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MEXICO
Social Entrepreneurship Program

Executive Summary

Water and Energy Efficiency Program for Low-Income residents of Mexico (1st scale-up phase)

ME-S1006

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PROJECT TECHNICAL DOCUMENTS

TABLE OF ABBREVIATIONS

CDM	Clean Development Mechanism
CDM CPA	CDM Component Project Activity
CDM PoA	CDM Program of Activities
CECATI	Centros de Capacitación para el Trabajo Industrial
CER	Certified Emission Reductions
DNA	Diagnostics of Executing Agency Needs
GHG	Greenhouse gas
GS	Gold Standard
IDB	Inter-American Development Bank
MIF	Multilateral Investment Fund
MSMEs	Micro, Small and Medium Enterprises
NOx	Nitrogen oxides
ORC	Special Resources from the Ordinary Capital for the Social Entrepreneurship Program
SEP	Social Entrepreneurship Program
SOx	Sulfur oxides
TC	Technical Cooperation
UN	United Nations
UNFCCC	UN Framework Convention on Climate Change

SOCIAL ENTREPRENEURSHIP PROGRAM

MEXICO

Water and Energy Efficiency Program for Low-Income residents of Mexico (1st scale-up phase)

I. BASIC PROJECT INFORMATION

A. Executing Agency: CAMINO SABIO AZUL S. DE R.L. DE C.V. (CAMBIO AZUL)

B. Amount and Source of Financing.

Financing Plan:	SEP Non Reimbursable Financing:	US $ 150,000
	Counterpart:	US $ 635,000
	Total:	US $ 785,000

Source of Funds: Ordinary capital Special Programs (ORC)

C. Terms and Conditions of the non-reimbursable financing.

1.1 As partial in-kind repayment, the IDB will receive 7% of the Gold Standard Certified Emission Reductions (GS CERs) issued throughout the crediting period, up to a total value of US$183,000, which will be equivalent to the non-reimbursable financing value plus a 4% annual interest rate on unpaid balances for 10 years. To determine the dollar value of the GS CERs towards the $183,000 cap the price paid by MyClimate to Cambio Azul annually, will be used as reference. Modalities for the IDB to access the carbon credits set aside are included in the project Technical Document V, and are to be incorporated in a side letter agreement between IDB, Cambio Azul and MyClimate, which will be cross-referenced in the SEP technical cooperation agreement.

D. No-Objection.

1.2 The Government of Mexico through the International Affairs Unit of the Minister of Finance (Hacienda) issued no objection to this project through its communication dated November 1st, 2013.

II. BACKGROUND

A. Definition of the problem.

2.1 Water demand in the Valley of Mexico and in North Baja California largely outweighs both immediate and longer-term supply. The main aquifer in the Mexico City region, supplying up to 70% of the residential needs, is being drained beyond the rate of replenishment, with a current stress level of 132%[1]. Climate change and poor water management are exacerbating these circumstances and, as a consequence, the City's authorities have been increasingly forced to resort to the implementation of water-rationing measures over the past few years. Similar problems are found in the city of Tijuana, where the water stress is classified by CONAGUA as 'high', with a rate of utilization of renewable water resources of 73%. Moreover, in Tijuana water availability issues are further exacerbated by water quality and trans-boundary water pollution problems.

2.2 Apart from the environmental problems caused by the residential sector's growing water footprint, hot water is also one of the main factors impacting household energy bills (especially those of low-income households), due to the use of fossil fuels (natural gas or liquefied petroleum gas) and electricity for water heating. Finally, the use of hot water is also one of the main sources of emission of greenhouse gas (GHG) and other pollutants (such as nitrogen oxides (NOx) and sulfur oxides (SOx)) in the residential sector.

2.3 The use of showers and faucets represents the single largest use of water in Mexican households, averaging a daily consumption of up to 250 liters per person. However, water fixtures at the household level are typically inefficient, using about 40% more water (i.e. approximately 25% more energy) than modern water-saving devices available on the market. Outdated technology and lack of adequate maintenance of old fixtures exacerbate further the problem of inefficient use of (hot) water.

