

**CONFIDENTIAL
INTERNAL USE
PUBLIC UPON APPROVAL**

**DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK
MULTILATERAL INVESTMENT FUND**

BELIZE

CREATING A SUSTAINABLE SUGARCANE INDUSTRY IN NORTHERN BELIZE

(BL-M1012)

DONORS MEMORANDUM

This document was prepared by the project team comprised of: Yolanda Strachan, team leader (MIF/MSM), Fernanda Lopez (MIF/MSM), Ishmael Quiroz (MIF/CBL), Alejandro Escobar (MIF/MSM), Dora Moscoso (MIF/MIL), Laura Torá (MIF/MIL), Winsome Leslie (MIF/ATF), Wayne Beecher (MIF/CJA), Sybille Nuenninghoff (CID/CBL), Angel Marces Ticeran (SCF/CFI), and Brian Muraresku (LEG/NSG).

This document contains confidential information relating to one or more of the ten exceptions of the Access to Information Policy and will be initially treated as confidential and made available only to Bank employees. The document will be disclosed and made available to the public upon approval.

TABLE OF CONTENTS

PROJECT SUMMARY

1.	BACKGROUND AND JUSTIFICATION.....	2
2.	PROJECT DESCRIPTION.....	7
3.	MONITORING AND EVALUATION STRATEGY.....	13
4.	COST AND FINANCING.....	14
5.	EXECUTING AGENCY.....	15
6.	PROJECT RISKS.....	16
7.	ENVIRONMENTAL AND SOCIAL EFFECTS.....	17
8.	COMPLIANCE WITH MILESTONES AND SPECIAL FIDUCIARY ARRANGEMENTS...	17
9.	INFORMATION DISCLOSURE AND INTELLECTUAL PROPERTY.....	17

PROJECT SUMMARY
CREATING A SUSTAINABLE SUGARCANE INDUSTRY IN NORTHERN BELIZE
(BL-M1012)

Sugar is Belize's largest agricultural industry and the country's most important agricultural export, contributing around 3% to Gross Domestic Product, and 5% to foreign exchange earnings. Despite low yields and high production costs, the Belizean sugar industry has registered above-market revenues (20%- 40% higher than global market rates) due to trade preferences set by the European Union - Belize's main export market. In 2017, elimination of EU trade preferences will create a challenging environment for the industry in Northern Belize. To become globally competitive, production costs must reduce by around a third. The competitiveness problem is complex and relates to various causes, among them: low yields, insufficient technical advice to help farmers improve productivity, limited access to credit and appropriate financial products for replanting, and structural problems in the industry which prevent it from benefitting from efficiencies of scale.

Despite its challenges, the industry has the potential to become sustainable thanks to sufficient arable land for producing high quality sugar cane, an efficient mill and cogeneration plant, a shift into premium Fairtrade certified sugars, and the backing of sugar manufacturer BSI-ASR (Belize Sugar Industries/American Sugar Refineries), which aspires to make additional private investments in the industry. To set the industry on a path of growth and expansion, stakeholders are collectively engaged in the development of a Strategic Development Plan (SDP) to improve productivity, reduce costs, and remove bottlenecks to competitiveness.

The primary focus of this project is to increase productivity and efficiency of Northern Belize's cane farmers to produce sugarcane at a globally competitive cost. The proposed technical assistance - which constitutes IDB's first intervention in this industry-wide effort - will center on building a sustainable farming model that strengthens capabilities at the farm-level and increases coordination with key stakeholders. The intervention model is based on two key elements: strengthening the technical and managerial capacities of farmers through a dedicated extension service, and integrating technology and information systems to enhance decision-making and coordination.

The project will be executed by the Sugar Industry Research and Development Institute (SIRDI), a key partner in the technical and agronomic development of the industry. The intervention will benefit 5,400 small-scale Northern Belize farmers who rely on sugar production for their livelihoods. In addition, the project has the support and commitment of BSI-ASR and the farmers, through the organizations that represent them: the Belize Sugar Cane Farmers Association (BSCFA), the Progressive Sugar Cane Producers Association (PSCPA) and the Corozal Sugar Cane Producers Association (CSCPA).

The project will be strategically focused on increasing capacities at the farm-level and on building a solid foundation so that industry growth and expansion can be secured. The adoption of a sustainable farming model that builds farmer resilience and capacities to reduce production costs is the foundation for ensuring that the industry can achieve economies of scale and thus set Belize on the path of becoming a competitive player in the world sugar market.

ANNEXES

ANNEX I	Results Framework
ANNEX II	Budget Summary
ANNEX III	Quality for Effectiveness in Development (QED)

APPENDIXES

Draft Resolutions

INFORMATION AVAILABLE IN THE TECHNICAL DOCUMENTS SECTION OF MIF PROJECT INFORMATION SYSTEM

ANNEX IV	Detailed Budget
ANNEX V	Preliminary List of Milestones
ANNEX VI	Diagnostic of Needs of the Executing Agency (DNA)
ANNEX VII	Project Status Reports (PSR), Compliance with Milestones, Fiduciary Arrangements and Integrity Due Diligence
ANNEX VIII	Procurement and Contracting Plan
ANNEX IX	Project Activities Schedule
ANNEX X	Operating Regulations
ANNEX XI	Terms of Reference of the Project Coordinator

