IFOOD CLEANER DELIVERY TRANSPORTATION MODES GROUPED PROJECT

Joint Project Description and Monitoring Report

Document prepared by ZCO2

Contact information

Project Title	*iFood Cleaner Delivery Transportation Modes Grouped Project*
Version	*2.0 (public comment period version)*
Date of Issue	*15-May-2023*
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1 PROJECT DETAILS

1.1 Summary Description of the Project

iFood is a Brazilian online food ordering and food delivery platform founded in 2011, operating in Brazil and other regions.

The underlining "iFood Cleaner Delivery Transportation Modes Grouped Project" (or simply "iFood Project") is the company's pioneer initiative to increase the share of more GHG-intensive delivery transportation modes to cleaner ones, essentially from conventional gasoline motorcycles and cars to mechanical and electrical bikes and, electrical motorcycles, leading to the company's broader commitment to have at least 50% carbon free delivery operations[1].

The primary objective of iFood Project is to promote cleaner alternative mobility with the following technologies and/or measures: "*Implementation and expansion of new* bicycle sharing programs, *and* introduction of e-bikes and e-motorcycles in different locations throughout Brazil," using the approved *CDM methodology AMS-III.BM, version 2.0, "Lightweight two and three wheeled personal transportation"* (or simply "AMS-III.BM").

Urban centres face many problems related to transport and traffic. Enhancing low-carbon two and three-wheeled mobility while reducing congestion and pollution has the potential to be a key solution for a cleaner and healthier urban life.

In Brazil, the greenhouse gas (GHG) emissions from transportation represent 46.9% of emissions from the energy sector[2].

The Brazilian Nationally Determined Contributions (NDC) in the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC), originally submitted in 2016, one reads "Brazil also intends to… in the transportation sector, further promote efficiency measures, and improve infrastructure for transport and public transportation in urban areas". Since then, the Brazilian NDC have been updated three times (Table 1).

Table 1 – Brazilian NDC Evolution[3]

[1] iFood (2022) *iFood Regenera: empresa anuncia programa metas ambiciosas para ir além do delivery com zero impacto Ambiental*. (URL: https://news.ifood.com.br/ifood-regenera/, access on 17-Mar-2023).

[2] SEEG (2022). *Estimativa de Emissões e Remoções de Gases de Efeito Estufa no Brasil em 2021 – Emissões decorrentes da produção e consumo de energia.* Sistema de Estimativas de Emissões e Remoções de Gases de Efeito Estufa (URL: http://seeg.eco.br/infografico, access on 17-Mar-2023).

[3] Unterstell, N. & Martins, N. (2022). *NDC do Brasil: Avaliação da atualização submetida à UNFCCC em 2022.* Nota Técnica. Instituto Talanoa, Rio de Janeiro, Brasil

Submission year	Emissions on base year	2025 taget		2030 taget		Climate neutrality on
2016	2.10 [1]	1.32	-37%	1.20	-43%	
2020	2.84 [2]	1.79	-37%	1.62	-43%	2060
2021						2050
2022	2.56 [3]	1.61	-37%	1.28	-50%	2050

[1] Base year 2005, 2nd National Inventory

[2] Base year 2005, 3rd National Inventory

[3] Base year 2005, 4th National Inventory

In the most recent version, submitted to the UNFCCC in 2022, Brazil committed to an "economy-wide absolute target" of 37% reduction for 2025 and 50% for 2030, based on the emissions of the 4th National Inventory

The Project emerges as a contribution for pursuing the goals proposed by the government and is developed within the Brazilian boundaries, with focus in the cities of Sao Paulo, Salvador, Rio de Janeiro, Recife, Brasília, and Porto Alegre.

In the absence of the program, the baseline scenario is the continuation of the existing transportation and delivery modes.

The Project implementation results on avoiding negative environmental impacts and may contribute to better mobility and, consequently, on better life quality:

- Reduces demand on fossil fuel-based vehicles.
- Reduces noise and other disturbances in general on residential areas.
- Reduces and/or eliminates GHG emissions, improving air quality.

Although the Project does not have alone a major impact in the Host Country in terms of total GHG emission reductions given its local mobility restrictions (coverage, municipality infrastructure, physical conditioning, etc.), it is part of a broader concept.

The Project contributes to sustainable development since it reduces fossil fuel consumption, traffic congestion, noise levels, GHG emissions and other air pollutants as well as increases well-being. Therefore, it meets the needs of the modern sustainable development businesses without compromising the ability of future generations to meet their own needs, as defined by the Brundtland Commission (1987).

The emission reduction grouped project starting date is 01-Nov-2021.

The estimated average annual emission reductions for the whole crediting period, from 01-Nov-2021 to 31-Oct-2031 correspond to 17,408 tCO_2e

This monitoring period covered the period from 01-Nov-2021 to 31-Jan-2023, resulting in over 100 million km more cleaner modals rides and, emission reductions of 4,852 tCO_2e.

1.2 Sectoral Scope and Project Type

Sectoral scope 7: Transport.

IFood Pedal is a grouped project.

1.3 Project Eligibility

CDM Methodology AMS-III.BM, version 1 is used, as methodologies approved under CDM are applicable under the Voluntary Carbon Standard (VCS).

The eligibility/applicability criteria are the ones prescribed in AMS-III.BM, see discussion and details in section 3.2.

1.4 Project Design

~~☐ The project includes a single location or installation only.~~

~~☐ The project includes multiple locations or project activity instances but is not being developed as a grouped project.~~

☒ The project is a grouped project.

Eligibility Criteria

The eligibility criteria for new project activity instance follows the guidance in paragraph 3.6.16 of the VCS Standard, version 4.4. The set of eligibility criteria for a new project activity instance, applied here for the first two project activity instances added to the grouped project, shall ensure that:

1. **The project activity instance meets the applicability conditions set out in the methodology applied to the project.**

   According to the applicability section of the CDM approved small-scale methodology AMS-III.BM:

   - item 2.1 (scope), paragraph 2, the "methodology applies to project activities that shift the mode of transport of urban passengers to mechanical bikes, tricycles, e-bikes or e-tricycles".

     The project activity instances included in the grouped project are a combination of project types 3 (new bicycle sharing programs, instance 1), 4 (expansion of existing bicycle sharing programs, instance 1) and 7 (instance 2, introduction of e-bikes) of AMS-III.BM, for deliveries in Brazil, and, therefore, shifting mode of transport of urban passengers to mechanical and electrical bikes and motorcycles ✓

Item 2.2 (applicability), paragraph 3, "implementation of new bicycle sharing program" (project type 3), "expansion of an existing bicycle sharing program" (project type 4) and, "introduction of e-bikes" (project type 7), are eligible types of project activities, with applicable baseline calculation options "1" (ex-post survey of baseline travel modes) or "3" (based on a survey of users of e-bikes and users of bicycle sharing programs).

The two initial project activity instances added to the grouped project are a combination of project types 3 (new bicycle sharing programs, instance 1), 4

(expansion of existing bicycle sharing programs, instance 1) and 7 (instance 2, introduction of e-bikes), applicable to AMS-III.B. Furthermore, considering that 100% of the trips are monitored, baseline "option 3" will be applied ✓

- Item 2.2 (applicability), paragraph 4, If one or more measures described in Table 4 above have already been implemented within the project boundary (e.g. within the same city as the proposed project activity), it shall be ensured that these measures are identified and taken into account when determining the baseline

  Baseline is determined using monitored data of 100% of deliveries made in the 12 months immediately before the project instances start date. All measures are identified and considered when determining the baseline ✓

- Item 2.2 (applicability), paragraph 5, "combination of measures… are also eligible. If multiple measures are implemented, it shall be ensured that any interactive effects between the measures are identified and considered to avoid double-counting."

  To avoid double counting interactive effects between the measures from different instances are discounted (see ER calculation spreadsheet) in the final calculation of emission reductions ✓

- Item 2.2 (applicability), paragraph 6, "if the project activity involves the construction of on-road bicycle lanes…"

  Not applicable to the iFood Project ✓

- Item 2.2 (applicability), paragraph 7, applicability conditions included in the tools mentioned in AMS-III.BM… also apply".
  - TOOL5 - If emissions are calculated for electricity consumption, the tool is only applicable if one out of the following three scenarios applies to the sources of electricity consumption… scenario A (electricity from the grid[4]) is applicable to the iFood Project ✓
  - TOOL11 - there is no condition for the applicability of the tool ✓
  - TOOL18 - applicable to project activities in urban passenger transport that implement a measure, or a group of measures aimed at a modal shift to urban public transit. The project activity instance aims at a modal shift to bicycle, e-bicycles and e-motorcycles use, and, therefore, it is applicable to the iFood Project ✓
  - TOOL19 - not used ✓
  - TOOL21 - Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO2 equivalent annually. Estimated annual net GHG emissions are below 20,000 tCO2e and, therefore, it is applicable to the iFood Project ✓

[4] The electricity is purchased from the grid only, and either no captive power plant(s) is/are installed at the site of electricity consumption or, if any captive power plant exists on site, it is either not operating or it is not physically able to provide electricity to the electricity consumer.

- TOOL23 – not used ✓
- Standard "Sampling and surveys…" – not used ✓

- Item 2.2 (applicability), paragraph 8, "measures are limited to those that result in emission reductions of less than or equal to 60,000 CO_2 equivalent annually. Estimated annual net GHG emissions are below 20,000 tCO_2e ✓

  From the above, it is confirmed that both project activity instances meet the applicability conditions set out in the methodology applied to the project.