2.4 The water scarcity problem outlined above has a number of causes, the most important of which being the spike in demand caused by rapid urbanization towards metropolitan areas, especially evident in the Valley of Mexico. Available local water resources are

[1] The following table details the level of water stress in the different regions of Mexico:

Administrative watershed regions	**Allocated water resources (millions of m^3)**	**Renewable water resources (millions of m^3)**	**Stress Level (%)**	**Stress Level Classification**
I Península de Baja California	***3 420***	***4 667***	***73.3***	***High***
II Noroeste	7 703	8 499	90.6	High
III Pacífico Norte	10 411	25 630	40.6	High
IV Balsas	10 704	21 680	49.4	High
V Pacífico Sur	1 363 32	824	4.2	Low
VI Río Bravo	9 243	12 163	76.0	High
VII Cuencas Centrales del Norte	3 846	7 898	48.7	High
VIII Lerma-Santiago-Pacífico	14 479	34 533	41.9	High
IX Golfo Norte	4 854	25 564	19.0	Moderate
X Golfo Centro	4 973	95 866	5.2	Low
XI Frontera Sur	2 203	157 754	1.4	Low
XII Península de Yucatán	2 731	29 645	9.2	Low
XIII Aguas del Valle de México	***4 658***	***3 513***	***132.6***	***Very high***
Total nacional	**80 587**	**460 237**	**17.5**	**Moderate**

'Mexico's Water Statistics 2011'. Source: CONAGUA

limited throughout the country, and particularly evident within Mexico City, which lies 2200m (7200+ ft) above sea level making groundwater pumping energy-intense and therefore expensive. In addition, water is typically conceived of as an unlimited public good, which limits price increases and payment enforcement. Household rates are heavily subsidized and equal to approximately 15% of the supply costs. The percentage of water paid for by end users is 24% in Mexico City, and 36% in the metropolitan area.

2.5 The impact of the use of hot water on energy bills is poorly understood by the general public, and there is generally poor public awareness on the significant water, energy, and GHG savings potentially available through the installation of efficient residential water fittings. In addition, the upfront cost of the installation of the more efficient water fixtures usually represents an additional barrier to the deployment of this technology in low income households.

2.6 As a consequence, low income households in the suburban areas of Mexico City and Tijuana are generally unable to implement the efficiency-enhancing measures that would allow them to improve their water and energy usage. These barriers to increased efficiency have significant costs for the low income beneficiaries. Under current conditions beneficiary families are foregoing potential economic savings averaging $307 per year per household, which is equal to approximately 44 days of income for an average household in the project areas.

B. Beneficiaries.

2.7 The **beneficiaries** from this project can be grouped into five main categories:

2.8 I) **15,000 low-income households**[2] (about 60,000 residents) in the Mexico City and Tijuana metropolitan areas. These residents will directly benefit from:

a. Savings in water consumption & cost;

b. Reduced fossil fuel & electricity consumption & cost; and

c. Increased awareness of, and contribution to, sustainability practices.

These locations were selected based on a number of considerations, including: (i) the availability of areas with high concentration of lower income households, which makes it more efficient to perform the installation of the new water fixtures, minimizing travel times; (ii) the relatively high pressure of water delivery, which maximizes water and energy savings – hence carbon credits generation – vis-à-vis the business-as-usual scenario; and (iii) the existing relation between Cambio Azul and the *Fundación*

[2] In the context of this project, 'low-income households' are intended as 'households of social interest' (in Spanish: 'Viviendas de interés social'). In Mexico, social housing encompasses any type of (existing) residential building which has been developed or purchased with funding from government housing institutions such as INFONAVIT, FOVI, and FOVISSSTE. Typically, social housing is predominantly, if not entirely, low-income housing. This type of housing generally faces significant cost-restraints during their development to meet federal budget and mortgage limit requirements. As such, it generally lacks basic water and energy saving features. The low-income, social housing, areas targeted by Cambio Azul are based on approximate geographic areas designed as such by local or federal government agencies, and are not determined by household-level income assessments, as this approach would face significant barriers to reach the expected scale of project results.

Hogares[3], one of the partners in the implementation of the program, which already works in the selected areas and had facilitated the selection of the sites where the 2010 100-household pilot program was implemented.

2.9 II) **50 women** will benefit from the creation of jobs during the project implementation and monitoring of the emission reductions. Formal employment is difficult to achieve for women in low-income areas of Mexico City - the targeted women would normally be "*amas de casa*". A formal employment as plumbers has potential to produce positive and significant impacts on their social status, in addition to generating an additional income stream for the household. The women recruited by the project though the Female Plumber program will receive training through CECATI (*Centros de Capacitación para el Trabajo Industrial*), with regular courses towards a specific plumbing certification. Courses will be approximately 3-4 weeks long, including plumbing and business development modules. Courses will also include a final exam, comprising of 20% theory and 80% practice (practical training will be received in the context of the project's water fixture installation component itself).