ACRONYMS AND ABBREVIATIONS

ACP	Africa, Caribbean, and Pacific Group of States
AOP	Annual Operating Plan
ASR	American Sugar Refineries Inc.
BELCOGEN	Belize Co-Generation Energy Ltd.
BMP	Best Management Practices
BSCFA	Belize Sugar Cane Farmers Association
BSI	Belize Sugar Industries
CSCPA	Corozal Sugar Cane Producers Association
DNA	Diagnostic of Executing Agency Needs
EU	European Union
EPA	European Partnership Agreement
GEF	Global Environment Facility
HGL	Harvesting Group Leader
IADB	Inter-American Development Bank
MIF	Multilateral Investment Fund
MT	Metric Tons
OR	Operating Regulations
PCU	Project Coordination Unit
PSCPA	Progressive Sugar Cane Producers Association
QED	Quality for Effectiveness in Development
SDP	Strategic Development Plan
SIMIS	Sugar Industry Management Information System
SIRDI	Sugar Industry Research Development Institute
TOR	Terms of Reference

PROJECT INFORMATION

CREATING A SUSTAINABLE SUGARCANE INDUSTRY IN NORTHERN BELIZE

(BL-M1012)

Country and Geographic Location:	Northern Belize: Corozal and Orange Walk Districts.		
Executing Agency:	Sugar Industry Research and Development Institute (SIRDI)		
Access Area:	Access to Markets and Skills (AMC)		
Agenda:	Linking Small Producers with High Value Agricultural Markets (NAM)		
Coordination with Other Donors/Bank Operations:	European Union Global Environmental Facility		
Direct Beneficiaries:	5,400 cane farmers.		
Indirect Beneficiaries:	40,000 indirect beneficiaries. Together with direct and indirect employment, 29% of the population of Belize's northern district relies on the sugar industry for their economic support.		
Financing:	Technical Cooperation:	US\$ 1,308,941	25%
	Investment:	US\$ 000,000	
	Loan:	US\$ 000,000	
	TOTAL MIF FUNDING:	US\$ 1,308,941	
	Counterpart:	US\$ 3,875,764	75%
	Co-financing (if available):	US\$ 000,000	00%
	TOTAL PROJECT BUDGET:	US\$ 5,184,705	100%
Execution and Disbursement Period:	36 months of execution and 42 months of disbursement.		
Special Contractual Conditions:	Conditions prior to first disbursement will be: (i) hiring of the project coordinator; and (ii) approval by the Bank of Operating Regulations and the Annual Operating Plan for the project's first year.		
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:	COF/CBL		

1. BACKGROUND AND JUSTIFICATION

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

- 1.1. Sugar is Belize's largest agricultural industry and the country's most important agricultural export, contributing around 3% to Gross Domestic Product, and 5% to foreign exchange earnings¹. It is estimated that about 15% of the population depends directly and indirectly on the sector, whose production is oriented to export markets, particularly the European Union². Under preferential trade arrangements, the EU granted Belize tariff-free access to its market, negotiating preferential prices that have provided revenue between 20%- 40% above global market rates to Belize.
- 1.2. The reliance on preferences and the fact that domestic sugar prices are controlled by regulation have provided few incentives to increase the competitiveness of the industry. Sugar cane yields have been on a downward trend from an average of 47 tons/hectare in 1997 to about 42 tons/hectare today resulting in current production costs (US\$20-22 cents per pound) that are 30% higher than that of other competitors³. The EU announcement of a sugar reform will erode trade preferences with Belize - and other ACP sugar-producing countries - by 2017, and bring an end to the preferential prices Belize has enjoyed. If Belize intends to remain a supplier in the world sugar market after 2017, it must increase long-term productivity and efficiency to become globally competitive.
- 1.3. Sugar cane production in Belize is concentrated in two regions (Western and Northern Belize). In the Western region, a new vertically integrated operation is being established by the company Santander Sugar featuring 18,000 acres and a mill which will be capable of processing 6,000 tons of cane per day, all owned and managed by the company. The production process of planting, cultivation, and harvesting are entirely mechanized. Milling operations are scheduled to start in 2016 and will use sugarcane harvested from Santander's own plantations which are estimated to produce around 1 million metric tons⁴. Given that production will be vertically integrated and that the company has already been preparing to operate in a fully competitive market, the problem of preference erosion will most likely not affect this new operation.
- 1.4. In the Northern region - known as Belize's "Sugar Belt"- sugar cane production depends on about 5,400 individual farmers, geographically spread between Corozal and Orange Walk Districts, who cultivate approximately 70,000 acres of land. The farmers are organized under three farmer organizations, the BSCFA, CSCPA, and the PSCPA, which represent growers and advocate on their behalf in the industry. In contrast to Western Belize,

¹ International Monetary Fund, "Can Belize Cope With The New World Sugar Market?", June 2015

² BSI-ASR Industry Report, "Transforming Sugar Production in Belize into a Modern, Sustainable, Green Model, Contributing to Jobs, Growth and Energy Security

³ Ibid.

⁴ Information obtained through interview with Santander Sugar. Other references from Belize Invest, September 2014 Issue.

the Northern region is characterized by small farm sizes (less than 20 acres) and low levels of mechanization. Farmers supply cane to Belize Sugar Industries (BSI-ASR), the only sugarcane processor in the North which operates a 1.3 MT mill (operating at 95% capacity) and cogeneration power plant (Belcogen) which currently supplies 15% of the electricity needs of the national grid.