2. **The project activity instance uses and apply the technologies or measures as specified in the project description.**

   The first two project activity instances added to the iFood Project use and apply a combination of technologies or measures applicable to AMS-III.BM and specified on the project description, specifically, "construction of a new bicycle share program through dockless bicycles or docking stations" (type 3, project activity instance 1) or "expansion of existing bicycle sharing programs" (type 4, project activity instance 1) or, "introduction of e-bikes" (type 7, project activity instance 1).

3. **Apply the technologies or measures in the same manner as specified in the project description.**

   The first two project activity instances added to the iFood Project apply a combination of technologies or measures applicable to AMS-III.BM and in the same manner as specified in the project description, specifically, "construction of a new bicycle share program through dockless bicycles or docking stations" (type 3, project activity instance 1) or "expansion of existing bicycle sharing programs" (type 4, project activity instance 1) or, "introduction of e-bikes" (type 7, project activity instance 1).

4. **Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.**

   The baseline scenario of the proposed project activity instances are the ones presented in the registered project description, i.e., the continuation of the use of the existing transportation modes of transport as before the implementation of the grouped project (same shares).

5. **Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.**

   The project activity instance measure is automatically additional because:

   (a) Is a type 3 and/or type 4 project, and the value paid when renting the bicycle is fully refundable upon return to the sharing station.

   - or -

   (b) Is a type 7 project and the share (penetration) of e-bikes in bicycle in use in the city is below or equal to 1.5% based on number annual bicycle trips undertaken in the city or based on market share.

1.5 Project Proponent

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1.6 Other Entities Involved in the Project

Not applicable, as there are no other entities involved in the preparation of the Project.

1.7 Ownership

iFood Cleaner Delivery Transportation Modes Grouped Project is an initiative developed and started by iFood.

IFood conceived iFood Project to also allow delivery people access to the “bicycle” mode through its “bike sharing” model.

The project plays an important social role in enabling many people to find their first job by leasing vehicles, in addition to providing clean modes for carrying out deliveries, with differentiated conditions for use of cleaner modes, with the entry of new bicycle and electric bicycle delivery men.

In this way, IFood can direct orders with a radius of up to 4.5 km for bikes and electric bikes (project activity instance 1) and with no restriction for electric motorcycles (project activity instance 2), replacing deliveries that were previously carried out via polluting modals (internal combustion engines consuming gasoline), thus contributing to reducing the emission of greenhouse gases from deliveries, and thus, generating income opportunities for new couriers.

1.8 Project Start Date

According to the Program Definitions: VCS Standard, version 4, the project start date of a non-AFOLU project is the "date on which the project began generating GHG emission reductions or removals".

A test/preliminary phase of dedicated bike sharing model to ifood delivery partners, the iFood Pedal Initiative, started in the first semester of 2021 to assess the project model. The operation needs and demand for deliveries in this format (cleaner modals) was studied, researched, confirmed, and consequently, as of November 2021, the program was expanded from test to commercial operation, enabling delivery partners to adhere to the model.

Therefore, the project starting date is 01-Nov-2021, date on which the iFood Pedal initiative officially and formally started.

1.9 Project Crediting Period

The Project will have a maximum of 10 years of crediting period as follows:

- Crediting period start, 01-Nov-2021
- Crediting period end, 31-Oct-2031

1.10 Project Scale and Estimated GHG Emission Reductions or Removals

The estimated annual GHG emission reductions/removals of the Project are:

☒ <20,000 tCO_2e/year

~~☐ 20,000 – 100,000 tCO_2e/year~~

~~☐ 100,001 – 1,000,000 tCO_2e/year~~

~~☐ >1,000,000 tCO_2e/year~~

Project Scale	
Project	✓
~~Large project~~	

Year	Estimated GHG emission reductions or removals (tCO_2e)
1-Nov-21_31-Oct-22	90
01-Nov-22_31-Oct-23	3,326
01-Nov-23_31-Oct-24	10,787
01-Nov-24_31-Oct-25	19,988
01-Nov-25_31-Oct-26	23,315
01-Nov-26_31-Oct-27	23,315
01-Nov-27_31-Oct-28	23,315
01-Nov-28_31-Oct-29	23,315
01-Nov-29_31-Oct-30	23,315
01-Nov-30_31-Oct-31	23,315
Total estimated ERs	174,084
Total number of crediting years	10
Average annual ERs	17,408

1.11 Description of the Project Activity

The main strategy adopted from the increase of new clean modals for iFood deliveries is the promotion of direct orders in areas with demand to be carried out by clean modals and thus reduce GHG emissions within project cities.

As the availability of couriers increased, orders were promoted and directed as well as more bicycles made available to meet the demand for these orders.

All these actions were coordinated and monitored by an exclusive team, including iFood's teams of innovation, products, logistic and logistic development, to provide all the support necessary for the good performance of the project, which depends a lot on the direction of orders to meet the demand in the delivery radius of the iFood Project.

It is important to highlight that to include the new modes available to carry out deliveries, it was necessary to attract new delivery people to the platform, this also involved a support and educational action to guide the use of the application, safety rules for bicycle traffic and availability of support spaces for bike maintenance, providing income generation for new delivery people.

1.12 Project Location

Project is implemented within the geographical area of Brazil (KML file supplied during the validation and request for registration processes), with initial focus in the cities of Sao Paulo, Salvador, Rio de Janeiro, Recife, Brasilia, and Porto Alegre.

1.13 Conditions Prior to Project Initiation

The baseline scenario is the same as the conditions existing prior to the project initiation, please refer to section 3.4.

1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

The proposed Project complies with all laws and regulations, otherwise, permissions and licenses would not be issued in the first place.

Relevant local law and regulations are presented in Table 2.

Each project activity instance shall comply with all local/municipal regulations regarding bicycle lanes, parking areas and sharing programs.

Table 2 – National related legislation

Date	Regulation	Regulator	Description
19/06/2018	Law #13,683	Federal	Changes Law 13,089/2015 and Law 12,587/2012, related to urban mobility policies (see below).
12/01/2015	Law #13,089	Federal	Establishes the City Statute for planning, management, and execution of public functions of common interest in metropolitan regions and in urban agglomerations instituted by the State
03/01/2012	Law #12,587	Federal	Establishes guidelines for the National Policy on Urban Mobility
08/05/2009	Resolution #315	Federal National Traffic Council (CONTRAN)	Regulates the necessary requirements from cycle-electric to mopeds vehicles for driving in public roads open to circulation
22/04/2004	Resolution #160	Federal National Traffic Council (CONTRAN)	Approves Annex II of the National Traffic Code, which includes signaling on bicycle lanes
29/05/2003	Decree #4,711	Federal	Establishes the National Traffic System coordination

23/09/1997	Law #9,503	Federal	Establishes the National Traffic Code

1.15 Participation under Other GHG Programs

1.15.1 Projects Registered (or seeking registration) under Other GHG Program(s)

Not applicable, as the Project is not registered and also not seeking registration under any other GHG program.

1.15.2 Projects Rejected by Other GHG Programs

Not applicable, as the Project did not request registration/participation in any other GHG program.

1.16 Other Forms of Credit

1.16.1 Emissions Trading Programs and Other Binding Limits

Does the project reduce GHG emissions from activities that are included in an emissions trading program or any other mechanism that includes GHG allowance trading?

☐ Yes ☒ No

Not applicable, as possible GHG emission from the proposed Project are not included in any emission trading program or any other mechanism that includes GHG allowance trading.

1.16.2 Other Forms of Environmental Credit

Has the project sought or received another form of GHG-related credit, including renewable energy certificates?

☐ Yes ☒ No

The Project did not and is not seeking or receiving another form of GHG-related environmental credits.

1.17 Sustainable Development Contributions

1.17.1 Sustainable Development Contributions Activity Description

The Project contributes to the sustainable development since it reduces fossil fuel consumption, traffic noise in urban residential areas, GHG emissions and other air pollutants as well as increases healthier habits and well-being.

Examples on how the Project contributes to achieving nationally stated sustainability development priorities:

1. As stated on the first Brazilian NDC submission: "Brazil intends to adopt further measures that are consistent with the 2°C temperature goal, in particular... vi) in the transportation sector, further promote efficiency measures, and improve infrastructure for transport and public transportation in urban areas."
2. In 2021 the Brazilian Ministry of Regional Development presented the Bicycle Brazil Seal, created to promote a better sustainable urban mobility, and recognize good practices encouraging the use of bicycles, and officially released a six-publication series on "Low Carbon Urban Mobility", co-authored by the Interamerican Development Bank (IDB) and the National Secretary of Mobility and Regional Urban Development, including one specific on Bicycle Mobility.

In addition, the project plays an important role in iFood's public commitment to replace polluting modes with clean modes by 2025.

1.17.2 Sustainable Development Contributions Activity Monitoring

The main goal of the project activity is to increase the share of mechanical and e-bikes and e-motorcycles in the operation of iFood deliveries. With the increased use of bikes, the project activity will result in SD contributions[5] through healthy and non-polluting lifestyles (SDG03 – good health and well-being), facilitating access to low-cost bike renting (SDG08 – decent work and economic growth), improving air quality and road safety, and reducing traffic congestion (SDG11 – sustainable cities and communities), and decarbonizing transport and societies (SDG13 – climate action).

[5] WCA and ECF (2016). *Cycling Delivers on the Global Goals -Shifting towards a better economy, society and, planet for all.* World Cycling Alliance and The European Cyclists' Federation. URL: https://www.ecf.com/groups/cycling-delivers-global-goals (access on 02-Oct-2022).

