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**mexico-honduras-nicaragua**

Biobolsa: A Biogas Solution for Small Farms in Mexico, Honduras and Nicaragua

**(RG-M1260)**

**Donors Memorandum**

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According to the Information Disclosure Policy this document is subject to public disclosure.

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Project Summary

Biobolsa: A Biogas Solution for Small Farms in Mexico, Honduras and Nicaragua

*This project is presented for approval under the regional facility RG-M1217 “Accelerate Businesses Providing Services to Poor and Low Income Populations”[[1]](#footnote-1), a collaboration with Opportunities for the Majority (OMJ) that supports innovative companies, at a pre-commercial stage, that serve poor and low-income populations, transitioning them to receive debt financing from OMJ or equity from one of the MIF’s impact investment funds.*

Buen Manejo del Campo (BMC) is a social and environmental impact business that produces, distributes, installs and maintains the *Sistema Biobolsa*, a high-quality bio-digester system designed for small and medium-scale farmers. The MIF aims to support the company at a pre-commercial stage in order to prepare it for a loan that will scale-up its operations and expand sales in Mexico and develop new sales markets in Nicaragua and Honduras.

The *Sistema Biobolsa* technology is a pre-fabricated bio-digester that converts organic waste into renewable energy and organic fertilizer. This technology generates a sustainable source of energy in the form of biogas, for household or farm use, reduces the need for fuels and chemical fertilizers, and creates an opportunity for the farmers to improve their agricultural production.

The project has the potential to impact over 15,000 new direct beneficiaries each year, including 2,500 farmers and their families, and generate savings of USD $15 million for rural economies. Through the extension of the *Sistema Biobolsa* farmers and their families will increase their income through: (i) savings in energy consumption, reducing expenses on gas, firewood and electricity services; (ii) cost savings of chemical fertilizers; (iii) additional income through increased crop yields, value-added to agricultural products from biogas and the sale of bio-fertilizer.

Moreover, families who invest in the *Sistema Biobolsa* also gain additional health benefits by reducing exposure to respiratory diseases and infections commonly derived from traditional cooking and waste management methods. Lastly, this technology also has a positive environmental impact since it decreases deforestation caused by the need of wood-fuel, the contamination of water-sheds and greenhouse gas emissions.

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Acronyms and Abbreviations

**AOP** Annual Operating Plan

**BMC** Buen Manejo del Campo

**DNA** Diagnostic of Executing Agency Needs

**IADB** Inter-American Development Bank

**IRRI** International Renewable Resources Institute

**MIF** Multilateral Investment Fund

**OR** Operating Regulations

**PCU** Project Coordination Unit

**QED** Quality for Effectiveness in Development

**TC** Technical Cooperation

**TOR** Terms of Reference

Project Information

Biobolsa: A Biogas Solution for Small Farms in Mexico, Honduras and Nicaragua

(RG-M1260)

|  |  |  |  |
| --- | --- | --- | --- |
| **Country and Geographic Location:** | Mexico (Michoacán, Jalisco, Sinaloa, Chihuahua, Sonora, Guanajuato, Yucatan, Campeche), Nicaragua (Boaco, Matagalpa, Chontales, Rio San Juan, Leon) and Honduras (Santa Barbara, Yoro, Olancho, Lempira, Copán, Comayagua, Ocotepeque, Intibucá, Cortez) | | |
| **Executing Agency:** | Buen Manejo del Campo s.a. de c.v. (BMC) | | |
| **Access Area:** | Access to Basic Services and Green Growth | | |
| **Agenda:** | Access to Basic Services for the Poor | | |
| **Coordination with**  **Other Donors/Bank Operations:** | In collaboration with Opportunities for the Majority | | |
| **Direct Beneficiaries:** | Buen Manejo del Campo will be the direct beneficiary by reaching its investment readiness. | | |
| **Indirect Beneficiaries:** | People reached through the sale of the *Sistema Biobolsa*: 15,000  Target monthly income per household: <US$6,000  Sex Disaggregation: 60% Women | | |
| **Financing:** | Technical Cooperation: | US$ 261,138 | 42% |
| Investment: | US$ 000,000 | 0% |
| Loan: | US$ 000,000 | 0% |
| **TOTAL MIF FUNDING:** | US$ 261,138 | 0% |
| Counterpart: | US$ 356,750 | 58% |
| Co-financing (if available): | US$ 000,000 | 0% |
| **TOTAL PROJECT BUDGET:** | US$ 617,888 | 100% |
| **Execution and Disbursement Period:** | 18 months of execution and 24 months of disbursement. | | |
| **Special Contractual Conditions:** | None | | |
| **Environmental and Social Impact Review:** | This operation was screened and classified as required by the IDB’s safeguard policy (OP-703). Given the limited impacts and risks, the proposed category for the project is C. | | |
| **Unit with Disbursement Responsibility:** | MIF/COF MEXICO | | |