2.10 The number of female plumbers necessary to perform the installation of new water fixtures (50) has been determined based on an implementation plan that will span 6 months, covering 15,000 households. The women will be invited to apply for the program during the local stakeholder consultation organized in each neighbor to inform residents of the project, and will ideally come from the same residential areas that they will serve as plumbers. The trained women will be hired to perform tasks related to the project implementation and will receive a set of plumbing tools and a uniform each, as well as full medical insurance. In addition, through the installations (up to 12 per day) they will also have access to a significant pool of clients to continue to serve for other plumbing-related needs after the end of the project's lifetime.

2.11 III) **The women-owned manufacturing SME** that produces the water efficient fixtures to be installed by the project (Adelmar International S.A.). This manufacturer, mostly employing women, produces the only showerhead in Mexico certified as "Ecological Grade", complying with the 'green' level at all three Mexico pressure zones. The peak in demand for the efficient water fixtures required by the project is likely to require the temporary hiring of additional workers at the plant.

2.12 IV) **The residents and the metropolitan regions** where the project is to be implemented will benefit from:

a) Reduced costs and stress concerning watersheds, aquifers, water & wastewater treatment & piping, and wastewater disposal; and

b) Cleaner local air.

2.13 V) **The environment**, as over its 10-year lifetime, the project will result in GHG reductions in excess of 150,000 tons/CO2e and water use reduction from an average from

[3] *Fundacion Hogares* (http://www.fundacionhogares.org/), is a non-profit organization created by Infonavit, the Mexican federal institute for worker's housing, to improve the living conditions of Mexican families living in low-income housing projects across the country, through tailored and participative social development programs. Fundación Hogares is a partner of Cambio Azul and has facilitated the identification of pilot sites for the project.

164 to 95 liters/person/day, a saving of more than 40%, reaching an estimated volume of approximately 1.9million m^3 of water.

B. THE PROJECT

A. Objectives.

3.1 The impact-level objective of the project is to improve living conditions among low-income households in two representative Mexican metropolitan areas, through reduced water and fuel costs and employment generation.

3.2 The result-level objective of the project is to demonstrate the viability of a business model that distributes water and energy saving devices with financing from carbon credits. Ultimately, the project aims to be scaled up at larger scale (see 'Stages of implementation of the program' section, below).

B. Project Description.

3.3 This innovative project will test a first-of-its-kind model which links water savings to energy savings and GHG emissions reductions. The project will involve replacing existing showerheads and faucet regulators with more efficient water fixtures. This will reduce household water and energy use, thereby reducing fossil fuel use and GHG emissions. New showerheads and faucets will be installed free of charge in the beneficiary households.

3.4 Stages of implementation of the program. Cambio Azul has designed a three-step development program, including:

a) Initial pilot, implemented in 2010 in 100 households across Mexico City, was used to gather initial data and support assumptions used in energy, water and CO2 saving calculations;

b) 1st phase scale-up, covered in this document, involving implementation of the model in 15,000 households; and

c) 2nd phase scale-up, involving implementation of the model in 325,000 households.

3.5 As part of this project, the MIF and SEP resources will be used to cofinance the 1st phase scale-up of the program. Depending on the success of the 1st phase scale-up, the project Team will assess the opportunity of using grant and/or non-grant financing to participate in financing part of the 2nd phase scale-up (325,000 households program).

3.6 The 1st phase scale-up business plan envisions that the project will have duration of approximately 6 months, including the theoretical and practical training for the Female Plumbers. "Ecological Kits" comprising 1 showerhead and 2 faucet regulators will be delivered daily to designated drop-off points convenient to that day's installation schedule. Replaced showerheads and data sheets will be picked-up at the same spot daily, also. Daily data sheets with information on the installations carried out will be delivered each evening to Xerox (the project partner in charge of data processing) for entry in the project database. Removed fixtures will be collected in a warehouse for recycling and/or destruction. Finally, the monitoring activities will extend for 10 years after installation,

which is equal to the emission reductions crediting period allowed by the chosen CDM POA emission reduction baseline and monitoring methodology.