Table 3: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
1)	03	GOOD HEALTH AND WELL-BEING Ensure healthy lives and promote well-being for all at all ages	Reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	Cycling generates healthy and non-air polluting lifestyles. The physical activity by cycling reduces heart diseases and other negative impacts of sedentary lifestyles.	[decrease] Mortality rate attributed to cardiovascular disease, cancer, diabetes, or chronic respiratory disease
2)	08	DECENT WORK AND ECONOMIC GROWTH Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all	Reduce the proportion of youth not in employment, education, or training	Promoting access to bikes allowing low-income persons (without the capacity to buy a bicycle) to low-cost bike renting and employment.	[increase] Proportion of youth (aged 15–24 years) not in education, employment, or training

3)	11	SUSTAINABLE CITIES AND COMMUNITIES Make cities and human settlements inclusive, safe, resilient, and sustainable	Provide access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	Air quality and road safety improve, while traffic congestion reduces, when individual motorized transport is replaced by cycling.	[increase] Proportion of population that has convenient access to public transport, by sex, age, and persons with disabilities Increased cycling makes cities and human settlements more inclusive, safe, resilient, and sustainable as cycling is affordable, non-polluting, healthy, and promote a sustainable economy. The higher the modal share of walking, cycling and public transport the more sustainable the transport system is.
4)	13	CLIMATE ACTION Take urgent action to combat climate change and its impacts	Integrate climate change measures into national policies, strategies, and planning	Bicycle is a symbol for decarbonizing transport and societies; it offers possibility for immediate climate action.	[decrease] Total greenhouse gas emissions per year.

1.18 Additional Information Relevant to the Project

Leakage Management

Not applicable, as no leakage is reasonably forecasted with the implementation of the grouped project.

Commercially Sensitive Information

All information related to the operation of the project activity is considered sensitive.

Sensitive information is red highlighted in the private project documents submitted to Verra and the selected VVB for validation & verification, but will be covered public project documents versions.

Further Information

Not applicable, as no further information is necessary to describe the Project.

2 SAFEGUARDS

2.1 No Net Harm

Not applicable. The Project considers riding bikes, e-bikes and e-motorcycles on urban environments, an initiative with overwhelmingly positive impacts aligned with the UN Sustainable Development Goals, namely, good health and well-being, reduced inequalities, sustainable cities, and communities and, climate action and, no relevant negative impact, as described in the Brazilian Ministry of Regional Development publication[6] on Bicycle Mobility.

2.2 Local Stakeholder Consultation

There are no national or regional requirements for local stakeholder consultation due to the implementation of measure types of the iFood Cleaner Delivery Transportation Modes Grouped Project. For that reason, the global public comments carried out in the at the Verra/VCS pipeline projects database in [May 2023] will also be used for the local stakeholder consultation.

After start of the global public consultation at Verra/VCS site, the project owners will contact relevant local stakeholders, including a random selection of at least 10 delivery partners, to advise about the publicly availability of the project documents, to request participation and be open for clarifications.

[6] BID, MDR (2021). *Mobilidade por Bicicleta.* Banco Interamericano de Desenvolvimento e Ministério do Desenvolvimento Regional.

The Project was up for public comment from [DD MMM] to [DD MMM], 2023 and received [no]/[XX] comments.

2.3 Environmental Impact

There is no national requirement for the preparation of environmental impact assessment due to the implementation of measure types identified in section 2.2.

Compliance with the requirements established in licenses and environmental impact assessments, if required, shall be evaluated based on local legislation.

It is worth mentioning the Municipal Assembly of the State of Sao Paulo, where iFood has operations, approved Law number 16,885 on 16-April-2018, for the creation of the Sao Paulo Cycling System[7] ("SICLO") aiming the promotion of bicycle use.

2.4 Public Comments

[Draft project description for the purpose of listing on the pipeline as under development)

To be compiled after global public comments carried out in the at the Verra/VCS pipeline projects database].

2.5 AFOLU-Specific Safeguards

Not applicable, the iFood Project is not an AFOLU project.

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

CDM Small-scale methodology AMS-III.BM, "lightweight two and three-wheeled personal transportation", version 01.0.

The methodology also refers to the following tools:

- CDM TOOL05 - Methodological tool - Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, version 03.0.

3.2 Applicability of Methodology

Table 4 below illustrates which types of project activities are eligible under AMS-III.BM, v.1.0.

[7] Câmara Municipal de São Paulo. Lei 16.885, de 16 de abril de 2018. Cria o sistema cicloviário do Município de São Paulo (SICLO). URL: http://documentacao.camara.sp.gov.br/iah/fulltext/leis/L16885.pdf.

Table 4 – Types of projects eligible under this methodology

Type of project	Description
Type 1	Construction of new bicycle lanes
Type 2	Extension of the existing bicycle lanes
Type 3	**Implementation of new bicycle sharing program (through dockless bicycles or sharing stations)**
Type 4	**Expansion of an existing bicycle sharing program (through increasing the number of dockless bicycles and/or through increasing the size or number of bicycle-sharing stations)**
Type 5	Construction of new bicycle parking areas. These parking areas may be connected to public transport (subway stations, bus stops, light-rail train stations, etc.) or activity hubs (office towers, shopping centers, markets, venues, etc.)
Type 6	Expansion of the existing bicycle parking areas
Type 7	**Introduction of e-bikes**
Type 8	Implementation of a new transportation service or expansion of an existing one based on tricycles

Combination of measures are also eligible.

Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO_2 equivalent annually.

iFood Project is an initiative to boost bicycle use in the delivery of goods, substituting motorcycle use. It is a mix of type 3, 4 and, 7 with implementation of sharing stations, expansion of existing bicycle sharing programs and, introduction of e-bikes.

Project costs were used to provide vouchers for bike sharing subscriptions, project publicity and operational support for couriers.

Carbon credits will play a key role in expanding the program, as their income will enable additional benefits to program users, such as an increase in the fleet, expansion to new cities, greater availability of vehicles, offer of differentiated plans, benefits for users and more possibilities of engagement for delivery partners (increased productivity).

The expansion supported by credits will be crucial for the replacement of polluting modals by clean modals such as bicycles, electric bicycles and electric motorcycles.

Please refer to section 1.4 (Project Design), eligibility criteria, for the demonstration of AMS-III.BM eligibility to the first two project activity instances.

3.3 Project Boundary

In accordance with AMS-III.BM, the project boundary is the area in which the users of the infrastructure and/or the promoted bicycles, tricycles, e-bikes or e-tricycles travel between origins and destinations.

If the project involves the use of e-bikes or e-tricycles, the project boundary also includes the electric grid, and all physically connected power plants that supply electricity to the grid used to recharge the battery from e-bikes or e-tricycles.

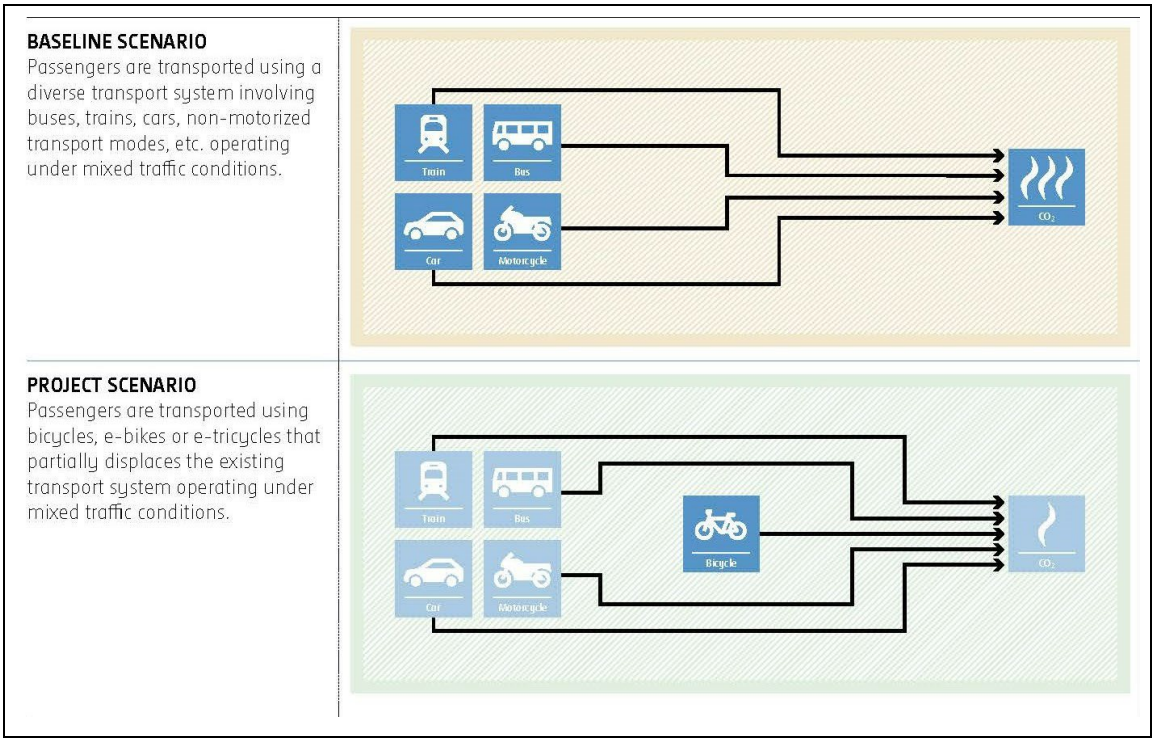

Figure 1 – Flow diagram of the project boundary

Table 5 displays relevant GHG sources included in the baseline and program scenario.