1. Background and Justification

**A. Diagnosis of the Problem to be addressed by the Project**

**Problem Diagnosis:**

1. Buen Manejo del Campo´s anaerobic bio-digester, the *Sistema Biobolsa,* has the potential to improve the productivity and efficiency of these small and medium-sized farms in terms of reduced costs, increase access to energy and agricultural inputs, and to reduction in water contamination and greenhouse gas emissions[[2]](#footnote-2). However the company, currently at its pre-commercial stage, is facing important challenges in terms of improving its production process, expanding its regional sales capacity and promoting its product among targeted end users in order to increase uptake and adoption rates for the *Sistema Biobolsa*.
   1. The limited uptake of technologies such as the *Sistema Biobolsa* contributes to the poor agricultural productivity in Mexico and Central America, which leads to a full range of socio-economic and environmental problems for farmers and their families, such as health and contamination risks due to inadequate waste management, low income levels derived from underperforming crop yields and an inability to cover energy costs for production and household use.

**Market Failure:**

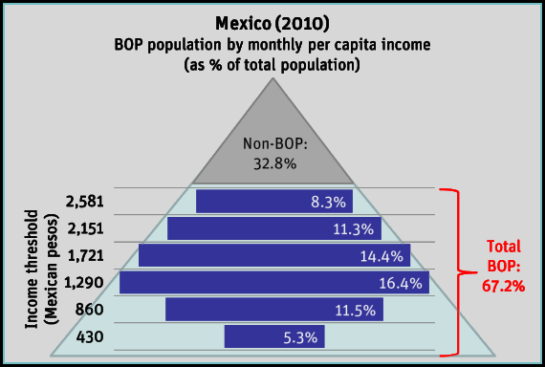
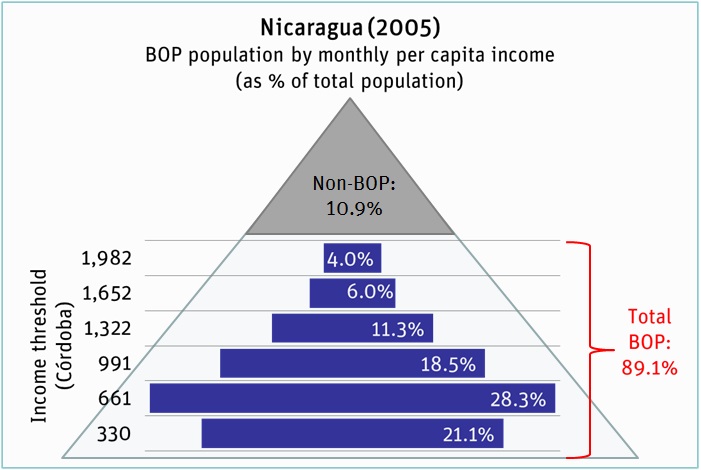
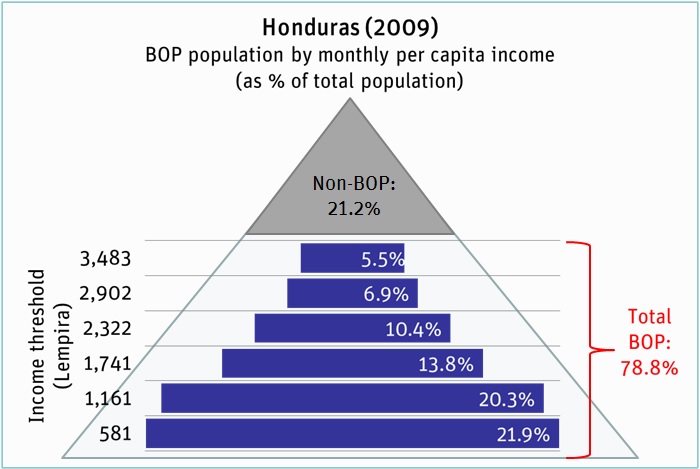
* 1. In the agricultural sector, effective business solutions such as the *Sistema Biobolsa,* that reach and accelerate economic activity at the BOP, are less common due to limited access to credit and financial products as well as a strong need for capacity building. Even though it is possible to claim that slow uptake can be the consequence of traditional and cultural agricultural traditions, the market failure surrounding financing mechanisms and affordable technologies remains the main cause of an underdeveloped agricultural sector in the Latin America and Caribbean region.