- 1.5. In 2012, American Sugar Refineries Inc. (ASR), the world's largest sugar refiner, became the majority shareholder in BSI. The investment of ASR in the mill has created more favorable prospects for the industry. Earlier this year, BSI-ASR and the farmer organizations signed a new seven-year commercial agreement that will provide sugarcane farmers with secured access to market and a clear definition for price. The agreement secures a 65%/35% split in net stripped value⁵ for the farmers of sugar and molasses, and an additional payment for bagasse used for cogeneration. The agreement is favorable when compared to others in the region such as Mexico (sugar split revenue of 57%) and Guatemala (50%). With regards to bagasse⁶, the only other country with a separate payment for farmers is Mauritius.
- 1.6. The commercial agreement also affirms the commitment of the stakeholders (including government, farmers, and associations) to develop and sign within one year, a Strategic Development Plan (SDP) which sets out the roles and responsibilities of all stakeholders. It is currently being developed by working groups composed of representatives of the government, BSI-ASR and the cane farmer associations. The SDP will set out a road map for actions needed to achieve two main goals: a) Double productivity (from 42 tons/hectare to 88 tons/hectare) on existing cane land and quality (from a sugar content of 12% pol in cane to 15%) of sugarcane production, and b) a 30% decrease in production costs from US\$ 22 cents to 15 cents per pound. In addition to crop productivity, the SDP is expected to address industry-wide challenges such as farmer financing, cane harvesting and delivery, mill and power plant expansion, regulatory reform, physical infrastructure, and shipping logistics.
- 1.7. The main thrust of this intervention will be to prepare the Northern Belize industry for improvements and expansion under the SDP by increasing productivity and efficiency of cane farmers. In this context, **the central problem this project will address is that cane farmers in Northern Belize are currently unable to produce sugarcane at a globally competitive cost.** This problem is linked to the following main causes:
- 1.8. **Low crop productivity and quality:** Belize sugar cane productivity (42 tons/hectare) is among the lowest in the world with yields almost 50% lower than that of competitors in neighboring countries such as Guatemala and Nicaragua (producing 100 tons/hectare). One of the main factors behind this is the absence or partial implementation of best management practices (BMPs) in sugarcane husbandry by farmers, which influence timely and

⁵ Net stripped value of sugar and molasses is essentially determined by deducting (stripping) from the gross proceeds of all sugar and molasses sold (local and export), those costs that are incurred in getting the sugar from factory to market.

⁶ Bagasse is the fibrous matter that remains after sugarcane stalks are crushed to extract their juice. In Belize, it is used as a biofuel for the cogeneration of energy by Belcogen.

efficient application of inputs. A second contributing factor is the unavailability of affordable high quality inputs (fertilizers and herbicides) and insufficient development and dissemination of improved varieties for replanting old cane fields. Finally, extension services and technical agronomic training are limited and do not reach most of the farmers in each farmer association.

- 1.9. **Inefficient harvesting practices.** During the harvesting season, farmers organize themselves into harvesting groups - groups of about 20-30 farmers - led by a harvesting group leader⁷ (HGL) to harvest their cane in an economical and efficient manner. The current cost of harvesting and delivery can account for up to 50% of the farmer's total cane income because harvesting groups are too small to be efficient. Reducing harvesting and delivery costs requires the consolidation of small harvest groups into larger ones to promote economies of scale and use machinery more efficiently. Mechanized harvesting can introduce cost savings but most farms are not yet adapted to mechanization. The key to having efficient harvesting operations is having good field conditions for reaping (proper rows, spacing, slope, and varieties). Most of this preparation work is essential during replanting since cane is planted for a period of 7-10 years.
- 1.10. **Lack of reliable crop production information hindering effective decision-making:** As a whole, informed decision-making for farmers and industry stakeholders is limited by insufficient availability of reliable data on farmer registration, field size, location, acreage under cultivation and varieties planted. For example, lack of reliable information for planning can compromise cane quality by leading groups to harvest too early or too late in the maturity cycle resulting in lower sugar content. Without reliable information, harvesting coordination, productivity forecasting, and investment planning will remain key challenges for creating a modern and competitive sugar industry.
- 1.11. **Limited access to finance, financial education, and agro entrepreneurial training.** Farmers need access to finance for replanting and investments in improved inputs. Similarly they need the financial education and training to understand how to manage both the financial and agronomic side of the business. In Belize, many cane farmers have ended up in a vicious circle of debt, caused by a combination of inappropriate financial products and limited financial management skills. This stems from the limited access to credit on affordable terms but is also compounded by low financial literacy and limited access to financial education. Many farmers have relied on commercial loans with high interest rates and mismatched repayment periods, which has worsened the spiral of indebtedness and created major bottlenecks for increasing quality and productivity.
- 1.12. **Need for strengthening and reinforcement of cane farmer associations.** The three cane farmer associations in Belize play an important role in representing farmers on the national level. Improving their capacity for

⁷ The HGL is a lead farmer responsible for providing equipment, coordinating bundling and transport of cane to the mill and hiring the labor force needed throughout the harvesting process (cane cutters, field captains, field loaders and transport operators).

leadership, effective management, and provision of technical services (e.g. Fairtrade certification) are key elements of building stronger organizations that can better serve members and contribute to a competitive sugar industry. The associations require support for strengthening their organizational structure, strategic planning, and developing internal controls and financial management systems that promote transparency and accountability from the start. In addition, the associations have not developed the capacity to effectively provide services to their membership which would have an impact in reducing costs per hectare by, for example, by purchasing fertilizers and other inputs in bulk.

- 1.13. Despite these challenges, the foundations on which the Northern sugar industry is based are strong. It possesses an efficient mill at Tower Hill run by sugar manufacturer BSI with the strategic backing of ASR; a 30 megawatt cogeneration plant that produces and sells renewable energy to the national grid; sufficient arable land capable of producing high quality sugar cane; a labor force dedicated to the production of sugar cane; and a private investor capable of supporting industry growth. Moreover, the industry has made a successful shift into premium Fairtrade-certified sugars which has enabled it to diversify into new higher value markets. For sugar sold in Fairtrade markets, producers receive a premium of about US\$60 dollars per ton of sugarcane over the negotiated price. Belize is currently the world's leading producer of Fairtrade sugar and the ASR Group, is the leading global supplier of Fairtrade-certified brands and specialty sugars⁸.
- 1.14. However, the increase in production costs and the end of preferential prices from the EU sugar regime that Belize has enjoyed puts the industry at risk. It will require a considerable and concerted effort – and investment– among industry stakeholders to improve the productivity and efficiency of all aspects of the business: farm, factory and logistics. Current developments provide a renewed impetus for change. Increased private investment, the start of regulatory reforms, the signing of a seven-year commercial agreement, the imminent end of preferential prices, and a concerted push by stakeholders to deliver a strategic development plan all provide forward momentum and will enable MIF funding to play a more catalytic role in the sector.