Table 5 – Relevant GHG sources

Source		Gas	Included?	Justification/Explanation
Baseline	Source 1	CO_2	Yes	Main emission source
		CH_4	No	These emissions are not significant
		N_2O	No	These emissions are not significant
Project	Source 1	CO_2	Yes	Main emission source
		CH_4	No	These emissions are not significant

Table 5 – Relevant GHG sources				
Source		Gas	Included?	Justification/Explanation
		N_2O	No	These emissions are not significant

Project is implemented within the geographical area of Brazil, with focus in, but not limited to, the cities of Sao Paulo, Salvador, Rio de Janeiro, Recife, Brasilia, and Porto Alegre.

3.4 Baseline Scenario

According to AMS-III.BM, the baseline scenario in the absence of the CDM project activity is the continuation of the use (same shares) of existing modes of transport.

3.5 Additionality

According to AMS-I.BM, activities are automatically additional if:

(a) Type 1 and Type 2 (i.e., construction of new bicycle lanes and extension of the existing bicycle lanes).

(b) Type 3 and Type 4 (i.e., implementation of new or expansion of existing bicycle sharing programs), if the value paid when renting the bicycle is fully refundable upon return to the sharing station,

(c) Type 5 and Type 6 (i.e., construction of new or expansion of existing bicycle parking areas), if no charges are applied to park the bicycles.

Considering that the iFood Project, Instance 1 starting initiative, the iFood Pedal Program, a partnership between iFood and Tembici, the bike sharing program operator, is a bike and electric bike rental model for couriers with support and rest stations and with flexible renting plans at significantly reduced prices. Considering that iFood Pedal type 3 and 4 measures and, moreover, do not result in any additional revenue for the project owners, condition (b) reasonably applies.

Additionally, other activities that do not satisfy the conditions under paragraph 18 of the methodology (the conditions above) are considered additional if:

(a) The project activity complies with the criteria for demonstrating additionality of microscale project activities; or

(b) The first-of-its-kind barrier is demonstrated as per the methodological tool “Additionality of first-of-its-kind project activities” (TOOL23); or

(c) Activities that are type 7 (i.e., introduction of e-bikes) and the share (penetration) of e-bikes in bicycle in use in the city is below or equal to 1.5% based on number annual bicycle trips undertaken in the city or based on market share; or

(d) It is demonstrated, through the application of the methodological tool “Demonstration of additionality of small-scale project activities” (TOOL21), that at least one barrier would prevent the implementation of the project activity.

iFood Project, Instance 2, a type 7 measure, has a share of electric vehicles below 0.5% in the baseline period, therefore, condition (c) applies.

From the above, both initial project activity instances of the iFood Project are additional.

3.6 Methodology Deviations

Deviation 1. The project is a combination of project types because it does not introduce a single measure in a place where the use of bikes/e-bikes is completely new but combines many measures to increase its share. For that reason, all additional bicycle and e-bicycle trips are included as share increase reasonably attributed to the project. As iFood has 100% of the trips monitored, parameters are as precise as possible with no negative impact in the quantification of GHG emissions reductions.

Deviation 2. Option 3 of the baseline determination (survey of users) is used but, as 100% of the trips are monitored by iFood, no additional survey is necessary and monitored parameters will be used, with increased precision and no negative impact in the quantification of GHG emissions reductions.

Deviation 3. Electrical bicycles and motorcycles are as e-bikes in the definition of AMS-III.BM, but with different energy consumption (electrical bikes consumption uses AMS-III.BM default consumption and electrical motorcycles uses average consumption from literature). Motorcycle average fuel consumption is determined by a survey carried out with users. The survey carried out with a significant number of motorcycle users' results, in contrast with literature data, in a more realistic depiction of equipment used and fuel consumed, with no negative impact in the quantification of GHG emissions reductions.

4 ESTIMATED GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

Baseline emissions are the emissions resulting from transportation of passengers in the absence of the project activity. It is differentiated per baseline modes of transport (relevant travel modes) that the project activity users would have used in the absence of the project activity. One of the options below shall be applied:

1. Option I - Ex-post survey of baseline travels models.
2. Option II - Baseline emissions based on public transportation (excluding cars, taxis and motorcycles) as benchmark.
3. Option III - Based on survey of users of e-bikes and users of bicycle sharing programs.

Table 6 displays applicable option(s) to each type of eligible projects under AMS-III.BM.

Table 6 – Types of projects eligible under this methodology				
Type of project	Description	Baseline options applicable (AMS-III.BM, section 5.4)		
		1	2	3
Type 1	Construction of new bicycle lanes	✓	✓	
Type 2	Extension of the existing bicycle lanes	✓	✓	
Type 3	Implementation of new bicycle sharing program	✓		✓
Type 4	Expansion of an existing bicycle sharing program	✓		✓
Type 5	Construction of new bicycle parking areas. These parking areas may be connected to public transport	✓	✓	
Type 6	Expansion of the existing bicycle parking areas	✓	✓	
Type 7	Introduction of e-bikes	✓		✓
Type 8	Implementation of a new transportation service or expansion of an existing one based on tricycles	✓		

<u>Option 1: Ex post survey of baseline travel modes.</u>

Under this option, baseline emissions cover the emissions, which would have been caused by the user of the bicycle-sharing program in absence of the project from origin (O) to destination (D), where the O and D points of the trip are assumed equal for both the baseline and the project scenarios.

Baseline emissions are determined by applying Steps 1 to 4 from the latest approved version of the methodological tool "Baseline emissions for modal shift measures in urban passenger transport" (TOOL18) as presented in Appendix A, using parameters estimated based on data collected during the survey[8] in the year 1 and optionally in the year 4 of the crediting period:

The vehicle categories index i indicated in Step 1 of TOOL18 shall be included, and "cycling" and "walking" should be considered as potential baseline "vehicle categories" with an emission factor of zero. If some vehicle categories are not explicitly identified or do not fit into the categories from the tool, they should be included in the survey as "others" and baseline emissions of this category are counted as zero. The survey shall be undertaken at locations of the project infrastructure and origin/destination of the cycling trip shall be substituted for "entry/exit station" in the TOOL18. The survey may be conducted with a sample of users in the case of the bicycle sharing program or new tricycles, e-bikes or e-tricycles.

When applying Step 4 of TOOL18, the following provisions shall apply:

[8] The survey shall be conducted with the users of the infrastructure, bicycle sharing program.

(a) Parameter P_y (Number of passengers travelled by the project system in year y) should be considered as number of trips on the new infrastructure / service per year as measured by counting, if necessary, relying on sampling.

(b) Parameter D_i (Average trip distance travelled by passengers) may be determined:

i. From the survey with the users in the project.

ii. As an average value for bicycle, tricycle, e-tricycle or e-bike trips (as relevant) from official data or studies at the city level.

iii. By applying the default conservative value of 2.5 km for bicycle or tricycle trips and 5 km for e-bike or e-tricycle trips.

Sampling and surveys may be used following "Sampling and surveys for CDM project activities and programme of activities" (appendix B).

<u>Option 2: Baseline emissions based on public transportation (excluding cars, taxis, and motorcycles) as benchmark.</u>

This option is suitable for Type 1 and Type 2 (i.e., construction of new or extension of existing bicycle lanes) and Type 5 and Type 6 (i.e., construction of new or expansion of existing bicycle parking areas).

Under this option, the modal shares of the public transportation in the city (excluding travels using passenger cars, motorcycles, and taxis) and the corresponding CO_2 emissions are determined before the implementation of the project, using statistics from the transport authority or other credible studies. Steps 1 to 3 of the methodological tool "Baseline emissions for modal shift measures in urban passenger transport" (TOOL18) may be applied to complement existing data, if necessary (appendix A). Also, the number of cycling trips prior to installation of the new infrastructure ($N_{bicycles,BL}$) shall be determined ex ante.

The baseline emissions are calculated considering the number of cycling trips after installation of the new infrastructure and the distance travelled by the users of the infrastructure.

$$BE_y = 0.9 \times \left(N_{bicycles,y-}N_{bicycles,BL}\right) \times ADT_{u,y} \times EF_{BL,benchmark} \qquad \textbf{Equation 1}$$

Where:

BE_y = Baseline emissions in year *y* (tCO_2)

0.9 = Net-to-gross adjustment factor to account for 'walking' in the baseline

$N_{bycicles,y}$ = Number of bicycles trips travelling through the bicycle infrastructure in year y

$N_{bycicles,BL}$ = Number of bicycle trips travelling through the location of the new bicycle infrastructure prior to implementation of the project activity

$ADT_{u,y}$ = Average distance travelled per trip by the user u of the infrastructure in year y (km)

$EF_{BL,benhcmark}$ = Weighted average CO_2 emission factor per passenger-kilometre corresponding to public transportation-mix in the city (excluding travels by using passenger cars, motorcycles and taxis) (tCO_2/pkm), before the implementation of the project, using statistics from the transport authority or credible studies

Option 3: Based on a survey of users of e-bikes and users of bicycle sharing programs.

Under this option, the baseline emission factor is determined through a survey of users of e-bike promotion programs or bicycle sharing programs ($EF_{BL,CO2,survey}$) and the distance travelled will be monitored for each user of the programs ($DT_{u,y}$).