**Justification:**

* 1. By supporting Buen Manejo del Campo at a pre-commercial stage, the MIF is contributing to the extension of an innovative technology in the field of productive agricultural waste management, directly aimed at helping farmers and their families from the BOP in Mexico, Nicaragua and Honduras. BMC facilitates access to a reliable and productive technology by offering micro loans and capacity building to help rural small and medium-scale farmers invest in the *Sistema Biobolsa* and improve their economic, health and environmental conditions. Moreover, *Sistema Biobolsa* reduces respiratory diseases and potential infections that traditional cooking and waste management methods cause. The technology also has a strong positive environmental impact since it decreases deforestation caused by the need of wood-fuel and the contamination of water-sheds.

**B. Project Beneficiaries:**

* 1. Buen Manejo del Campo will serve as the direct beneficiary of this Technical Cooperation, since the primary objective is to contribute to the company’s investment readiness. However, the company’s participation in the Accelerator facility is due to the characteristics of BMC’s clients, detailed below, which will benefit from the scale up of the company.
  2. Given the regional nature of the project, the profile for each group of beneficiaries is specific to each country. In Mexico, the company´s clients are primarily farmers whose production centers on dairy, meat, grain and beans. Meanwhile, the farmers targeted in Honduras are mainly focused on coffee production and in Nicaragua potential clients are dairy, grain and fruit producers. In all three countries the project targets small to medium-scale farmers given their lower income levels, reduced waste management capacity and scarce energy resources. These farmers generally practice subsistence agriculture and do not have access to sophisticated farm machinery.
  3. Scaling Buen Manejo del Campo´s volume of sales for the *Sistema Biobolsa* will mean 2,500 new installations over the course of the TC, benefiting households ranging from 5 to 7 people, approximately 15,000 direct beneficiaries. An estimated 60% of the beneficiaries are women, and because of their predominant roles within households, women will experience greater benefits in terms of health, energy use, and economic returns. Since women use wood as their sole source of fuel for cooking and heating they will be the primary users of the biogas and will no longer have to dedicate a significant amount of time to collecting wood. A typical rural household can save about 3.5 hours per day when there is no need to collect wood for heating and cooking[[3]](#footnote-3), creating time for more productive activities. It is also important to highlight the role of women within the company itself, since currently 19 of the 36 member of the sales team are female, and they are responsible for materializing approximately 80% of the *Sistema Biobolsa* sales.
  4. With regards to income levels, in Mexico, over 60% of these small farmers fall below the Mexican poverty line, making earning between USD$1,000-$6,000 per year. Some medium scale farmers have more purchasing power, and make just over the Mexican average income, earning an income between USD $9,000 and 15,000 per year. In Nicaragua, the second poorest country in Latin America, 68% of the rural population lives in conditions of poverty, with annual incomes of US$600-US$1,200 per year, with some farmers making up to US$6,000 as milk producers[[4]](#footnote-4). In Honduras, 63% of the rural population lives in poverty, making US$600-US$1,250 per year, with some milk and coffee producers making up to US$6,000 per year2.

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**C. Contribution to MIF Mandate, Access Framework and IDB Strategy**

* 1. The project contributes to MIF’s mandate on both private sector development and poverty reduction. MIF will support the proposed business model, supporting economic growth by providing small and medium-scale farmers and their families at the base of the pyramid with a technology that can increase household income, improve energy access and promote sustainable waste management. The project is also contributing to the Agenda of Access to Basic Services for the Poor in terms of results and knowledge. More specifically, it will pilot an innovative SME business model, with the capacity for job creation and clean energy generation.

1. Project Description

**A. Objectives:**

* 1. Buen Manejo del Campo´s business model is focused on providing adequate technology, along with financing mechanisms and capacity building, in order to help rural small and medium-scale farmers improve their agricultural waste management, increase their income and generate sustainable sources of clean energy. The impact of the TC is the financial sustainability of the company’s business model in order to reach investment readiness in preparation for an OMJ loan or other source of finance. With the MIF grant, the company will be able to scale up its operations in Mexico, Nicaragua and Honduras.