B. Project Beneficiaries

- 1.15. The project will be implemented in the Corozal and Orange Walk Districts with an estimated 70,000 acres of land under cultivation. Between 2002 and 2009, both districts experienced a rise in poverty rates (from 26.1% to 56% for Corozal and from 34.9% to 43% for Orange Walk, compared to a national average of 41%) linked to changes in international prices and diminished demand for their agricultural exports⁹.

⁸ International Monetary Fund, "Can Belize Cope With The New World Sugar Market?", June 2015

⁹ United Nations Development Programme, "Belize Scorecard and Outlook Report 2010", <http://www.undp.org/content/dam/belize/docs/Millennium%20Development%20Goals/MDG%20Report%202010.%20Belize.pdf>

- 1.16. The project will benefit 5,400 farmers (62% male, 38% women) living in 52 rural communities in Northern Belize. The farmers rely on sugarcane production as their main income-generating activity and are organized in three associations that will be partners in the project: the Belize Sugar Cane Farmers Association (BSCFA), and the recently founded Progressive Sugar Cane Producers Association (PSCPA) and the Corozal Sugar Cane Producers Association (CSCPA).
- 1.17. For the beneficiary farmers, sugar production ranges from 50 to 300 tons yearly, translating into revenues of US\$ 1700 - US\$ 10,000 (about BZD 3,376 - \$20,256)¹⁰. When the harvesting season ends, some farmers migrate to neighboring Mexico or Guatemala to look for temporary jobs that provide complementary incomes for their families. Regarding education levels, the majority of the farmers (85%) have completed basic primary education with smaller percentages reporting having completed secondary (12%) and tertiary (3%) school. With the number of women farmers estimated at 38%, the project will ensure that women have access to all goods and services provided by the project. Many women manage their family farms and improving their farm management skills is expected to have a direct impact on productivity and incomes. Women are also active in other points of the value chain including harvesting, controlling cane delivery, book-keeping, and in farmer organizations.

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

- 1.18. The project will contribute to poverty reduction and private sector development by increasing the competitiveness of 5,400 sugarcane farmers in Northern Belize through a sustainable farming model that strengthens technical and managerial capacities at the farm-level and integrates technology as a key element for decision making and coordination among value chain actors.
- 1.19. Link to the Agenda. The project will contribute to the “Linking Small-Scale Producers to High Value Agricultural Markets” agenda by generating knowledge on: identifying successful strategies to sustainably link farmers and farmer organizations to larger value chains. The knowledge gap the project aims to address is how a smallholder-based sugar industry can increase efficiencies and competitiveness in the context of preference erosion, while at the same time increasing the adoption of ethical and sustainable farming practices.
- 1.20. In the context of the SDP, the project will be strategically focused on increasing capacities at the farm-level and on providing a productive foundation for industry growth once the strategy is finalized. The adoption of a sustainable farming model that builds farmer resilience and capacities to reduce the cost per acre is fundamental for ensuring industry modernization and growth.

¹⁰ BSI estimates based on input from SIRDI

- 1.21. Alignment with the IDB Country Strategy. The project is aligned with the IDB Country Strategy for Belize (2013 – 2017) by addressing challenges to private sector development and improving the conditions for sustainable, export-led growth. As per the Country Strategy Results Matrix, the project will contribute to the expected result of faster export growth.
- 1.22. Collaboration with the Bank Group. The project team has worked in close collaboration with the Industries and Services Division (CFI) of the IDB’s SCF Department. BSI-ASR is seeking financing from development partners to invest an additional \$100 million primarily to expand the capacity of the mill and cogeneration plant, provided that the investment climate is conducive, and has expressed interest in the creation of a US\$100 million farmer credit facility to provide financing for replanting cane fields. SCF/CFI and BSI-ASR have been engaged in discussions for more than a year on a potential loan operation that would finance these investments. The current MIF project is expected to increase productivity and cane production thus laying the necessary foundation for expansion of the mill and power plant.
- 1.23. Coordination with other Donors. The project will build on development assistance provided by the European Union, Belize’s largest donor. Under the Accompanying Measures for Sugar Program over the period 2006-2013, the EU invested EUR 75 million, largely in road infrastructure projects as well as in projects on competitiveness, research and development, and education in the Northern Districts. This program is expected to come to an end in 2017. As part of this package of assistance, a EUR 7.5 million Sugar Cane Replanting Credit Program was established to provide affordable credit to farmers in cooperation with the Caribbean Development Bank. Direct assistance to strengthen the operations of the Sugar Industry Research and Development Institute (SIRDI) has totaled roughly EUR 2.5 million which includes funding for its headquarters, the pilot activities to establish SIMIS, research and development, and the start-up of extension services. SIRDI has also secured funding through the GEF (in collaboration with UNDP) to finance activities to promote green harvesting practices and reduce uncontrolled burning of fields as a part of pre-harvesting practices in cane production.

2. PROJECT DESCRIPTION

A. Objectives

- 2.1. The project objective at the impact level is to sustain or increase the income of Northern Belize sugarcane farmers. The project objective at the results level is to increase farm-level capacity of Northern Belize sugar cane farmers to become globally competitive.

B. Description of Model/Solution/Intervention

- 2.2. The primary focus of this project is on enhancing the competitiveness of small scale sugarcane producers who will face falling prices and increased competition after the elimination of preferential prices for sugar exports to the EU. Specifically, the MIF intervention will center on building a sustainable

farming model that strengthens capabilities at the farm-level and increases information and coordination among key stakeholders through two key elements.