Baseline emissions are determined through the equation below:

$$BE_y = EF_{BL,CO2,survey} \times \sum_u DT_{u,y} \qquad \textbf{Equation 2}$$

Where:

BE_y = Baseline emissions in year y (tCO_2)

$EF_{BL,CO2,survey}$ = Average CO_2 emission factor per passenger-kilometre based on survey conducted with users of e-bike promotion programs or bicycle sharing programs (tCO_2/pkm)

$DT_{u,y}$ = Total distance travelled by the individual user u of the bicycle sharing program and/or of the promoted e-bikes in year y (km)

4.2 Project Emissions

Project emissions are determined based on the amount of electricity consumed to recharge the batteries of e-bikes or e-tricycles ($EC_{PJ,y}$) using Equation (1) from the methodological tool "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" (TOOL05).

The electricity consumed to recharge the batteries ($EC_{PJ,y}$) may be determined:

(a) By directly measuring the electricity consumed by all e-bikes or e-tricycles included in the project; or

(b) Alternatively, assuming a default consumption of 0.015 kWh/km travelled[9]. In this situation, the electricity consumed is determined according to the equation below:

$$EC_{PJ,y} = 0.015 \times \sum_u DT_{u,y} \qquad \textbf{Equation 3}$$

[9] This parameter depends on a number of factors, such as terrain, level of assistance from batteries to offset pedaling set by the cyclist, weight of the cyclist, weight of the bicycle, outside temperature, direction and speed of the wind, type of battery, efficiency of the motor. Typically, a standard 36V and 10Ah e-bike consumes between 7.5 – 15 Wh/km.

Where:

$EC_{PJ,y}$ = Quantity of electricity consumed to recharge the batteries of e-bikes or e-tricycles in year *y* (kWh)

$DT_{u,y}$ = Total distance travelled by the individual user *u* of the bicycle sharing program and/or of the promoted e-bikes in year *y* (km)

4.3 Leakage

In accordance with AMS-III.BM, leakage does not have to be considered.

4.4 Estimated Net GHG Emission Reductions and Removals

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y \qquad \textbf{Equation 4}$$

Where:

ER_y = Emission reductions in year *y* (tCO_2)

BE_y = Baseline emissions in year *y* (tCO_2)

PE_y = Project emissions in year *y* (tCO_2)

Considering that the project is a combination of project types 3, 4 and 7, option 3, "survey of baseline travel modes" is selected to determine baseline emissions.

Under this option, the baseline emission factor is determined through a survey of users of e-bike promotion programs or bicycle sharing programs ($EF_{BL,CO2,survey}$) and the distance travelled will be monitored for each user of the programs ($DT_{u,y}$).

Baseline emissions are determined through the equation below:

$$BE_y = EF_{BL,CO2,survey} \times \sum_u DT_{u,y} \qquad \textbf{Equation 5}$$

Where:

BE_y = Baseline emissions in year *y* (tCO_2)

$EF_{BL,CO2,survey}$ = Average CO_2 emission factor per passenger-kilometre based on survey conducted with users of e-bike promotion programs or bicycle sharing programs (tCO_2/pkm)

$DT_{u,y}$ = Total distance travelled by the individual user *u* of the bicycle sharing program and/or of the promoted e-bikes in year *y* (km)

Considering that, iFood monitors all information about modal used and distance travelled for each trip and, additionally, carries out regularly surveys on fuel consumption of motorcycle users, these data is assumed as the required "survey" and used to determine baseline parameters, in accordance with the following:

1. Only trips with less than 4.5 km are offered to bike and e-bike users, information will be restricted to this maximum for project activity instance 1. There is no restriction to the trip distance for project activity instance 2.
2. One full year - immediately before the implementation of the project (i.e., from November 2020 to October 2021 for project activity instance 1 and, from April 2021 to March 2022, for project activity instance 2), of data is used to determine average modal use and distance travelled (Table 9).
3. Ifood survey with associated motorcycle users is used to determine average motorcycle fuel consumption (Table 7). For electric vehicles (e-bikes, scooters etc.), the methodology suggested default consumption of 0.015 kWh/km travelled is used. A consumption of 0.042 kWh/km travelled is used for electric motorcycles, result of a study carried out by IPT[10] in 2021.

   With respect to the emission factor for electricity consumption from the grid, AMS-III.BM determines the use of the CDM methodological TOOL05. In TOOL05 one reads that, for electricity consumption from the grid, scenario A, option A2 is applicable, due to the fact that in the Brazilian national interconnected grid hydro power plants constitute more than 50% of total grid generation[11]. In this case, the conservative default value of 0.25 tCO2/MWh is used.

Table 7 – Average motorcycle fuel consumption

[10] IPT (2021). *Estimação de eficiência energética de motocicleta elétrica - Relatório final.* Laboratório de Usos Finais e Gestão de Energia. Instituto de Pesquisas Tecnológicas.

[11] In the case of Brazil hydro power plants corresponded in 2020 to 60.3% of the installed capacity and 53.4% of the generation. Source: EPE (2021). *Balanço energético nacional 2021: Ano base 2020.* Empresa de Pesquisa Energética.

97.8% of the motorcycle in the database use gasoline			
Motorcycle using gasoline			
Production year	**Average cons. (km/liter)**	**Vehycles in the database**	**share%**
2000	30.2	43	0.67%
2001	32.4	34	0.53%
2002	26.2	35	0.54%
2003	26.3	52	0.81%
2004	27.8	98	1.52%
2005	27.9	133	2.06%
2006	28.1	162	2.51%
2007	27.9	222	3.44%
2008	28.1	419	6.50%
2009	29.0	239	3.71%
2010	29.0	355	5.51%
2011	29.7	394	6.11%
2012	29.7	377	5.85%
2013	30.3	309	4.79%
2014	31.1	426	6.61%
2015	30.9	405	6.28%
2016	31.7	271	4.20%
2017	33.0	291	4.52%
2018	32.5	429	6.66%
2019	32.9	550	8.53%
2020	33.2	605	9.39%
2021	33.6	596	9.25%
Total vehycles in the database =		6,445	
Database average consumption (km/liter) =		30.74	

The emission factor per kilometre of vehicle category ($EF_{km,i,x}$) is calculated to determine the emission factor per passenger-kilometre ($EF_{PKM,i,x}$).

As prescribed in TOOL18, instead of the two parameters $N_{i,n,x}$ and $N_{i,x}$, it is possible to use one parameter $N_{i,n,x}/N_{i,x}$ which can be defined using the following options, which are described in the order of preference (see "Data and parameters" section for further guidance on data requirements):

(a) Approach 1. The share of vehicle-kilometres within vehicle category i that are driven by vehicles using fuel type n, if a reliable data source for this parameter exists (see TOOL18, "Data and parameters" section for further guidance on data requirements). This is the preferred option.

(b) Approach 2. In case data on vehicle-kilometres required in approach 1 is not available the share of vehicles within vehicle category i that use fuel type n should be used if a reliable data source for this parameter exists.

As data on vehicle kilometres required in approach 1 is available, it will be the approach used.

Step 3: Determine the emission factor passenger-kilometre.

Table 8 – Emission factor per passenger-kilometer (gCO_2/pkm)			
Vehicle	$EF_{KM,i,x}$ ($kgCO_2$/km or $kgCO_2$/kWh)	$OC_{i,x}$ (passengers)	$EF_{PKM,I,x}$ (gCO_2/pkm)
Bicycle	0.000	1	0.00
Motorcycle[12]	0.071	1	57.99
Electric bike	0.126	1	3.75
Electric motorcycle	0.126	1	10.50

Step 4: Determine baseline emissions.

For the determination of ex-ante baseline emissions, option 3 is considered based on average distance trip (D_i), number of passengers (P_y) and share of passengers in the baseline year.

Table 9 – Modal use and distance travelled for the determination of the baseline scenario

Baseline	Nov. 2020 to Oct. 2021			
	trips	trips, %		
Bike	24,488,117	15.47%		
Bike (Tembici)	477,488	0.30%		
E-bike (Tembici)	668,295	0.42%		
Motorcycle	129,725,868	81.95%		
E-motorcycle	7,947	0.01%		
Scooter (elec.)	897,285	0.57%		
Car	2,030,513	1.28%		
On foot	2,906	0.00%		
other	161	0.00%	km	avg. trip, km
total	158,298,580	100.0%	610,491,629	3.86

Baseline	Apr. 2021 to Mar. 2022			
	trips	trips, %		
Bike	34,363,974	12.86%		
Bike (Tembici)	1,580,329	0.59%		
E-bike (Tembici)	1,254,165	0.47%		
Motorcycle	220,618,562	82.56%		
E-motorcycle	9,200	0.00%		
Scooter (elec.)	928,153	0.35%		
Car	7,000,519	2.62%		
On foot	673	0.00%		
other	1,462,448	0.55%	km	avg. trip, km
total	267,218,023	100.0%	1,364,989,686	5.11

[12] Gasoline in Brazil is a mixture of pure gasoline with 27% in volume anhydrous bioethanol (20.4% in energy terms)[12]. For the determination of the emission factor, the share of bioethanol is considered biogenic/renewable with zero GHG emissions. For reference, emission facto for pure gasoline is 70.94 gCO_2/pkm.

For the technology improvement factor for fleet, default value of 0.99 is applied for all vehicles, as required by TOOL18 to determine baseline emissions.

Project emissions will be calculated in accordance with the monitored modal share.

For estimation purposes iFood's clean modal evolution goals displayed in Table 10 are applied.

Table 10 – Clean modal evolution goals to 2025

Year	Bike	Pedal Program*	e-motorcycles	share
2021**	15.5%	0.7%	0.01%	**15.5%**
2022	15.3%	3.1%	0.2%	**18.6%**
2023	20.3%	5.1%	2.3%	**27.7%**
2024	25.3%	6.5%	12.4%	**44.2%**
2025	28.3%	6.5%	23.0%	**57.8%**

* Tembici bikes and e-bikes, **Project instance 1 baseline (Nov.2020 to Oct. 2021)

No leakage is considered for the determination of emission reductions.