B. Description of Model/Solution/Intervention

* 1. The *Sistema Biobolsa* is an innovative, market-based initiative that manufactures and distributes a small-scale affordable bio-digester that transforms livestock waste into organic fertilizer for crops and biogas for cooking, heat and electricity. Consequently, *Sistema Biobolsa* makes farmers use alternative ways to integrate renewable and sustainable technology into their work activities that aims to improve their productivity and increase their income.
  2. BMC’s commercialization strategy consists of holding community gatherings and initial meeting with farmers to show them how they can reduce energy costs, increase production and carry out their work more efficiently. Local and State governments, agricultural cooperatives, as well and local civil society organizations participate in the meetings to build community support. Afterwards, a team of rural technicians trains interested farmers on how to install and use the bio-digester through visits to the farms during a six-month period.
  3. The initial fixed cost of purchasing the bio-digester ranges from USD$800 and $6,000 depending on the size, a cost that should be fully recovered within 18 months due to the value of producing biogas and bio-fertilizer. In order to pay for this initial investment, BMC offers zero percent interest micro-loans thanks to a USD$250,000 credit line with KIVA, who funds its loans on a running basis. Additionally, BMC has USD$80,000 from its own funds in its credit pool. Payment plans range from 6 to 12 months, fund 20-80% of the total equipment cost and are collected during the regularly scheduled follow-up and monitoring activities. Monthly payments are designed to be less than the monthly savings generated by the bio-digester so the farmers can still perceive a net savings in their first few months of use.
  4. The project’s maintenance and follow-up programs are financed through the sale of carbon credits on the international voluntary carbon market. During their visits, technicians calculate the net displacement of carbon emissions achieved through the use of biogas instead of traditional gas in each household. These data are registered with third-party international vendors of carbon emissions that aggregate the impact of small sustainable initiatives like *Sistema Biobolsa*. These credits are later sold within the voluntary carbon market structure, and the profits are used to finance the organization’s follow-up procedures with bio-digester users.
  5. The efficiency of the *Sistema Biobolsa* project can be attributed to several factors. First, the material used for the bio-digester allows the technology to last 20 years. Additionally, its installation is simple and quick, lasting only a few hours, as compared to traditional bio-digester types which require multiple weeks. Moreover, the bio-digester comes in various sizes from 3 to 40 cubic meters of volume. A traditional bio-digester using bricks and mortar is more expensive and takes much longer to build and install.
  6. Despite Mexico being the focal point in BMC´s business operations, introducing the *Sistema Biobolsa* technology in Nicaragua and Honduras is key in order to establish a sufficient level of demand for the product, based on the proven impacts on the lives of small and medium-scale farmers. Tecnosol is BMC´s regional partner and they function as an authorized retailer and implementer, purchasing equipment directly from BMC and selling directly to the clients. BMC conducts trainings and monitors the quality of Tecnosol´s work. BMC´s operations in Nicaragua and Honduras include a team of between 22 trained technicians able to promote and sell the *Sistema Biobolsa*, with 4 technicians certified to install the technology. At the moment, 9 systems have been installed in Honduras and just over 35 systems have been installed in Nicaragua.

**C. Components**

**Component 1: Consolidation of Regional Growth Strategy**

**(MIF: US$152,638, Counterpart: US$293,000)**

* 1. The objective of this component is to generate better market data, sales capacity, and marketing and promotion strategy to expand and scale the business to other markets in Mexico, as well as Nicaragua and Honduras.
  2. The activities and the products of this component are the following:

|  |
| --- |
| a) Conduct detailed market studies in Central America and other possible growth areas in LAC. |
| b) Build on best practices in rural retail to develop a marketing and promotional plan that provides a strong return on investment by maximizing sales within each potential sales channel ROI. |
| c) Expand the technical capacity to service new markets. |
| d) Develop a franchising package and target retailers that can reach the company’s markets throughout the LAC region. |

**Component 2: Strengthening of the company´s data management and M&E capacity**

**(MIF: US$40,500, Counterpart: US$4,950)**

* 1. The primary objective of this component is to support Buen Manejo del Campo in developing a system for data management based on a constant flow of feedback from the field in order to improve their product. The capacity to monitor and evaluate the impact of the *Sistema Biobolsa* will be crucial as the company grows, and will facilitate distributers to promote the technology.
  2. Activities for this component are the following:

|  |
| --- |
| a) Develop an online platform to manage our distribution, marketing and partners. |
| b) Create an online impact monitoring tool that allows detailed impacts to be tracked over time. |
| c) Develop mobile access, graphic design and field tools to support these data management tools. |

**Component 3: Redesign of the *Sistema Biobolsa* production process**

**(MIF: US$38,000, Counterpart: US$30,000)**

* 1. The objective of this component is to improve Buen Manejo del Campo´s production capacity, production efficiency and overall quality of the product. Activities will prepare the company for growing levels of demand for the *Sistema Biobolsa* and allow them to lower the costs of the technology in order to make it more affordable for small and medium-scale farmers in Central America.
  2. The activities of this component are the following:

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| --- |
| a) Conduct efficiency and process review of the production and distribution facilities in Toluca Mexico. |
| b) Redesign process efficiency and quality control in a way that is scalable and replicable, including updating technician training materials and starting ISO-9001 process. |
| c) Implementation of new infrastructure and tools |

* 1. **Knowledge Activities:** The knowledge product for this TC will be the elaboration of a Project Fact Sheet that will be created by Buen Manejo del Campo following the knowledge toolkit template at the beginning of the project and will be updated at the end of its execution.