- 2.3. The first is by creating a dedicated extension service to provide access to technologies and training to farmers and farmer organizations. In the past, extension services have been provided in a fragmented and inconsistent manner. The project will consolidate this role within SIRD, which was established as the technical arm of the industry. The project will strengthen SIRD to fulfill its role as a dedicated R&D and extension service provider for sugarcane production. The project will expand SIRD's variety testing program (executed in collaboration with BSI-ASR) to develop early, mid, and late maturing cane varieties with high sucrose content and to produce commercially available seeds that will be available to all farmers. Furthermore, the project will increase the number of extension officers working with SIRD from 6 to 18, who, through a train-the-trainer methodology, will be able to reach more farmers in an organized manner. A dedicated extension service that develops new agricultural technologies, provides training, and offers technical support to farmers in a coordinated manner is a key element for improving yields on existing cane land. Improving cane yields by re-planting and improving management practices would dramatically increase sugar production, corresponding to a reduction in production costs, increase revenue for farmers, and increase the industry's competitiveness.
- 2.4. The second element is by integrating technology and information systems for effective decision-making. As part of the EU's package of assistance to mitigate the impact of its sugar reform on affected exporters, it funded a Sugar Industry Management Information System (SIMIS)¹¹, a centralized database to track all aspects of cane operations, including farmer production, harvesting and delivery. SIMIS is critical to filling the information gaps that have plagued the industry and hindered effective decision making. The project will operationalize SIMIS by training extension officers and harvest group leaders on how to collect and track data that will be used to feed the system. The data will provide an improved basis for crop forecasting, harvesting, and variety selection providing real time data for faster, more effective decision making. Access to the data in SIMIS will be granted to all industry stakeholders while still respecting farmer confidentiality.

C. Components

Component I: Enhancing Productivity of Cane Farmers and Harvesting Groups (MIF: US\$774,738; Counterpart: US\$3,148,496).

- 2.5. The objective of this component is to improve productivity and sustainable farm management practices through the provision of extension services to farmers and harvesting groups. SIRD will develop and consolidate an

¹¹ Using SIMIS, industry stakeholders will be able to optimize land use, forecast productivity, decrease costs of production and improve efficiency. This project will expand SIMIS to make it a fully integrated system which will monitor cane production, harvesting practices and cane delivery to the mill. The extension services supported by the project will feed data directly into SIMIS.

integrated extension program that develops new agricultural technologies and services to improve yields, provides hands-on farmer trainings to improve farm management, and delivers capacity building for harvest groups in order to reduce post-harvest losses.

- 2.6. This component will focus on the following activities: a) Testing and distributing cane varieties with high sucrose content and high yields; b) Developing and implementing integrated pest management measures; c) Creating two new farmer field school training modules on environmental sustainability and the inclusion of women and youth in cane farming; d) Implementing farmer field school trainings and field days for cane producers; e) Implementing a train-the-trainers program for harvest group leaders and members on improved harvest management practices; f) Developing harvest management plans for harvest groups to improve efficiencies and reduce cost; g) Developing an extension resource center at SIRDI for farmers and harvest groups.
- 2.7. The expected outputs of this component are: a) 3 improved cane seed varieties released to farmers for planting; b) 2 new training modules developed on environmental sustainability and the inclusion of women and youth in sugar cane farming; c) 5,400 farmers trained in cane cultivation through farmer field schools; d) 270 harvest group leaders trained in harvest management practices; and e) 5,400 harvest group members trained in harvest management practices by HGLs; and f) 12 demonstration plots established for harvest group trainings.

Component II: Developing an Industry-Level Management Information System (MIF: US\$ 144,024; Counterpart: US\$ 630,539).

- 2.8. The objective of this component is to systematize the collection and analysis of industry data for improved management and efficiency. This component will focus on the implementation of SIMIS, a centralized system to improve the quality of data for monitoring, analysis and informed decision-making by Belize sugar industry stakeholders. SIMIS is expected to facilitate a profitable and sustainable sugar industry by enabling the industry to make better decisions based on accurate information. SIMIS will integrate data from farmers, cane fields, harvesting groups, and the sugar mill to provide a complete picture of industry performance.
- 2.9. This component will focus on the following activities: a) Creating a cane parcel dataset using GIS satellite imagery; b) Creating a cane farmer registry/identification system; c) Training extension officers and HGLs on data collection to populate SIMIS; d) Training on data collection for field captains, loaders, and transport operators that work in each harvesting group; e) Implementing a barcode traceability system to track the origin and timing of cane deliveries from farms to the mill.
- 2.10. The expected outputs of this component are: a) 1 cane parcel dataset completed; b) 1 cane farmer registry/identification system completed; c) 270 harvest group leaders trained on SIMIS data collection; d) 540 field captains and loaders trained on SIMIS; e) 540 transport operators trained on SIMIS; and f) 1 barcode traceability implemented and operational.

**Component III: Capacity-building for farmers and farmer organizations.
(MIF: US\$38,510; Counterpart: US\$ 33,729).**

- 2.11. The objective of this component is to strengthen managerial and operational capacity of cane farmer associations and harvesting groups in Northern Belize. The activities identified below will help associations and harvesting groups to improve business sophistication, organizational management, transparency and accountability. This component will also focus on financial literacy to provide farmers with the knowledge and tools to make better decisions on farm management and to improve creditworthiness.
- 2.12. The activities that will be part of this component are: a) Organizational capacity building for leaders and managers in cane farmer associations, to improve financial management, internal controls, and annual business planning, including the provision of technical and financial services and support to members (equipment rental, group purchase of inputs, short term credit etc.); b) Training on governance, transparency, communications and association management; c) Technical and advisory support for newly established associations to achieve Fair Trade certification; and d) Development of training modules on financial literacy for cane farmers, including farm budgeting, cash flow management, and credit management. The financial literacy activities will be delivered in partnership with La Inmaculada Credit Union, which has expertise in financial training for MSMEs and with whom the MIF has an existing project to support small-scale entrepreneurs. The project will also seek collaboration with other organizations that have demonstrated success in financial literacy programs for farmers.
- 2.13. The expected outputs of this component are: a) 24 managers and leaders from 3 cane farmer associations trained in financial management and internal controls; b) 3 cane farmer organizations have completed 3 year strategic business plans; c) 5,400 members of harvest groups trained in financial literacy.