Emission reductions are calculated for both project activity instances and for all modes, but not all are accounted for the iFood Project.

Emission reductions achieved with Tembici bikes and e-bikes will not be considered, because these emission reductions are already accounted in the *Bikes for the Planet VCS Project 1884*[13].

Additionally, for project activity instance 2, only emission reductions achieved with e-motorcycles are accounted.

From the above, estimated net emission reduction are displayed in Table 11 (refer to the VER calculation spreadsheet, supplied as appendix as part of the present project description, for complete data and calculations).

Table 11 – Assumptions for net GHG emission reductions

Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)	Estimated net GHG emission reductions or removals accounted for the iFood project (tCO_2e)
Year 1	87,076	83,456	0	3,620	90
Year 2	120,622	106,437	0	14,185	3,326
Year 3	119,416	87,270	0	32,146	10,787
Year 4	118,222	69,060	0	49,162	19,988

[13] URL: https://registry.verra.org/app/projectDetail/VCS/1884 (accessed on 14-Mar-2023).

Year 5	117,885	64,300	0	53,585	23,315
Year 6	117,885	64,300	0	53,585	23,315
Year 7	117,885	64,300	0	53,585	23,315
Year 8	117,885	64,300	0	53,585	23,315
Year 9	117,885	64,300	0	53,585	23,315
Year 10	117,885	64,300	0	53,585	23,315
Total	**1,152,646**	**732,024**	**0**	**420,622**	**174,084**

5 MONITORING

5.1 Data and Parameters Available at Validation

From AMS-III.BM - lightweight two and three-wheeled personal transportation

Data /parameter table 1

Data / Parameter	$EF_{BL,CO2,survey}$
Data unit	gCO_2/pkm
Description	Average CO_2 emission factor per passenger-kilometre in the baseline
Source of data	Survey with users of e-bike promotion programs and bicycle sharing programs
Value applied:	
Justification of choice of data or description of measurement methods and procedures applied	For the project, no sampling is needed as 100% of the trips and modes used are monitored, before and after the project. With the available information is possible to exactly determine the average trip distance (3.76 km/trip in the baseline period for project activity

	$EF_{BL,CO2}$
Bicycle	0.00
Electric bicycle + scooter	3.75
Electric motorcycle	10.50
Motorcycle	57.99
Car	82.10
other	0.00

	instance 1 and 5.11 km/trip in the baseline period from project activity instance 2).
Purpose of Data	Calculation of baseline emissions
Comments	Parameter used when applying Option 3 of the methodology. The emission factor is determined by applying Steps 1 to 3 from the latest approved version of the methodological tool "Baseline emissions for modal shift measures in urban passenger transport", using parameters estimated based on data collected during the survey.

From TOOL18 - Methodological tool - Baseline emissions for modal shift measures in urban passenger transport.

Data /parameter table 2

Data / Parameter	$SFC_{i,n,x}$
Data unit	Mass or volume units of fuel/km
Description	Specific fuel consumption of vehicle category *i* using fuel type *n* in year *x*
Source of data	In decreasing order of preference: **1. Local measured data (studies, e.g., performed by universities, other institutions or ordered by project proponent);** 2. National or international data from studies. 3. IPCC default values for the respective vehicle categories (latest IPCC report). 4. Design data for relevant vehicle categories. 5. Globally applicable default values.
Value applied	Values applied with references/sources disclosed in the ER calculation spreadsheet, submitted as annex.
Justification of choice of data or description of measurement methods and procedures applied	The following alternatives are proposed to determine specific fuel consumption (in order of preference). In case one of the alternatives does not provide required values for all categories, the combination of these alternatives can be used and justification for the use of combination should be provided. **Alternative 1:** Measurement of fuel consumption data using total data (if available e.g., from bus or taxi companies) or a representative sample for the respective category and fuel type. Sampling per category and fuel should include, as core

	characteristics, vehicle age and motorization to ensure that the sample is as close as possible to the actual vehicle composition in the urban area(s) of the region for which the baseline is established. Vehicle age and technology (related often to emission standards such as Euro standards) are factors, which influence to a significant extent the fuel consumption. To be conservative, specific fuel consumptions based on samples shall be based on the lower limit of the uncertainty band at a 95 per cent confidence level. **Alternative 2:** Use of fixed values based on national or international literature. The literature data can either be based on measurements of similar vehicles in comparable surroundings (e.g., from comparable cities of other countries) or may include identifying the vehicle age and technology of average vehicles circulating in the urban area(s) of the region for which the baseline is established and then matching this with the most appropriate IPCC default values. The most important proxy to identify vehicle technologies is the average age of vehicles used in the urban area(s) of the region for which the baseline is established, to determine whether either US, Japanese or European default factors apply, or local vehicle manufacturer information can be used (in the case of having a substantial domestic vehicle motor industry or source of origin of vehicle imports). **Alternative 3:** latest IPCC default values reported matching the respective vehicle category, age, vehicle origin and technology. **Alternative 4**. Design data for relevant vehicle categories. **Alternative 5**. Globally applicable specific fuel consumption for vehicle category default values (**Error! Reference source not found.**). The following energy fuel consumption is applied, (a) for scooters and electric bikes, AMS-III.B default consumption of 0.015 kWh/km for electrical bicycles and, default conservative emission factor of the Brazilian electricity grid of 0.25 tCO_2/MWh, consumption of 0.042kWh/km for electrical motorcycles (IPT, 2021, see footnote 10), (c) for motorcycles, consumption of 30.74 km/l of gasoline (iFood, 2021[14]), (d) for cars, consumption of 14.20 km/l of gasoline (Cetesb, 2018[15]) and, finally (e) 0.0 for all other transportation modals.
Purpose of Data	Calculation of baseline emissions.
Comments	-

[14] iFood (2021). *Pesquisa de frota 2021.*

[15] Cetesb (2018). *Emissões veiculares 2018.* Companhia Ambiental do Estado de São Paulo.

Data /parameter table 3

Data / Parameter	$N_{i,n,x}$ / $N_{i,x}$
Data unit	Percentage or share
Description	Percentage or share of vehicle-kilometres or vehicles in vehicle category i using fuel type n in year x
Source of data	iFood.
Value applied:	Values applied with references/sources disclosed in the VER calculation spreadsheet, submitted as annex.
Justification of choice of data or description of measurement methods and procedures applied	IFood monitors 100% of modal use and trip distances.
Purpose of Data	Calculation of baseline emissions
Comments	Used for all relevant vehicle categories.

Data /parameter table 4

Data / Parameter	$NCV_{i,n}$
Data unit	Energy/mass or volume units of fuel type n
Description	Net calorific value of fuel *n* used in vehicle category *i*
Source of data	Data sources in Table 12 may be used if the relevant conditions apply. **Table 12 – Data sources and conditions for their usage** Data sources: (a) National default values Conditions for using the data source: This source can be only used for liquid fuels and should be based on well documented reliable sources (such as national energy balances)

	(b) IPCC default values at the lower limit of the uncertainty at a 95 per cent confidence interval as provided in table 1.2 of chapter 1 of volume 2 (energy) of the 2006 IPCC Guidelines on National GHG Inventories
Value applied	Values applied with references/sources disclosed in the ER calculation spreadsheet, submitted as annex.
Justification of choice of data or description of measurement methods and procedures applied	Following provisions established in TOOL18.
Purpose of Data	Calculation of baseline emissions
Comments	Vehicle owners or operators can buy fuel from a variety of sources (fuel stations). Therefore, in practice it is considered to be simpler to determine the parameter using options (a) or (b).

Data /parameter table 5

Data / Parameter	IR_i
Data unit	-
Description	Technology improvement factor for vehicle category *i* per year
Source of data	-
Value applied	0.99
Justification of choice of data or description of measurement methods and procedures applied	When the tool is used for estimating baseline emissions for individual CDM project activities or Programmes of Activities, the default technology improvement factor is 0.99 for all vehicle categories.
Purpose of Data	Calculation of baseline emissions
Comments	-

Data /parameter table 6

Data / Parameter	$OC_{i,x}$ *or* $OC_{B,x}$ / $OC_{T,x}$ / $OC_{C,x}$ / $OC_{MR,x}$

Data unit	Passengers
Description	Average occupancy rate of vehicle category i in year x (e.g., buses (B), taxis (T), passenger cars (C), motorized rickshaws (MR)
Source of data	Option 1. Municipal transit authorities or specific studies. Vintage maximum three years. Option 2. The following default values can be applied: **Table 13 – Average occupancy as per vehicle type** Vehicle type / Average occupancy (World, South Asia) / Unit Car: 2.0, 2.0 — Person (including driver) Taxi: 1.1, 1.1 — Person (excluding driver) Motorcycle: 1.5, 1.5 — Person (including driver) Bus: 40%, 80% — Total capacity Option 3. Survey of occupancy of individual motorized transport (motorcycles, personal cars, taxis) in the urban area for which the baseline is established. The obtained occupancy rates can be used as default values for these vehicle categories at a country level, as variation in occupancy rates of individual motorized transport used in the urban context is relatively low. As iFood monitors 100% of all trips, option 3 is used.
Value applied	All deliveries are set to an occupancy of 1 passager.
Justification of choice of data or description of measurement methods and procedures applied	Calculation is done by number of deliveries, not by passengers in each delivery, therefore, occupancy can be set to one.
Purpose of Data	Calculation of baseline emissions
Comments	-