D. Sustainability:

* 1. Buen Manejo del Campo has created the potential for an economically sustainable business model driven by market demand. With three years of sustained quarterly sales growth and profitable operations, *BMC* has shown that the model is commercially viable. Thus, MIF will allow the company to improve its capacity to grow in order to reach scale in Mexico and expand BMC’s operations in Honduras and Nicaragua.
  2. The key for boosting demand across the region is the savings potential that the *Sistema Biobolsa* can have on small and medium-scale farmers. An average farm family requires approximately US$300 in energy per year; an appropriate package of chemical fertilizers costs US$270 per hectare per year, and families commonly farm over 10 hectares. The opportunity to offset these costs creates a strong incentive for investing in the technology.
  3. BMC has participated in market studies with SNV-Hivos in 2010[[5]](#footnote-5) related to the potential demand for biogas technologies in both Honduras and Nicaragua. The study determined that dairy farms in Nicaragua and Honduras represented 55,000 and 41,000 units respectively. In addition, pig farms, and small family farms are estimated to more than double those figures. Furthermore, there are another 100,000 potential clients in the region derived from coffee production.

E. Experience and Lessons Learned from MIF or other Institutions

* 1. The MIF has financed two projects in the Central American region utilizing bio-digesters for the transformation of organic waste into biogas. The first is the project “*Biogas Market Development Program*” (NI-M1025) which partners with the Nordic Development Fund and two Dutch non-governmental organizations, Hivos and SNV, to launch a $6.3 million biogas market development program that will bring renewable energy to small farmers in Nicaragua and contribute to reductions in greenhouse gas emissions. This project is well aligned with that initiative given the fact that Buen Manejo del Campo provides *Sistema Biobolsa* units for the company Tecnosol, which has signed a contract for the installation of 25 systems within the scope of the aforementioned project[[6]](#footnote-6). This will help BMC increase its operations in Nicaragua and introduce demand for the system among small and medium sized farmers. Furthermore, the subsidy for the *Biobolsas* in the Hivos-SNV is less than 30%, which will allow the company to test the true uptake for the technology during the implementation of both projects.
  2. Buen Manejo del Campo’s project is also coordinated with the MIF’s initiative in Honduras: “*Improved Efficiency in Coffee Processing and Reduced Environmental Impact*” (HO-M1036). Within the scope of that project, also in partnership with SNV, a market of suppliers will be developed with the technical capacity and know-how for designing, installing, and maintaining bio-digesters. The project will help introduce small and medium sized farmers to the benefits of bio-digester systems, this will facilitate Buen Manejo del Campo’s efforts to introduce its *Systema Biobolsa* technology in the country.

F. MIF Additionality

* 1. Non-Financial Additionality: The MIF Basic Services Agenda brings a focus on developing sustainable models for waste management and sustainable energy, on results and impact measurement, and on knowledge sharing for systemic impact. OMJ brings credibility and technical expertise in lending to bankable projects for the BOP. Together, there is synergy for achieving results and bringing innovative basic service projects to scale.
  2. **Financial Additionality**.

Total project cost is USD$617,888. The MIF contribution is additional because the firm would be able to raise all this seed capital in the near future delaying scaling up plans and the impact on small and medium sized farmers.

**G. Project Results:**

* 1. This project is specifically designed to scale and replicate the *Sistema Biobolsa* across Mexico, Nicaragua and Honduras. The goal is to drive sales levels to over 5,000 units per year within Mexico and Central America in less than three years. This will add 10,000 tCO2e[[7]](#footnote-7) to the company’s Greenhouse Gas Reduction Portfolio each year, create 25,000 kW of new renewable energy capacity, and generate sufficient organic fertilizer to fully supply over 50,000 hectares of food and forage production.
  2. In terms of economic benefits of the project, it has the potential to add US$15 million per year in savings to rural farmers. The beneficiaries will encounter cost savings from not having to purchase LP Gas and from not having to buy chemical fertilizers for crops. The project has the potential to impact over 15,000 people per year. Each bio-digester has a direct impact on approximately 6 people, and if 2,500 farmers install systems in one year, there will be a total of 15,000 beneficiaries earning less than US$1,000 per month, including 9,000 women.