C. Executing Agency.

3.7 The Executing Agency of this project will be Camino Sabio Azul S. De R.L. De C.V. (Cambio Azul). Cambio Azul is a private Mexican company incorporated in 2010 as a "Sociedad de Responsabilidad Limitada de Capital Variable" (Limited Liability Variable Stock Company), with the sole purpose to pursue a program to install efficient water saving devices. Cambio Azul was solely created with the purpose of being the coordinating and managing entity of this project. As such, Cambio Azul is fully aligned with the project.

3.8 Stockholders of the company are: Investment Technology Resources, Inc. (ITR) 95%, George T. Maher 5%. Investment Technology Resources, Inc. (ITR) is a private company resident in the state of Nevada, USA and fully owned by George T. Maher. ITR was established to pursue a program to install efficient water saving devices. It holds rights to program intellectual rights, processes, and operational and management tools.

3.9 To date, Cambio Azul has successfully undertaken a number of activities related to project implementation and registration under relevant carbon standards, including the following:

a) In 2010, completed a successful 9-week 100-household pilot study. The residents' feedback was very positive: 100% say they would recommend the program to their neighbors and relatives;

b) In 2010, obtained approval from Gold Standard Foundation of a new methodology developed for calculating Voluntary Emissions Reductions from household fossil-fuel water heating.

c) In July 2011, obtained approval by the UN CDM Executive Board of a small-scale methodology for water saving devices (AMSII.M), the first methodology under the CDM that links water saving devices and GHG emission reductions; and

d) On December 19th, 2012, obtained registration by the UN CDM Executive Board of a CDM Program of Activities (CDM PoA)[4]. A PoA allows for the aggregation of many single projects under the same UN-registered umbrella-program, and dramatically reducing program regulatory time and development costs.

3.10 The management of Cambio Azul is comprised of experienced executives with decades of experience in energy-related business development, project financing and project operation in numerous countries overseas, including Mexico. For the execution of this emission reduction project, Cambio Azul management has teamed up with a small scale, high quality local producer of water-efficient technology. Adelmar International is a 45-year old woman-run Mexican water valve and fixture company. Cambio Azul will have exclusive rights to patented high quality showerhead and faucet regulators developed and manufactured in Mexico by Adelmar. The fixtures meet the CDM methodology requirements, are made

[4] Cambio Azul's page on the UNFCCC website is available here: http://bit.ly/17eCSF6

with high quality materials, do not clog, come with a 10-year warranty, and provide several faucet regulator options.

3.11 Cambio Azul was set up for the sole purpose of designing, raise financing and implementing the described emission reduction project. For this reason, this special purpose vehicle does not have other assets than the minimum required by Mexican law to set up a "Sociedad de Responsabilidad Limitada de Capital Variable".

D. Project Components.

3.12 The project will be organized in four components, with the following specific activities:

3.13 Component 1 – Awareness campaign and participation. This component will include the identification of the specific neighborhoods and households to be included in the project, defining the project boundaries. It will also include a campaign to inform residents of the prospective program implementation (through stakeholders consultation meetings organized in each target residential area), and the preparation of informative material to be distributed during the installation phase.

3.14 Component 2 - Design, manufacturing, deployment more efficient water fixtures. This component will include the manufacturing of the mold necessary for the production of the faucet fixtures, which will be exclusively used for the production of the pieces to be used in this project (and the eventual 2nd scale-up). The component will also include the certification of the water fixtures as 'ecological grade' by an independent laboratory (according to specifications required by Mexican regulations) and the preparation of a deployment plan for the water fixtures. Finally, the component will include the installation of the water fixtures in 15,000 households, which will be performed over a period of approximately four months, using 20-25 teams of 2 plumbers doing 8 to 10 installations per day, and the relative collection of the installation data sets.

3.15 Component 3 – 'Mujeres Plomeras' Program. This component will identify and provide training to the technical personnel that will be in charge of the removal of the existing water fixtures and the installation of the new more efficient ones. The personnel, almost exclusively women, will undergo a training program of 3 to 4 weeks, including plumbing and basic servicing/maintenance for water heaters (two weeks). The desk-based training will also include a business development module (1 week). As for the practical training, each Mujeres Plomeras will undergo practical training under the supervision of the project supervisors throughout the installation period (minimum 3 months). The practical training is necessary to be able to take the R.O.C.O. exam and certification ("Reconocimiento Oficial de la Competencia Ocupacional").