**Component IV: Knowledge Management and Communications Strategy.
(MIF US\$ 45,000; Counterpart US\$30,000).**

- 2.14. The objective of this component is to systematize, document, and disseminate the experience and knowledge generated in this project, with the objective of sharing the sustainable production model that will be developed as part of a larger industry-wide effort. Under pressure from low global prices and increased competition, the Belize sugar industry is being forced to modernize and find greater efficiencies in order to remain sustainable. This project will generate knowledge on key measures to improve competitiveness of smallholder farmers in the sugar industry. It will also document and disseminate good practices on compliance in the area of human rights, environmental, social and labor issues which are key features of the long term sustainability of the industry.
- 2.15. The following audiences have been identified for the purposes of dissemination and communication of knowledge and experiences generated

by the project: a) Belize sugarcane farmers and farmer associations who are key stakeholders in the future growth and development of the industry; b) public and private sector stakeholders in the Caribbean sugarcane industry, (e.g. Guyana Sugar Corporation, Barbados Cane Breeding Station); c) the IDB Group and other development agencies who may be supporting the industry under the SDP. The main channel to reach these audiences will be workshops, meetings, and special events. This approach will be made through SIRDI's internal communications officer and through the hiring of a specialist to develop a communications plan for the duration of the project.

- 2.16. For the purpose of satisfying the needs of these audiences, the main knowledge product financed by this component will be a flagship publication/annual report on the state of the Northern Belize Sugarcane industry. This report will draw heavily on data and information compiled by SIMIS and will aim to bring greater information and transparency to stakeholders on the structure of the industry. The project will also finance a case study on how small-scale farmers in the sugarcane industry in Belize can overcome the challenges posed by the EU sugar reform and elimination of the trade preferences.

D. Project Governance and Execution Mechanism

- 2.17. The project will be executed by the Sugar Industry Research and Development Institute of Belize, (SIRDI) through its headquarters in Corozal/Orange Walk. SIRDI will establish a project execution unit which will be staffed by a Project Manager, a Project Assistant, an Extension Coordinator, an Accountant and a Monitoring and Evaluation (M&E) consultant. The Project Manager is responsible for the implementation of the work program and management of project staff. The project execution unit will be supported by a field based technical team consisting of 18 extension officers.
- 2.18. A Steering Committee has been established to provide strategic oversight and guidance on project implementation. Its role is to oversee delivery of the project outputs and the achievement of results. The committee will consist of a representative from MIF, BSI, BSCFA, CSCPA, PSCPA, and the Sugar Industry Control Board¹². Other members may be invited to participate on an ad-hoc basis. The committee will meet quarterly to align with the milestones and reporting schedule of the project.
- 2.19. One year before the project ends, a sustainability workshop will be held with all key stakeholders to identify specific actions needed to ensure the continuity of the project's activities after the project funding has been expended. The workshop will be organized by the executing agency. As part of SIRDI's institutional strengthening, the project will develop a sustainability plan for the long term provision of information and extension services beyond the project implementation period. The sustainability plan will be discussed

¹² The Sugar Industry Control Board is the principal autonomous body that regulates the industry whose role is defined in the Industry's Act of 2001. It is under the authority of the Ministry of Agriculture.

and validated at the workshop. Key stakeholders in the industry are expected to sign an agreement formalizing their contributions to sustain the extension model at SIRDJ after the project ends.

E. Sustainability

- 2.20. In the context of the project, sustainability will be determined by the ability of cane farmers and the mill at Tower Hill to competitively supply global markets with sugar after EU preferences are removed. MIF support will provide critical inputs (such as SIMIS integration and a dedicated extension service) needed to increase farmer's capabilities, modernize the industry and make it sustainable in the longer term. However, in the long run, more efficient cane production would require amalgamation or exit of some of the smallest farming units, especially to prepare for economies of scale through mechanized harvesting. The project will promote sustainability by building the structure and technical capacities within SIRDJ to serve as the technical arm of the industry and thus strengthen farmers' technical know-how. It is envisioned that after the three-year implementation period, the extension model will continue (albeit perhaps with a reduced number of technicians). BSI-ASR, SIRDJ and the three sugarcane farmer associations have indicated their readiness to co-finance these core industry services after MIF participation ends.

F. Experience and Lessons Learned from MIF or other Institutions

- 2.21. The project has incorporated lessons learned from MIF interventions in access to markets and value chains. Experience from smallholder value chains indicates that projects are more effective when there is a clear understanding of how the particular market functions, competitive forces and quality requirements needed to make farmers market ready. The project team has engaged the anchor company in detailed discussions to incorporate these considerations into the design of the project.
- 2.22. The EU is expected to begin an evaluation of its Accompanying Measures for Sugar program at the end of 2015. However, lessons learned from their assistance over the past decade, point to the need to promote a widespread cane replanting/rehabilitation program, to facilitate access to affordable credit and to provide adequate R&D and extension service by strengthening the capacity of SIRDJ.
- 2.23. Furthermore, lessons from the IDB's Sector Framework Document on Agriculture and Natural Resources Management indicate that the provision of agricultural technical assistance services is more effective if it involves the introduction of on-farm technological changes. The economic impacts of agricultural technical assistance or agricultural extension are limited if they are unaccompanied by technological packages geared towards increasing farm yields.