**H. Project Impact**

**Economic Impact:**

* 1. The technology’s economic impact stems from a decrease in energy consumption since there is a reduction in Liquefied Petroleum Gas (LP Gas), wood, and electricity used by the farms that install the bio-digester. Further cost savings are generated because farmers do not have the need to purchase chemical fertilizer or traditional gas.
  2. Access to energy and fertilizer lead to more productive time available, specifically for women, and the development of new economic activities such as the growth of agricultural operations, further value-added activities in the agricultural value chain, and rural entrepreneurship. It is also important to highlight that in many cases, the *Sistema Biobolsa* credit is the first credit experience for small farmers. By initiating their credit history, they can potentially access to other financial services from local financial institutions.

**Health and Quality of Life Impact:**

* 1. The *Sistema Biobolsa* impact on health and quality of life enables the reduction of respiratory diseases caused by cooking with wood and from improper management of the manure. Furthermore, there is a reduction in the quantity of flies and odors that are present in farms where there is no proper waste management.

**Environmental Impact:**

* 1. The project’s impact on the environment arises from a reduction in deforestation since farmers will no longer need wood in order to cook, as well as from a decrease in water contamination since waste will no longer be disposed in watersheds. Moreover, there will be a decrease in the emission of greenhouse gases and in the use of fossil fuels. Lastly, the change from chemical fertilizers to the new bio-fertilizer will regenerate the soil, thus improving its quality and output.

**I. Systemic Impact:**

* 1. *Sistema Biobolsa* is a transformative technology since it creates a completely new perception of waste management, nutrient recycling and renewable energy for small farmers. It disrupts decades of “green revolution” policies designed to promote chemical fertilizers, and years of traditional energy use for rural populations. Within the small scale bio-digester development space, this is the first modular, pre-fabricated system of its kind, creating a new market in Central America.

1. Monitoring and Evaluation Strategy

**Baseline:**

* 1. All users of *Sistema Biobolsa* have an extensive pre-installation diagnostic before receiving the equipment to accurately characterize their baseline economic, social, and environmental conditions. The company also uses demographic and climate layers within a geographic database to overlay regional information onto its target population. Buen Manejo del Campo’s key baseline indicators are related to the waste management, energy, and fertilizer use at the farm, and residual impacts from this baseline such as health, efficiency, cost-benefit ratio of the status quo, and gender distribution of work in the household. From this baseline the company is able to calculate greenhouse gas, waste, and economic profiles for the farm to estimate the potential impact the *Sistema Biobolsa* would have for the household. The company then conducts intensive follow-up and impact monitoring to compare these estimates with the real impact achieved.

**Monitoring:**

* 1. All of Buen Manejo del Campo’s clients receive a detailed baseline diagnostic that allows the company to size and quote their system and create an analysis of potential impacts, broken down between different members of the household. These data are saved on a data management platform that overlay across Google Earth, providing the company with full geographic management of the data as well. This baseline is crucial, allowing the company to conduct evaluations during the adoption phase, after one year of full use, and during long term periodic monitoring visits. BMC first calculates overall benefits, and then within the family. Due to the fact that the company collects baseline data from all the farms visited, but only some farms purchase the product, it creates an ideal counter-factual dataset of farmers that work as a natural control group. This allows the company to more clearly link impacts in its client group to the installation of the *Sistema Biobolsa*. This monitoring approach increases the quality and resolution of the impact calculations the company uses, and allows them to better understand the client, adjusting its strategy and product, as indicated by the data.
  2. For the monitoring of the TC the financial data will be uploaded in the Monitoring and Evaluation system on a quarterly basis and should continue being uploaded into the credit phase supported by the Bank (OMJ), to monitor financial performance and social impact[[8]](#footnote-8). The non-financial indicators will be reported through the MIF’s M&E system on a semi-annual basis.

**Evaluation:**

* 1. The *Sistema Biobolsa’s* performance indicators consist of the amount of waste treated, biogas produced, and fertilizer recovered. The company’s economic indicators consist of monetary savings, additional income generated, and time savings within the farm units. Additionally, Biobolsa measures the reduction of other fuel types, other fertilizers, and other critical changes such as improved production, efficiency, and growth. These calculations are then used to calculate reductions in contamination, greenhouse gas emissions, exposure to harmful indoor air quality, and use of chemical fertilizers. These indicators are used to demonstrate the economic, health, and environmental impact the bio-digester has and how these compare to the initial investment and overall baseline.
  2. The project will undertake a final evaluation, which will be able to use up-to-date information collected from the monitoring and evaluation system used by Buen Manejo del Campo and strengthened in the project´s Component 3. The final evaluation will be carried out by the end of the execution period and will be financed by the TC. The evaluation will be focused on analyzing if the project performed as planned and provide lessons learned. Some of the questions may include: What were the risks, obstacles and difficulties faced during implementation? How has BMC effectively improved its production process for the *Sistema Biobolsa*? Has this significantly lowered the price of the *Sistema Biobolsa* and made the technology more affordable for low-income farmers? What are the strengths and weaknesses of the company´s regional sales structure? In what aspects has their investment readiness been improved? How is the *Sistema Biobolsa* technology positioned at the end of the project with regard to competing technologies in the agricultural sector? What are the prospects for obtaining finance to scale the operation?
  3. Impact evaluation: The project team is discussing considering this project for an impact evaluation.