Data /parameter table 7

Data / Parameter	$EF_{CO2,n}$
Data unit	g CO2/J

Description	Emission factor for fuel type n
Source of data	Data sources in Table 12 may be used if the relevant conditions apply. Note: In case biofuels or biofuel blends are used, the CO2 emission factor for the share of biofuels used as pure or in blends is equal to zero
Value applied	Values applied with references/sources disclosed in the ER calculation spreadsheet, submitted as annex.
Justification of choice of data or description of measurement methods and procedures applied	Following provisions established in TOOL18.
Purpose of Data	Calculation of baseline emissions
Comments	

Data /parameter table 8

Data / Parameter	$EF_{CO2,x}$
Data unit	g CO_2/kWh
Description	Emission factor for electricity in year x (g CO_2/kWh)
Source of data	TOOL05.
Value applied	0.25 tCO2/MWh
Justification of choice of data or description of measurement methods and procedures applied	Conservative default value according to TOOL05.
Purpose of Data	Calculation of baseline emissions
Comments	-

Data /parameter table 9

Data / Parameter	$EF_{KM,i,x}$
Data unit	g CO_2/km
Description	Emission factor per kilometre of vehicle category i in year x (g CO_2/km)

Source of data	Official source of data
Value applied	Values applied with references/sources disclosed in the ER calculation spreadsheet, submitted as annex.
Justification of choice of data or description of measurement methods and procedures applied	Emission factor for new vehicles.
Purpose of Data	Calculation of baseline emissions
Comments	This option is available for taxis, personal cars and motorcycles. Depending on the regions from which the cars are purchased (the US, European Union, Japan, domestic car industry, etc.) respective emission factors for new cars manufactured in these regions shall be used.

5.2 Data and Parameters Monitored

Data /parameter table 10

Data / Parameter	$ADT_{u,y}$
Data unit	km
Description	Average distance travelled per trip by the user *u* of the infrastructure that would not have used the bicycle in the absence of the project in year *y*
Source of data	(a) Estimated via survey of the users of the infrastructure; or **(b) Directly measured via GPS; or** (c) As a conservative approach, the average distance travelled can be assumed as 2.5 km for bicycles and 5 km for e-bikes
Description of measurement methods and procedures applied	**100% of the bike trips are and will be monitored based on GPS.**
Frequency of monitoring/recording	**100% of the bike trips are and will be monitored based on GPS.**
Value applied:	For estimation purposes, 4 km for project activity instance 1 and 5.5 for project activity instance 2.
Monitoring equipment	GPS

QA/QC procedures applied	**100% of the bike trips are and will be monitored based on GPS.**
Purpose of data	Calculation of baseline emissions
Calculation method	Monitored parameter
Comments	-

Data /parameter table 11

Data / Parameter	$N_{bicycles,y}$
Data unit	-
Description	Number of bicycles trips
Source of data	Measured directly and/or based on a sample basis
Description of measurement methods and procedures applied	In direct measurement method, this parameter is determined through sensors installed in the location that counts the number of bicycles riding in the lane or the number of bicycles parked in the parking area. In a sampling-based method, visual counting methods or camera-based methods may also be applied. Any sampling-based methods shall be in accordance with the standard "Sampling and surveys for CDM project activities and programme of activities" **→ 100% of all trips will be monitored based on GPS.**
Frequency of monitoring/recording	Measured continuously and consolidated daily if direct measurement methods are used. **→ 100% of all trips will be monitored based on GPS.**
Value applied:	For estimation purposes, 200 million trips for project activity instance 1 and 300 million trips for project activity instance 2.
Monitoring equipment	GPS
QA/QC procedures applied	-
Purpose of data	Calculation of baseline emissions
Calculation method	Monitored parameter
Comments	-

Data /parameter table 12

Data / Parameter	$EC_{PJ,y}$
Data unit	kWh
Description	Quantity of electricity consumed to recharge the batteries of e-bikes or e-tricycles in year *y*
Source of data	Continuous measurements
Description of measurement methods and procedures applied	100% of the bike trips and distance travelled will be monitored based on GPS.
Frequency of monitoring/recording	100% of the bike trips and distance travelled will be monitored based on GPS.
Value applied:	The following energy fuel consumption is applied, (a) for scooters and electric bikes, AMS-III.B default consumption of 0.015 kWh/km for electrical bicycles and, default conservative emission factor of the Brazilian electricity grid of 0.25 tCO_2/MWh, consumption of 0.042kWh/km for electrical motorcycles (IPT, 2021, see footnote 10).
Monitoring equipment	100% of the e-bike trips and distance travelled will be monitored based on GPS. Electricity consumed will be determined from the total km travelled.
QA/QC procedures applied	-
Purpose of data	Calculation of project emissions.
Calculation method	AMS-III.BM suggested conservative default parameters.
Comments	-

5.3 Monitoring Plan

iFood monitors 100% of modal use and trips distance based on GPS.

For the determination of emission factors:

- Electricity emission factor – default conservative values as prescribed in AMS-III.BM.
- Average motorcycle fuel consumption: survey carried out with iFood is used. Gasoline in Brazil is a mixture of pure gasoline and 21-27% anhydrous bioethanol[16]. For the

[16] ANP (2022). *Gasolina,* URL: https://www.gov.br/anp/pt-br/assuntos/producao-de-derivados-de-petroleo-e-processamento-de-gas-natural/producao-de-derivados-de-petroleo-e-processamento-de-gas-natural/gasolina (access on 04-Oct-2022).

determination of the emission factor, the upper value (27%) share is used, and all bioethanol consumption is conservatively considered resulting in zero GHG emissions.

6 ACHIEVED GHG EMISSION REDUCTIONS AND REMOVALS

GROUPED PROJECT ACTIVITY INSTANCE 1 – BICYCLES AND ELECTRICAL BICYCLES

iFood Cleaner Delivery Transportation Modes Grouped Project Activity Instance 1 (iFood Project, Instance 1) objective is to increase the share of bicycles and electrical bikes use in modals for iFood's deliveries with the implementation of new bicycle sharing programs and expansion of existing bicycle sharing programs.

iFood Project, Instance 1 start date is 1st November 2021, when an agreement with Tembici[17] was signed to allow the use of rented bicycles and electrical bicycles by iFood's delivery partners.

iFood Project, Instance 1 is a combination of project types 3 and 4:

- Type 3 and Type 4 (i.e., implementation of new or expansion of existing bicycle sharing programs), if the value paid when renting the bicycle is fully refundable upon return to the sharing station.

Eligibility Criteria

Eligibility criteria procedures for inclusion of new project activity instances to the iFood Project are defined in section 1.4 (project design, eligibility criteria). In the same section the reader sees the application of the procedure for the first two project activity instances, confirming the eligibility of iFood Project, Instance 1.

6.1 Data and Parameters Monitored (iFood Project, Instance 1)

Data /parameter table 13

Data / Parameter	$ADT_{u,y}$
Data unit	km
Description	Average distance travelled per trip by the user *u* of the infrastructure that would not have used the bicycle in the absence of the project in year *y*
Source of data	Directly measured via GPS

[17] Tembici is a company for micromobility and technology for micromobility, including bicycle and electrical bicycle share programs operation.

Description of measurement methods and procedures applied	100% of the bike trips monitored based on GPS.
Frequency of monitoring/recording	100% of the bike trips monitored based on GPS.
Value applied:	iFood Project, Instance 1 year 1 (Nov. 21 – Oct. 22): 3.86 year 2 (Nov. 21 – Oct. 22): 3.30
Monitoring equipment	GPS
QA/QC procedures applied	100% of the bike trips monitored based on GPS.
Purpose of data	Calculation of baseline emissions
Calculation method	Monitored parameter
Comments	-

Data /parameter table 14

Data / Parameter	$N_{bicycles,y}$
Data unit	-
Description	Number of bicycles trips
Source of data	Measured directly
Description of measurement methods and procedures applied	100% of the bike trips monitored based on GPS.
Frequency of monitoring/recording	100% of the bike trips monitored based on GPS.
Value applied:	iFood Project, Instance 1

Instance 1	Year 1 - Nov. 2021 to Oct.2022		Year 2 - Nov. 2022 to Jan. 2023	
	trips	trips, %	trips	trips, %
Bike	48,215,940	24.84%	16,326,479	40.53%
E-bike	2,218,707	1.14%	787,397	1.95%
Motorcycle	139,863,162	72.04%	22,684,139	56.31%
E-motorcycle	135,329	0.07%	36,739	0.09%
Scooter	623,116	0.32%	77,899	0.19%
Car	2,616,967	1.35%	211,048	0.52%
other	460,306	0.24%	158,269	0.39%
total	194,133,527	100.0%	40,281,970	100.0%

Monitoring equipment	GPS
QA/QC procedures applied	100% of the bike trips monitored based on GPS.
Purpose of data	Calculation of baseline emissions
Calculation method	Monitored parameter
Comments	-

Data /parameter table 15

Data / Parameter	$EC_{PJ,y}$
Data unit	kWh
Description	Quantity of electricity consumed to recharge the batteries of e-bikes or e-tricycles in year *y*
Source of data	Continuous measurements
Description of measurement methods and procedures applied	100% of the bike trips and distance travelled monitored based on GPS.
Frequency of monitoring/recording	100% of the bike trips and distance travelled monitored based on GPS.
Value applied:	iFood Project, Instance 1 Instance 1 | Year 1, Nov. 2021 to Oct.2022 | Year 2, Nov. 2022 to Jan. 2023 E-bike | 2,139,070 | 649,798 E-motorcycle | 130,472 | 30,319 Scooter | 600,750 | 64,286
Monitoring equipment	100% of the e-bike trips and distance travelled monitored based on GPS. Electricity consumed determined from the total km travelled.
QA/QC procedures applied	-
Purpose of data	Calculation of project emissions.
Calculation method	AMS-III.BM suggested default consumption of 0.015 kWh/km and monitoring of distances applied.
Comments	-

6.2 Baseline Emissions (iFood Project, Instance 1)

Baseline emissions are determined through the equation below:

$$BE_y = EF_{BL,CO2} \times \sum_u DT_{u,y} \qquad \textbf{Equation 6}$$

Where:

BE_y = Baseline emissions in year y (tCO_2)

$EF_{BL,CO2}$ = Average CO_2 emission factor per passenger-kilometre (tCO_2/pkm)

$DT_{u,y}$ = Total distance travelled in year y (km)

Refer to the VER calculation spreadsheet, supplied as appendix as part of the present project description, for complete data and calculations.