G. MIF Additionality

- 2.24. Non-Financial Additionality. MIF's reputation as an honest broker along with its technical expertise in promoting innovative models that benefit all the stakeholders involved will play a key role in securing the support and active

participation of the three farmer organizations working in Northern Belize. MIF's convening power can also provide linkage to agricultural research centers, social lenders, and practitioner networks that could enhance the proposed intervention model.

- 2.25. Financial Additionality. Although industry partners are providing funding to support specific initiatives related to finance, information management and research and development, there are limited grant funding sources available to develop capacities at the farm level. MIF funds for increasing farmer productivity are expected to lower the risk for significant future investments in the mill expansion and farmer credit facility.

H. Project Results

- 2.26. The project is expected to achieve the following results by the end of the three-year implementation period: (i) 150,000 tons of sugar produced by the Northern Belize sugar industry (baseline of 123,000 tons); (ii) 3,500 farms adopting sustainable production practices (CRF 230600); (iii) 3,500 farms that have adopted new technologies or practices (CRF 230100); (iv) increase in average yields per acre from 19 tons to 28 tons; (v) 45,000 acres of sugar cane lands sustainably managed or under cane cultivation (CRF 240100); and (vi) 22,500 acres of cane replanted using best practices.

I. Project Impact

- 2.27. The project is expected to achieve the following impacts by the end of the three-year implementation period: (i) 20% average farm's annual sales growth from sugar cane revenues (CRF 330100); (ii) Reduction in the percentage of farmers supplying less than 75 tons of cane to 15 percent (baseline of 20 percent).

J. Systemic Impact

- 2.28. The project will advance systemic change by promoting modernization and expansion of the Northern Belize sugar industry in a changing global environment. It will promote farmer adoption of a sustainable production model, strengthen the industry's capacity to provide extension services and collaborate in the adoption of information management systems that would result in a more competitive sugarcane industry. Systemic impact indicator: one sector has been expanded with MIF support (CRF 450600).

3. MONITORING AND EVALUATION STRATEGY

- 3.1. As the custodian and manager of SIMIS, SIRDIs information management team will play a key role in the monitoring of the project results. The project will hire an M&E consultant to work with the SIMIS team to ensure that the necessary data are being tracked and captured. This consultant will be responsible for developing an M&E plan, including data systems and timelines to facilitate the collection of baseline, mid-term and end line data. The consultant will also contribute to progress reports, and ensure the completion of mid-term and final evaluations.
- 3.2. Baseline: The cane farmer registry and SIMIS will serve as the principal mechanism for establishing the baseline and tracking progress during the project implementation period. Each cane farmer will receive a registered

photo ID with a unique identification number. This will provide confidentiality and will allow SIRD I to track all training and services that each farmer receives. Baseline data will be collected for each farmer upon their registration in the SIMIS program and will include general information about the farmer, acres under cultivation, cane production and varieties planted, yields, harvesting, replanting, and cane deliveries. GPS capability is also integrated into the database to map and monitor farmer fields using mobile devices. This information will be gathered by SIRD I extension agents with support from the SIMIS team. All baseline findings will be disaggregated by sex where appropriate for measuring results in the project's annual report and final evaluations.

- 3.3. Monitoring: There will be quarterly monitoring of key performance indicators in addition to annual/seasonal monitoring for each harvest season. All SIRD I extension agents will be trained and equipped with tools to capture data and complete field reports.
- 3.4. Evaluations: The project will have a midterm and final evaluation. The midterm evaluation will be conducted at the mid-point of the project or when 50% of the resources have been disbursed. The midterm evaluation will cover, among other issues: (i) the efficacy of farmer training and the degree to which farmers are adopting improved production practices (new varieties, replanting, etc.); (ii) the implementation and data collection efforts for SIMIS; (iii) improved harvesting and delivery to reduce costs and post-harvest losses; and (iv) the extent of women's participation in project activities and their access to inputs, services and training.
- 3.5. The final evaluation will be carried out by an independent consultant three months prior to project completion or when 90% of all funds have been disbursed, whichever comes first. The M&E consultant will develop an evaluation plan for both the final and mid-term evaluations to determine the specific methods and resources as appropriate. Key evaluation questions for the final assessment may include: (i) To what extent cane farmers in the industry have been able to expand cane production and sustain sales and incomes; (ii) To what extent SIMIS has helped to improve decision making and transparency in the sugar industry. (iii) How was the farmer's uptake of the new production practices and other related trainings? (iv) Did women's participation in project activities lead to changes in yields and productivity comparable to those of men? Findings, recommendations, lessons learned and suggestions on the potential for replicability will be disseminated widely to all involved stakeholders through conferences, roundtables, and the use of television and social media.
- 3.6. Closing Workshop. The executing agency will organize a closing workshop at the appropriate time to assess along with other key stakeholder the outcomes achieved, identify additional tasks to guarantee sustainability and identify and disseminate lessons learned and best practices.

4. COST AND FINANCING

- 4.1. The project has a total cost of US\$ 5,184,705 of which US\$ 1,308,941 (25%) will be provided by the MIF, and US\$ 3,875,764 (75%) by the counterpart. Counterpart resources will be provided by the European Union and BSI-ASR.

The execution period will be of 36 months and the disbursement period will be of 42 months.