1. Cost and Financing
   1. The project has a total cost of US$$617,888, of which US$$261,138 will be provided by the MIF, and US$$356,750 by the counterpart. The execution period will be of 18 months and the disbursement period will be of 24 months.

|  |  |  |  |
| --- | --- | --- | --- |
| **Components** | **MIF** | **Counterpart** | **Total** |
|
| Component 1: Consolidation of Regional Growth Strategy | $152,638 | $293,000 | $445,638 |
| Component 2: Strengthening of the company´s data management and M&E capacity | $40,500 | $4,950 | $45,450 |
| Component 3: Redesign of the *Sistema Biobolsa* production process | $38,000 | $30,000 | $68,000 |
| Administration | $0 | $28,800 | $28.800 |
| **Sub Total – Project funds** | $231,138 | $356,750 | $587,888 |
| Ex post reviews | $20,000 | $0 | $20,000 |
| Contingencies | $5,000 | $0 | $5,000 |
| Evaluation | $5,000 | $0 | $5,000 |
| Impact Evaluation (5%)\* | $0 | $0 | $0 |
| Agenda Account\* | $0 | $0 | $0 |
| **Grand Total** | $261,138 | $356,750 | $617,888 |
| **\* Amounts accounted for in the Facility, RG-M1217.** | | | |

1. Executing Agency
2. **Executing Agency:** 
   1. Buen Manejo del Campo, S.A. de C.V. will be the Executing Agency of this project, a Mexican for-profit business founded in early 2010 whose core activities are the fabrication, distribution, sales and installation of *Sistema Biobolsa*. *Sistema Biobolsa* was developed under the International Renewable Resources Institute (IRRI), a Mexican non-profit organization that is dedicated to research, development, and education related to the efficient management of resources within marginalized populations. While BMC is the lead actor, IRRI still maintains an active role in the quality control, methodology, and research and development within the *Sistema Biobolsa* program. BMC currently has a presence in 21 Mexican states and three Latin American countries (Honduras, Nicaragua and Haiti) through its trained technicians, farmers, and small business owners that now promote *Sistema Biobolsa* in their own region.
   2. BMC has good experience with the management of funds and strong development programs. Its financial partners, such as Kiva, Satila Pro-Poor, and the Mexican Agricultural Development Banks provide part of the funds that maintain their credit facility, which currently has a US$1 million credit line available to customers. BMC also works with many layers of government, from local to federal. The Mexican Agricultural Department, the Social Development Department, and the Environmental Department are all key partners in this effort. Additionally, it has international support from the U.S. EPA Global Methane Initiative and SNV/Hivos, the Kellogg Foundation, The Nature Conservancy and Heifer International. Buen Manejo del Campo has received about US$300,000 in direct investment, and another US$1.6 million in prizes, grants, and donation funds for the project. This includes the Ashoka Foundation, Iniciativa México, and the Businesses in Development Network. Research and academic institutions that work on this initiative range from world-class universities such as MIT, the University of California and EARTH University to Mexican Universities and vocational schools.
   3. BMC will establish an executing unit and the necessary structure to effectively and efficiently execute project activities and manage project resources. BMC will also be responsible for providing progress reports on project implementation.
3. Project Risks
   1. The risks surrounding *Sistema Biobolsa* are related to the introduction of a new technology through a market-based program.
   2. **Sector risk:** Any factor that undermines the ability of the target market to pay, or makes the product less appealing—such as subsidies for competing chemical fertilizers or fossil fuels—poses an external risk for BMC. However, subsidies to the farmers are not expected to increase. To mitigate this risk, marketing is directed to farmers that seek higher levels of self-sufficiency, want to serve organic market demand, and for whom the combination of energy and fertilizer production continue to provide an important return on investment regardless of competing subsidies.
   3. **Financial risk:** The Company’s current solvency is combination of credit from crowd funding sources, external investors, and its own revenue. As *Sistema Biobolsa* continues to make investments in growth and scaling, a significant reduction in these three funding sources combined with slow market conditions could provide a cash-flow problem in the long-run. To mitigate this risk, BMC is currently working to secure short term financial instruments that would insulate against short term cash flow issues, reduce fixed overhead costs and identify market niches that allow for a consistent sales profile across the course of the year.
   4. **Other risks:** External risks include a very dynamic political and social climate in Mexico, Honduras and Nicaragua that can have direct impacts on the company’s ability to effectively promote and sell *Sistema Biobolsa*. In order to mitigate this risk, the expansion into multiple markets will help insulate the company from acute social or political issues that may impact sales in one region or country.
4. Environmental and Social Effects
   1. Based on the available documents, this operation is a Category C according to IDB Policy OP 703 Directive B.3, with little or no environmental and social impacts. *Sistema Biobolsa* will have both positive environmental and positive social spillover effects. In terms of the environment, the project will allow small and medium farms to adopt a reliable technology to reduce their greenhouse gas emissions. 5,000 bio-digesters units will reduce around 3,000 tCO2e.
   2. With respect to the project’s social aspects, BMC promotes the inclusion of women, making this group a key beneficiary. The work of the women and health burdens will be reduced as they save time that is usually spent collecting wood fuel and cooking. This newly available time, combined with the creation of a new source of energy and fertilizer, will open doors to small business development, adding value to agricultural products, and starting new productive agricultural activities. Both the income generation through the sale of the bio-fertilizer and the cost-savings technology will empower women since it allows them to manage their own money, and make allocations and investments as they see appropriate.
5. Compliance with Milestones and Special Fiduciary Arrangements
   1. **Disbursement by Results and Fiduciary Arrangements.** The Executing Agency will adhere to the standard MIF disbursement by results, procurement and financial management arrangements specified in Annex VII. Based on the DNA results of the project, Buen Manejo del Campo has low procurement and financial capacity and low technical and knowledge capacity.
6. Information Disclosure and Intellectual Property