3.16 Component 4 – Administration and Knowledge management. This component will include the consulting services for the development and registration of the project under the rules of the Gold Standard carbon certification scheme, as well as the relative accounting and legal preparatory work. Moreover, this component will include the creation and maintenance of a database and web-based reporting tool for project management. Finally, this component will include knowledge sharing and the development of knowledge transfer product(s).

E. Project Financing Structure.

3.17 The total expected capital cost of the project is US$785,000. The US$150,000 SEP non-reimbursable financing will be used to finance activities such as: (i) purchase of materials and manufacturing of efficient showerheads; (ii) manufacturing of specific custom-made molds for the production of non-removable, integral faucets water saving devices (aerators); (iii) in-line flow meters; (iv) logistics and deployment plan; (v) a portion of the staff-costs related to the installation of the water-saving technology.

3.18 The SEP non-reimbursable financing will complement other available resources, including:

a) US$ 150,000 from a MIF technical cooperation approved in 2012 (ME-M1080), which will cover project costs related to raising awareness and participation of low-income households, design more efficient water fixtures and develop a training program for plumbing and basic servicing targeted exclusively for women (Female Plumber Training Program);

b) US$ 285,000 in additional financing for the development of the project provided by the Swiss organization My Climate Foundation for that will be used mainly to cover for project development consulting services and a portion of the materials and manufacturing costs for the water efficient fixtures; and

c) US$200.000 in counterpart from the executing agency, which will mostly consist of in-kind contribution for the project staff costs (US$140,000), and working capital (US$60,000).

3.19 The proposed financing has been structured as non-reimbursable financing to mitigate the risks linked to price volatility and policy uncertainties within the carbon market. Under these conditions, the full repayment of a reimbursable component would be difficult to ensure. However, considering the project's added value in terms of impacts on low income beneficiaries, coupled with a great potential for commercial scale up within the country and the region, a non-reimbursable financing component was considered.

3.20 As a partial in-kind repayment, Cambio Azul has agreed to reserve part of the carbon credits to be generated through the project's lifetime to the MIF. The MIF will receive 7% of the GS CERs issued throughout the crediting period, up to a total value of US$183,000, which is equivalent to the non-reimbursable investment value plus a 4% annual interest rate on unpaid balances. To determine the dollar value of the GS CERs towards the $183,000 cap the price paid by MyClimate to Cambio Azul annually, will be used as reference.

3.21 Depending on the project's carbon generation performance, this carbon credit set-aside is expected to reach approximately 1,500 tons/CO2e per year, a volume large enough to offset carbon emissions from the MIF's FOROMIC conference for 10 years. Details of the methodology to be used to determine the reference period within which to calculate the average price of GS CERs, as well as details of the type of GS CERs that can be considered 'comparable' to the ones to be produced by Cambio Azul, will be described and formally agreed upon in a commitment letter between the MIF and Cambio Azul.

F. Sustainability.

3.22 From the completion of the installation stage of the new water fixtures, the project will have a lifetime of 10 years, during which the Executing Agency will be able to claim the issuance of the generated carbon credits certificates to the UN CDM Executive Board. This is a key element that will ensure the economic sustainability of the project through the whole 10-years eligible crediting period. Once the technology is installed, the routine verification requirements necessary in order to obtain a successful issuance carbon credits will ensure that the project continues to be actively monitored on a regular basis by the project owner. With regards to the results in terms of employment generation, the Female Plumber Training Program will provide training to the selected candidates through regular CECATI courses, towards a specific plumbing certification, i.e. not limited to the mansions and tasks to be performed as part of the project activities. This aspect will play an important role towards ensuring sustainability of the skills enhancement efforts.

G. Expected Results and Socio-Economic Benefits.

3.23 Over a 10-years expected lifetime, the project will achieve **economic, social and environmental results**. First of all, it will generate employment opportunities for 50 low income women who will be trained in plumbing and basic business management and employed by the project during the technology deployment stage.

3.24 Second, the project will install water savings devices in 15,000 households, free of charge, thus reducing household water use from an average 164 liters/person/day to 95 liters/person/day, a saving of more than 40%. This will result in economic savings from both energy and water bills of an average US$307 per family per year, equivalent to 44 days of income for the average household in the targeted areas.

