

## **Executive Summary for Sistema Biobolsa**

### **Opportunity**

Mexican smallholder farmers currently spend a significant portion of their incomes on chemical fertilizers derived from fossil fuels. Sistema Biobolsa reimagines waste as a resource by converting manure into biogas and biofertilizer, allowing its clients to cut costs and to farm in a more sustainable manner. The excess production of this biofertilizer, called biol, presents an opportunity for Sistema Biobolsa to reach more smallholder farmers and broaden its socio-environmental impact. If measures are taken to improve the nutrient content of biol, a commercialization model could offer even more farmers a low-cost, natural fertilizer and the opportunity for more sustainable livelihoods.

### **Research Activities**

Over the past nine months, our team conducted research to evaluate the business potential of Sistema Biobolsa's biol fertilizer. During our two months in the field, we collected nearly 100 surveys from farmers and key stakeholders to understand the size of the opportunities for both producers and potential consumers in the biol market, as well as to identify potential barriers to success.

### **Key Findings**

First, all farmers we talked to about biol said that they would need to see it work and know the chemical composition before they would be comfortable selling or buying it. Second, the commercial viability of biol is dramatically diminished by the fact that most samples only have a 1% nitrogen composition, which means that crops will require large amounts per hectare to fertilize properly. Third, most farmers are uneducated about necessary biol practices, which results in improper storage and application techniques.

### **Deliverables**

This report encapsulates our research process, key opportunities, and challenges identified in the field. We recommend ways for Sistema Biobolsa to successfully pilot a biol sales model, focusing on best practices for biol storage, treatment, quality control, distribution, and application. The report is accompanied by a distribution decision tool to guide day-to-day decision-making by technicians and to serve as a resource for long-term planning by the Sistema Biobolsa team. This tool will allow the executive team to adjust the unit economics of the business plan, and each day technicians can check that the key assumptions are accurate, enter the starting locations, and see maps of all client locations that fall within the radius that the model deems financially feasible.

### **Recommendations**

We recommend that Sistema Biobolsa improve farmer education, specifically by encouraging users to feed their digesters more often to increase biol production, as well as teaching them to cover biol with a 10-20cm layer of leftover materials such as corn husks to prevent ammonia volatilization. To prevent nutrient loss, it is important that biol be better incorporated into the soil, and this can be accomplished through either educating farmers about more effective application techniques or establishing an application service run by Sistema Biobolsa. Most importantly, Sistema Biobolsa must conduct more tests to understand the true nutrient content of biol before it can become a competitive commercial product.