9.1 **Information Disclosure.** This project is not deemed to have confidential information according to the Bank’s information policy.

9.2 **Intellectual Property.** The Bank shall own the intellectual property to any work produced or results obtained under this grant; provided, however, that Buen Manejo del Campo shall retain the sole intellectual property rights to their marketing and fabrication plans, as well as monitoring and evaluation tools and programs, developed within the scope of the Project.

10. Recommendation

10.1 The Project Team Leader, David Bloomgarden, recommends the approval of this operation by the General Manager of the MIF, under the Delegation of Authority granted by the Donors Committee on October 9, 2012, and the use of MIF funds of up to a maximum of US$$261,138 to finance this project.

11. MIF General Manager Approval

11.1 I hereby approve, in accordance with the Delegation of Authority provided by the Donors Committee on October 9, 2012, under MIF/AT-1205, the amount of up to US$$261,138 to finance the project “*Biobolsa: A Biogas Solution for Small Farms in Mexico, Honduras and Nicaragua*” as part of the “Program to Accelerate Businesses Providing Basic Services to Poor and Low Income Populations” (RG-M1217).

11.2 Project resources will be used to finance the activities described and budgeted in this document, to be charged against MIF funds under the Program to Accelerate Businesses Providing Basic Services to Poor and Low Income Populations” (RG-M1217), and are non-reimbursable.

11.3 The Bank will commit and disburse these funds in U.S. dollars. The same currency will be used to establish the compensation and payment of consultants, except in the case of local consultants working in their own borrowing country, in which case compensation will be defined and paid in local currency.

11.4 No program funds other than the amount certified above will be available for implementation of this technical cooperation operation.

Approved

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Nancy Lee                                                                [Date]

MIF, General Manager

1. Facility code: BASICSERV [↑](#footnote-ref-1)
2. “Bringing Biodigesters Back” – U.S. Government’s Global hunger and Food Security Initiative  
   <http://agtech.partneringforinnovation.org/community/pfi-blog/blog/2014/04/30/bringing-biodigesters-back> [↑](#footnote-ref-2)
3. APCAEM, “Regional Forum on Bioenergy Sector Development: Challenges, Opportunities, and Way Forward”, available at <http://www.unapcaem.org/publication/bioenergy.pdf#page=126> [↑](#footnote-ref-3)
4. United Nations International Fund for Agricultural Development: [www.ruralpovertyportal.org](http://www.ruralpovertyportal.org)

   [↑](#footnote-ref-4)
5. See market studies for biogas performed by SNV-Hivos in Nicaragua and Honduras in Annexes XII and XIII [↑](#footnote-ref-5)
6. See latest PSR Report for project NI-M1025: http://mif.iadb.org/operations/psr/view?oper=ATN/ME-13067-NI [↑](#footnote-ref-6)
7. Metric tons of Carbon Dioxide equivalent greenhouse gas emissions, the standard measure of one ton el emissions reductions (ERs). [↑](#footnote-ref-7)
8. Annex XI - Financial Indicators for OMJ reporting [↑](#footnote-ref-8)