	MIF	Counterpart	Total
Project Components			
COMPONENT 1. Enhancing Productivity of Cane Farmers and Harvesting Groups	774,738	3,148,496	3,923,233
COMPONENT 2. Developing an Industry-Level Management Information System	144,024	630,539	774,563
COMPONENT 3. Capacity-building for farmers and farmer organizations	38,510	33,729	72,239
COMPONENT 4. Knowledge Management and Communications Strategy	45,000	30,000	75,000
Execution and Supervision Components			
Executing Agency/ Administrative	135,000	33,000	168,000
Baseline	8,000	-	8,000
Monitoring System	24,000	-	24,000
Mid-Term Evaluation	8,000	-	8,000
Final Evaluation	8,000	-	8,000
Ex post reviews	10,000	-	10,000
Contingencies	23,905	-	23,905
Sub-total	1,219,178	3,875,764	5,094,941
% of Financing	24%	76%	100%
Institutional Strengthening	10,000	-	10,000
Impact Evaluation Account (5%)	59,764	-	59,764
Agenda Account	20,000	-	20,000
Grand Total	1,308,941	3,875,764	5,184,705

5. EXECUTING AGENCY

- 5.1. The Sugar Industry Research and Development Institute (SIRDI) will be the Executing Agency of this project. SIRDI is an institute administered by the Sugar Industry Control Board, an autonomous statutory entity created under the laws of Belize, pursuant to the Sugar Industry Act of 2003. SIRDI is governed by an independent Board of Directors comprised of representatives from the Cane Farmer Associations, BSI-ASR, and the Government of Belize. SIRDI is the principal entity responsible for the development of an efficient and productive sugar industry research and extension system that is economically viable, financially sustainable and environmentally safe, aimed at increasing productivity by enabling the sugar industry, and cane farmers to adopt improved cultural practices and technologies. SIRDI provides the technical analysis on quality of sugar cane, and the cultivation and dissemination of seeds, including new varieties for the entire sector and serves as critical actor for coordinating activities across the sugar industry. Currently, SIRDI has a staff of 20 people, including 11 technical staff, 4 management and administrative staff, and 5 personnel focused on SIMIS. Its

other core activities are focused on crop research, seed production, farmer extension services, and agricultural engineering.

- 5.2. SIRD I has demonstrated execution capacity through its experience in managing European Union funds for the SIMIS and pest management programs. It is also the entity responsible for screening and performing a technical assessment prior to loan approval for those farmers who have applied to the EU's Sugar Cane Replanting Credit Program. SIRD I will establish an executing unit and the necessary structure to effectively and efficiently execute project activities and manage project resources. SIRD I will also be responsible for providing progress reports on project implementation. Details on the structure of the execution unit and reporting requirements are in Annex 7 in the project technical files.

6. PROJECT RISKS

- 6.1. The project team has identified the following risks: (i) **Stakeholder Risk:** There is a risk that the SDP process may extend beyond one year because industry stakeholders cannot sign off on critical actions to secure long-term viability of the sugar industry. The outcome of the SDP process effectively determines whether BSI-ASR will move forward with the expansion of the mill and power plant and the farmer credit facility which is key to industry growth. Mitigating action: BSI-ASR, the Government of Belize and the farmer associations are aware of the importance of moving forward with the SDP for their mutual benefit. While the project cannot completely mitigate this risk, the implementation of the MIF project is expected to create positive momentum and improve information and coordination that will be important for concluding the SDP and beginning industry expansion. Until the SDP is agreed, BSI-ASR is moving forward with smaller scale investments aimed at improving efficiency in the cane yard, storage capacity and transport systems to address immediate constraints.
- 6.2. (ii) **Absence of sufficient credit for farmers.** Raising productivity is closely linked to replanting cane fields, which requires availability of affordable, long term credit for farmers. There is a risk that core services offered by the project (extension services, improved varieties, information management) may not be sufficient to increase farmer productivity without access to finance. Mitigating action: While the project does not directly address access to long term credit, this is a core part of the SDP, which envisages the establishment of a US\$100 million cane farmer credit facility. BSI-ASR has engaged in detailed discussion with development partners (including SCF/CFI) around structuring a farmer credit facility which would enable 70,000 acres to be replanted over a 10 year period. Until this facility is in place, the project will leverage the existing EU replanting fund which is providing financing for renovating cane fields until the end of 2017.
- 6.3. (iii) **Market Risk.** Although EU preferential prices for Belize will cease, further changes to the EU sugar regime may increase the supply of sugar on the market, further driving down prices. Mitigating action: The BSCFA is

Fairtrade certified and the two new associations (the CSCPA and the PSCPA) are expected to become certified soon. As such, BSI-ASR is working to establish contracts with large buyers looking to source Fairtrade sugar. This is part of the industry's diversification strategy to enter new markets and capture higher prices.

- 6.4. (iv) **Sustainability Risk.** This risk is related to the extension service not being sustained beyond the MIF project but, more importantly, it relates to SIRDI's capacity to become financially sustainable in the long term. Mitigating action: From its design, the MIF project proposal aims to consolidate SIRDI's extension services so that services can be provided in an organized manner. The project includes the creation of a sustainability plan for SIRDI. The plan will seek to have BSI-ASR and the three associations co-finance these core industry services after MIF participation ends.

7. ENVIRONMENTAL AND SOCIAL EFFECTS

- 7.1. There are positive environmental effects associated with the project. One of the key goals is to establish improved husbandry and land management practices including use of organic fertilizers and pesticides, improved methodologies for managing pest outbreaks and soil cultivation. Additionally, the increased output in sugar cane cultivation and sugar production will translate into increased quantities of biomass available for the production of sustainably generated electricity through Belcogen. It is anticipated that up to 22% of national electricity consumption could be sourced from cogeneration as a result of improved output and increased efficiencies in the sugar industry.
- 7.2. In regards to social spillovers, economic sustainability of farmers is expected to have a trickle-down effect that could translate into greater access to education, additional opportunities for diversification into other crops and higher living standards for surrounding areas.

8. COMPLIANCE WITH MILESTONES AND SPECIAL FIDUCIARY ARRANGEMENTS

- 8.1. **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 7.

9. INFORMATION DISCLOSURE AND INTELLECTUAL PROPERTY

- 9.1. **Information Disclosure.** This project is categorized as public for the purpose of the Bank's information disclosure policy.