3.25 Third, over its lifetime the project will result in GHG emissions reductions in excess of 200,000 tons/CO2e. Finally, through the water and climate awareness campaigns the project will raise awareness within the targeted communities regarding the importance of improving efficiency in the use of energy and water, responding to both economic and environmental concerns.

H. Additionality.

3.26 As a startup, Cambio Azul faced significant difficulties to raise the level of upfront financing necessary to scaling this project up from the 100-house pilot scheme implemented in 2010 to the 1st scale-up stage of 15,000 households. The financing barriers are even more significant for this project as the sole source of revenues comes from the sale of carbon credits, at a moment where carbon prices are generally low. The participation of the MIF and SEP go a long way in alleviating these barriers, maximizing the chances to create the pre-conditions for a possible larger operation (2nd scale-up) that will be assessed by the project team, in light of the performance of the 1st phase scale-up. In particular, the provision of additional financing by the IDB Group through the SEP, after the initial MIF TC was approved, has been a key determining factor for the provision of the additional financing needed to close the project finance gap, by the other project participants. As a consequence of the SEP financing MyClimate Foundation injected an additional UD$58,000 in project finance and Cambio Azul increased the counterpart level from US$140,000 to US$200,000.

3.27 From a non-financial additionality standpoint, this project, together with the MIF Technical Cooperation, will enable the generation of the program's co-benefits in terms of employment, gender, environmental awareness and education, scalability and knowledge transfer within and beyond LAC. Through the training component for instance, the project will enable Female Plumbers to receive not only plumbing training, but also training on how to set up and effectively market their own micro-enterprise to ensure longer-term employment opportunities. Formal employment is very difficult to be achieved by women in low-income areas of Mexico, and this project will help alleviating this problem in the targeted areas.

I. Alignment with the Bank's Country Strategy.

3.28 The strategic objective of the IDB in Mexico is to support the implementation of the national climate change policies, on both the mitigation and the adaptation agendas. In particular, the Bank's country strategy calls for the provision of assistance through sovereign and non-sovereign windows to "reduce greenhouse gases emissions through public- and private-sector financing for low carbon projects and technical assistance to increase access to carbon markets" (GN-2595-1, para 3.33).In light of the above, the present operation is well aligned with the Bank´s objectives for Mexico.

The strategy of the Bank also considers cross-cutting aspects such as gender equality, diversity and integration. to this end, the project fits well with this strategy, as it promotes gender integration and business opportunities for women.

J. MIF Strategy and Access Framework

3.29 This project will be implemented in low-income housing areas in Mexico, and will cut water and energy consumption (hence costs) for the end-users, thus contributing to the poverty alleviation objective of the SEP. The installation of the water-efficient fixtures will be free of charge for the households, and will be covered in the mid to long-term by the revenues from the sale of emission reduction certificates generated by the project. The direct cost savings per households are estimated at an average $307, which is equal to approximately 44 days of income for an average household in the targeted areas.

3.30 Additionally, the project will foster private sector development by providing training and direct job opportunities for up to 50 women through the Female Plumbers program. The participating women will have access to a large pool of potential clients, which will provide longer-term employment opportunities after the end of the project's lifetime

3.31 The project directly contributes to the MIF's "Leveraging Natural Capital" agenda, which, inter alia, aims at supporting small businesses involved in the development and implementation of new metrics and methodologies for calculating and verifying GHG emission reductions. In addition, the project is also in line with the basic services strategic line of the Social Entrepreneurship Program.

K. Environmental and Social Review.

3.32 The operation was classified as category 'C' and approved by the ESG Team on November 4th, 2013.

L. Disbursement, Procurement, and Financial Management and Audits.

3.33 **Conditions for disbursement.** Prior to the first disbursement, Cambio Azul should have (i) appointed the project coordinator, (ii) designed one or more individuals as its legal representative(s) for all the actions relative to the execution of the project (iii) met the conditions for the first disbursement for the MIF TC component (ME-M1080), and (iv) submit a copy of the final Emission Reduction Purchase Agreement (ERPA) between Cambio Azul and My Climate Foundation.

3.34 **Disbursement by Results:** Project disbursements for the non-reimbursable financing will be contingent upon verification of the achievement of covenants. These covenants will be verified using their means of verification, which will be agreed upon between the Executing Agency and the MIF.

