Valued benefit (BRL thousand)	Series (BRL thousand)
2015	- 2.089,86			- 2.089,86
2016	- 6.279,89			- 6.279,89
2017	- 2.340,25			- 2.340,25
2018		59.268	6.572,82	6.572,82
2019		59.536	6.602,50	6.602,50
2020		59.803	6.632,10	6.632,10
2021		60.073	6.662,06	6.662,06
2022		60.343	6.692,03	6.692,03
2023		60.614	6.722,08	6.722,08
2024		60.887	6.752,32	6.752,32
2025		61.161	6.782,74	6.782,74
2026		61.436	6.813,25	6.813,25
2027		61.713	6.843,94	6.843,94

IRR = 35.47% per year.
NPV = BRL 13,591,340

9.24. Additionally, for variations in the realization of both costs and benefits, in the form of: (i) 25% increase in costs; (ii) 25% reduction in benefits; and (iii) a combination of a 15% increase in costs with a 15% reduction in benefits, the IRR remains above 25% per year (respectively: 29.0%; 27.3%; and 26.9%).

10. LESSONS LEARNED

10.1. There must be flexibility for adaptation to certain activities. As an example, we highlight the change of courses and seminars that were initially planned to be in person and were run online, due to unforeseen events such as the Covid-19 pandemic. With this scenario, there is an opportunity to reach a greater number of participants via the online platform, allowing a greater dissemination of the content developed in the project.

10.2. It is important to hold periodic meetings with all project partners, to align strategies, with the aim of ensuring the correct implementation of the project.

10.3. There must be an alignment among the partner institutions of the project, to make the corrections to and approve the outputs in a joint manner, in order to be more efficient in the implementation of the project.

10.4. The project model with the need for ex-ante non-objection, despite providing greater security in the technical and financial execution of the project, makes it difficult for the regular progress of activities and actions, since the need for prior approval of contracts, outputs and payments means that institutional partners must spend a long time in the evaluation and approval process.

10.5. In the execution of the technical notebooks, it is possible to perceive little knowledge spread among public managers and state entities about the subject. It is important and necessary to continue the expansion of training actions. Knowledge should be disseminated and the application of the concepts covered in the technical notebooks should be monitored, so that, in the future, it will be possible to evaluate the impacts of the application of this knowledge, according to the local reality of the municipalities.

10.6. Given the lack of knowledge and the need for greater debate on the subject, it is important to offer new opportunities for debate with webinars and lectures. Due to the restrictions imposed by COVID-19, as well as due to the benefit of a wider debate, we suggest that such events be held virtually. Low-Carbon Urban Mobility is a topic that can be addressed in a transversal way, by public bodies, the academia and private entities, with regard to issues of

infrastructure, population health, environment, economic and social development. Therefore, considering the continuation of the project or the next steps, it is recommended to emphasize the importance of the theme and how the adoption of the recommendations mentioned in the Technical Reference Notebooks can contribute to several areas of activity.

10.7. Finally, the technical notebooks brought robust technical literature on the subject of sustainable urban mobility, so we suggest that a greater number of notebooks be published to be distributed in states, municipalities and other bodies related to the theme.

Implementação: IABS Realização: gef BID Banco Interamericano de Desenvolvimento MINISTÉRIO DO DESENVOLVIMENTO REGIONAL PÁTRIA AMADA BRASIL GOVERNO FEDERAL