6.3 Project Emissions (iFood Project, Instance 1)

Project emissions are determined based on the amount of electricity consumed to recharge the batteries of e-bikes or e-tricycles ($EC_{PJ,y}$) using Equation (1) from the methodological tool "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" (TOOL05).

The electricity consumed to recharge the batteries ($EC_{PJ,y}$) is determined assuming a default consumption of 0.015 kWh/km travelled, according to the equation below:

$$EC_{PJ,y} = 0.015 \times \sum_u DT_{u,y} \qquad \textbf{Equation 7}$$

Where:

$EC_{PJ,y}$ = Quantity of electricity consumed to recharge the batteries of e-bikes or e-tricycles in year y (kWh)

$DT_{u,y}$ = Total distance travelled by the individual user u of the bicycle sharing program and/or of the promoted e-bikes in year y (km)

Refer to the VER calculation spreadsheet, supplied as appendix as part of the present project description, for complete data and calculations.

6.4 Leakage (iFood Project, Instance 1)

In accordance with AMS-III.BM, leakage does not have to be considered.

Refer to the VER calculation spreadsheet, supplied as appendix as part of the present project description, for complete data and calculations.

6.5 Net GHG Emission Reductions and Removals (iFood Project, Instance 1)

Table 14 – Monitored net GHG emission reductions, iFood Project, Instance 1					
Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)	Estimated net GHG emission reductions or removals accounted for the iFood project (tCO_2e)
Year 1[18]	36,396	32,154	0	4,242	3,114
Year 2[19]	6,399	4,367	0	2,032	1,656
Total	**42,795**	**36,521**	**0**	**6,274**	**4,770**

Refer to the VER calculation spreadsheet, supplied as appendix as part of the present project description, for complete data and calculations.

GROUPED PROJECT ACTIVITY INSTANCE 2 – ELECTRICAL MOTORCYCLES

iFood Cleaner Delivery Transportation Modes Grouped Project Activity Instance 2 (iFood Project, Instance 2) objective is to increase the share of electrical motorcycles use in modals for iFood's deliveries with the introduction of e-bikes.

iFood Project, Instance 2 start date is 1st April 2022, with the operation of the Volts Project (also known as e-motorcycles Project) initial phase (45 electrical motorcycles).

iFood Project, Instance 2 is a type 7 project:

- Activities that are type 7 (i.e., introduction of e-bikes) and the share (penetration) of e-bikes in bicycle in use in the city is below or equal to 1.5% based on number annual bicycle trips undertaken in the city or based on market share.

Eligibility Criteria

Eligibility criteria procedures for inclusion of new project activity instances to the iFood Project are defined in section 1.4 (project, eligibility criteria). In the same section the reader sees the application of the procedure for the first two project activity instances, confirming the eligibility of iFood Project, Instance 2.

[18] Applicable period to iFood Project, Instance 1, 01-Nov-2021 to 31-Oct-2022.

[19] Applicable period to iFood Project, Instance 1, 01-Nov-2022 to 31-Jan-2023.

6.6 Data and Parameters Monitored (iFood Project, Instance 2)

Data /parameter table 16

Data / Parameter	$ADT_{u,y}$
Data unit	km
Description	Average distance travelled per trip by the user *u* of the infrastructure that would not have used the bicycle in the absence of the project in year *y*
Source of data	Directly measured via GPS
Description of measurement methods and procedures applied	100% of the bike trips monitored based on GPS.
Frequency of monitoring/recording	100% of the bike trips monitored based on GPS.
Value applied:	iFood Project, Instance 2 year 1 (Nov. 21 – Oct. 22): 5.30 year 2 (Nov. 21 – Oct. 22): 5.54
Monitoring equipment	GPS
QA/QC procedures applied	100% of the bike trips monitored based on GPS.
Purpose of data	Calculation of baseline emissions
Calculation method	Monitored parameter
Comments	-

Data /parameter table 17

Data / Parameter	$N_{bicycles,y}$
Data unit	-
Description	Number of bicycles trips
Source of data	Measured directly
Description of measurement methods and procedures applied	100% of the bike trips monitored based on GPS.

Frequency of monitoring/recording	100% of the bike trips monitored based on GPS.
Value applied:	iFood Project, Instance 2

Instance 2	Year 1 - Nov. 2021 to Oct.2022		Year 2 - Nov. 2022 to Jan. 2023	
	trips	trips, %	trips	trips, %
Bike	28,822,402	16.53%	16,512,848	21.14%
E-bike	1,492,452	0.86%	787,593	1.01%
Motorcycle	138,315,404	79.31%	58,235,493	74.56%
E-motorcycle	209,744	0.12%	109,259	0.14%
Scooter	320,444	0.18%	77,950	0.10%
Car	3,347,697	1.92%	1,185,066	1.52%
other	1,885,747	1.08%	1,200,927	1.54%
total	174,393,890	100.0%	78,109,136	100.0%

Monitoring equipment	GPS
QA/QC procedures applied	100% of the bike trips monitored based on GPS.
Purpose of data	Calculation of baseline emissions
Calculation method	Monitored parameter
Comments	-

Data /parameter table 18

Data / Parameter	$EC_{PJ,y}$
Data unit	kWh
Description	Quantity of electricity consumed to recharge the batteries of e-bikes or e-tricycles in year *y*
Source of data	Continuous measurements
Description of measurement methods and procedures applied	100% of the bike trips and distance travelled monitored based on GPS.
Frequency of monitoring/recording	100% of the bike trips and distance travelled monitored based on GPS.
Value applied:	iFood Project, Instance 2

Instance 2	Year 1, Nov. 2021 to Oct.2022	Year 2, Nov. 2022 to Jan. 2023
E-bike	1,977,775	1,090,611
E-motorcycle	277,950	151,295
Scooter	424,648	107,940

Monitoring equipment	100% of the e-bike trips and distance travelled monitored based on GPS. Electricity consumed determined from the total km travelled.
QA/QC procedures applied	-
Purpose of data	Calculation of project emissions.
Calculation method	A consumption of 0.042 kWh/km travelled is used for electric motorcycles, result of a study carried out by IPT (2021).
Comments	-

6.7 Baseline Emissions (iFood Project, Instance 2)

Baseline emissions are determined through the equation below:

$$BE_y = EF_{BL,CO2} \times \sum_u DT_{u,y} \qquad \textbf{Equation 8}$$

Where:

BE_y = Baseline emissions in year y (tCO_2)

$EF_{BL,CO2}$ = Average CO_2 emission factor per passenger-kilometre (tCO_2/pkm)

$DT_{u,y}$ = Total distance travelled in year y (km)

Refer to the VER calculation spreadsheet, supplied as appendix as part of the present project description, for complete data and calculations.

6.8 Project Emissions (iFood Project, Instance 2)

Project emissions are determined based on the amount of electricity consumed to recharge the batteries of e-bikes or e-tricycles ($EC_{PJ,y}$) using Equation (1) from the methodological tool "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" (TOOL05).

The electricity consumed to recharge the batteries ($EC_{PJ,y}$) is determined assuming a consumption of 0.042 kWh/km travelled is used for electric motorcycles, result of a study carried out by IPT (2021).

$$EC_{PJ,y} = 0.042 \times \sum_u DT_{u,y} \qquad \textbf{Equation 9}$$

Where:

$EC_{PJ,y}$ = Quantity of electricity consumed to recharge the batteries of e-bikes or e-tricycles in year *y* (kWh)

$DT_{u,y}$ = Total distance travelled by the individual user *u* of the bicycle sharing program and/or of the promoted e-bikes in year *y* (km)

Refer to the VER calculation spreadsheet, supplied as appendix as part of the present project description, for complete data and calculations.

6.9 Leakage (iFood Project, Instance 2)

In accordance with AMS-III.BM, leakage does not have to be considered.

Refer to the VER calculation spreadsheet, supplied as appendix as part of the present project description, for complete data and calculations.

6.10 Net GHG Emission Reductions and Removals (iFood Project, Instance 2)

Table 15 – Monitored net GHG emission reductions, iFood Project, Instance 2

Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)	Estimated net GHG emission reductions or removals accounted for the iFood project (tCO_2e)
Year 1[20]	46,277	44,023	0	2,254	53
Year 2[21]	21,442	19,077	0	2,365	29
Total	**67,719**	**63,100**	**0**	**4,619**	**82**

Refer to the VER calculation spreadsheet, supplied as appendix as part of the present project description, for complete data and calculations.

[20] Applicable period to iFood Project, Instance 2, 01-Apr-2022 to 31-Oct-2022.

[21] Applicable period to iFood Project, Instance 2, 01-Nov-2022 to 31-Jan-2023.