3.35 Covenants agreed with the Executing Agency for this project are included in the table below:

Indicator	Formula	Estimated disbursement amounts	
		1st. Disbursement	2nd. Disbursement
Emission Reduction Purchase Agreement (ERPA) finalized and signed between Cambio Azul (seller) and MyClimate (buyer)	ERPA signed	US$75,000	
Installation acceptance rate	The installation acceptance rate (households approached / households accepting the installation of new water fixtures) is above 80%, at completion of 40% of the target installation number (15,000 households)		US$75,000

3.36 **Procurement and contracting:** For the procurement of goods and contracting of consulting services, the Executing Agency will apply the IDB Policies (GN-2349-9 y GN-2350-9). Given that the Diagnostic of Executing Agency Needs (DNA) (*http://mif.iadb.org/projects/prjdocTech.aspx?proj=ME-S1006*) generated a **high level of need/risk** classification, the project team has determined as stipulated in Appendix 4 of the IDB Policies, the Executing Agency which belongs to the private sector, will use the private sector procurement methods specified in Annex 1 of the Operational Guidelines for Technical Cooperation Projects (OP-639). In addition, the review of procurement and contracting processes for the project will be conducted **ex-post** and on a **semi-annual** basis. Before project contracting and procurement begins, the Executing Agency must submit the project Procurement Plan for the IDB/MIFs approval which should be updated **semi-annually** and when there are changes in the methods or goods or services to be procured.

3.37 **Financial Management and Supervision:** The Executing Agency will establish and will be responsible for maintaining adequate accounts of its finances, internal controls, and project files according to the financial management policy of the IDB/MIF. Given that the Diagnostic of Executing Agency Needs (DNA) (*http://mif.iadb.org/projects/prjdocTech.aspx?proj=ME-S1006*) generated a **high level of need/risk**

in financial management, the review of supporting documentation for disbursements will be conducted **ex-post** and on a **semi- annual** basis. The MIF/CME supervision staff will assist and provide specific training to Cambio Azul for the financial management areas that require further strengthening, as identified through the DNA process.

3.38 **Audits:** The **IDB/MIF** will contract independent auditors to carry out the ex-post reviews of procurement processes and of supporting documentation for disbursements of this project in conjunction with the MIF TC. Ex post reviews will include an analysis of the Financial Statements that the EA should prepare annually as part of its financial management. The audits will be jointly conducted for operations ME-S1006 and ME-M1080, and the costs associated with the auditing activities will be financed with MIF contribution resources (TC ME-M1080), according to IDB procedures.

M. Reporting and Evaluations.

3.39 **Project Status Reports:** The Executing Agency will be responsible for presenting Project Status Reports (PSRs) to the MIF within thirty (30) days after the end of each semester, or more frequently as determined by the MIF by providing at least sixty (60) days advance notice to the Executing Agency. The PSR will contain information on the progress of project execution, achievement of covenants, and completion of project objectives as stated in the logical framework and other operational planning tools. The PSR will also describe issues encountered during execution and outline possible solutions. Within ninety (90) days after the end of the execution term, the Executing Agency will submit to the MIF a Final Project Status Report (Final PSR) which will highlight results achieved, project sustainability, evaluation findings, and lessons learned.

3.40 **Responsibilities for supervision:** The MIF/CME will have responsibilities for the supervision of the operation during the implementation stage of the project. The main activities to be performed during the implementation stage are: community outreach and awareness raising, manufacturing of the new water fixtures, training of the plumbers and installation of the technology. The implementation stage is expected to last 6 months. A PSR will be duly prepared by the executing agency, and submitted to the MIF in accordance with MIF requirements and with the process described in paragraph 3.39 above. After the end of the execution period, monitoring and supervision responsibilities throughout the 10-year crediting period of the CDM PoA will be passed to the MIF/ABG Access Head, at the MIF HQ. The MIF/ABG Access Head will have responsibility to: (i) verify annually that the 7% of the issued carbon credits have reached the designated IDB account under MyClimate's management, and; (ii) give instructions to MyClimate on how to manage the carbon credits deposited on such account, including with regards to their retirement.

3.41 **Baseline and Evaluations**. The project will establish the baseline for the intervention, in compliance with the baseline and monitoring methodology used for the registration of the project under the UNFCCC CDM scheme. This will focus on the collection of data relative to household-level water temperature, water consumption (flow) pre and post installation of efficient fixture, energy use (electricity and fossil fuel) and relative carbon emissions. Information on the economic benefits at the household level (monetary savings per household) will be obtained multiplying the energy and water savings achieved per household by the cost of water and energy in each municipality covered by

the project. A separate set of information will be collected for the Female Plumbers, though the information obtained during the personnel selection process and the training enrolment process.

3.42 The final evaluation will be conducted by external consultants, contracted directly by the Bank. The evaluation will be conducted within three months of the end of the execution period and the following factors will be analyzed: (i) the level of achievement of result indicators; (ii) the household-level acceptance rate of the new water-efficient technologies; (iii) the effectiveness of the management structure of Cambio Azul; (iv) and the results of the training program for Mujeres Plomeras, including the beneficiaries' satisfaction level. The results of the final evaluations will be taken into account by the Project Team to evaluate the opportunity to participate in the 2nd scale-up stage of this project, which will involve the replication of the model in 325,000 households (1 million people).

N. Project Risks and Mitigating Measures.

3.43 Traditional risks connected with the development of carbon offsetting projects are as follow: (1) methodology and registration risk; (2) issuance risk; and (3) market/pricing risk. Additional non-carbon specific risks include (4) the risk of the installation personnel being denied entry in some of the households, and (5) the new technology acceptance rate by the households.

3.44 **Risk 1: Methodology and registration risk:** This is one of the most significant risks for any carbon emission reduction project seeking to be implemented in the framework of the CDM. **Mitigating Action 1**: The methodology and registration risk is not to be considered at this stage of project development as the specific CDM PoA methodology to be used for the 15,000 households 1st scale up has already been approved by CDM Executive Board, and the CDM PoA was registered in December 2012.

3.45 **Risk 2:** The issuance risk, typically the second most important risk factor for carbon emissions reduction and offset projects, is considered to be relatively low for this operation. It relates to the possibility that the initial assumptions for the calculations of the forecasted volumes of emission reductions were not accurate. One specific element that could impact this risk is the permanence of the newly installed technology in place and in good working conditions. **Mitigating Action 2**: The main aspect that needs to be checked and monitored to minimize this risk is that the equipment is still installed. This will be done through statistical sampling (no need to go in each and every beneficiary household). If after the statistical sampling it emerges that after a few years there is a percentages of the originally installed equipment that is no longer in place, the carbon credits generated will be reduced by the corresponding percentage only, thus limiting the potential impacts of this risk factor.

3.46 **Risk 3:** Price risk is typically high in the carbon market. Over the counter prices for compliance credits have fallen significantly in 2012, whereas a high degree of variability exists for carbon credits commercialized in the voluntary market. **Mitigating Action 3:** For this 1st stage scale up, the price risk was mitigated Cambio Azul through forward emission reduction sales (hedging). The carbon credits to be generated by the project (about 22,000 tons/year for 10 years) have already been committed to MyClimate Foundation, which agreed to a price floor (minimum US$6.5/ton) that is generally higher

than the current market price. Should the current market conditions with respect CER pricing levels continue in the future, especially in case no additional demand is generated in the market through the introduction of compliance targets for Countries or companies, this could in the mid-term undermine the possibility of implementing the 2nd scale-up stage of this project.

3.47 **Risk 4:** Acceptance rate by the households of the new technology: lack of trust towards the installation personnel. There is a risk that the installation personnel could be denied entry in the households, based on security concerns. **Mitigating Action 4:** To mitigate this risk the project design has been modified so that the installations are performed by teams of two women, who generally raise less security concerns than a male-based team. This is particularly true if we consider that many of the targeted households will be visited during working hours, when typically the house is occupied by the female components of the family (*amas de casa*). Moreover, the household basin which represents the area where the installations will be performed includes a buffer number of households that will be included in the installation plan in case the acceptance rate within the originally selected area resulted lower than expected.

3.48 **Risk 5:** Acceptance rate by the households of the new technology 2: lack of trust with respect to the forecasted water and energy bills savings. The households may not believe in the promised savings or may not want the new water fixtures installed in their houses. **Mitigating Action 5:** The project team mitigated this risk during the design stage by structuring the installation stage as free of charge for the beneficiary households, in order to minimize the non-acceptance rate.

O. Exceptions to Bank Policy.

There are no exceptions.