

INTER-AMERICAN DEVELOPMENT BANK

Japan Special Fund (JSF) and Japanese Consulting Fund (JCF) Project Profile

I. Basic project data

Beneficiary Country	Colombia		
Project name:	Sustainable Energy and Biofuel Strategies for Colombia		
Project number:	CO-T1052		
Project team:	Christiaan Gischler (INE/ENE) Team Leader; Fernando Balcázar (RND/CCO); Javier Cuervo (INE/RND); José Ramón Gómez (INE/ENE); Maria Jose Baptista (LEG/SGO); and Liliana Lopez (Project Assistant).		
Executing agency:	Ministry of Mines and Energy of Colombia (MME) in coordination with Energy Division of IDB		
Beneficiaries:	Ministry of Mines and Energy of Colombia (MME), Ministry of Environmental, Housing and Territorial Development (MAVDT), Ministry of Agriculture and Rural Development (MADR) and the Department of National Planning (DNP)		
Financing plan:	IDB ~Japanese Special Fund (JSF):	US\$	922,000
	IDB – Japanese Consulting Fund (JCF):	US\$	594,000
	Local Counterpart:	US\$	379,000
	Total:	US\$	1,895,000
Execution period:	20 Months		
Disbursement period:	27 Months		

II. Background and problem statement

- 2.1 The Sustainable Energy and Climate Change Initiative (SECCI) launched by the Bank in March 2007 and the willingness to prepare a Rational and Efficient Use of Energy Program (PROURE, acronym in Spanish) by the Government of Colombia (GoC) are clear examples of the region's recent trends in searching means to achieve sustainable energy and reinforce the world's commitment to reduce green house gases and local pollution.
- 2.2 The Ministry of Mines and Energy of Colombia (MME) have requested Bank support to develop the PROURE that addresses sustainable energy, energy efficiency and Biofuels (ethanol and biodiesel). The PROURE is understood as a short, straightforward activity that would be prepared in two months, financed with administrative funds. The preparation of the PROURE will set the foundations of a more extensive and long-term plan, the "Sustainable and Renewable Energy Strategy for Colombia (SREC)". The SREC will be accompanied with other products such as a pilot program for efficient use

biofuel entrepreneurs, a biofuel market study, a life cycle assessment of the production chain of biofuels, institutional strengthening of the Colombian government biofuel office and a workshop to present the findings.

- 2.3 Colombia is the second largest biofuel producer in Latin America after Brazil. Nevertheless, there is an important technological gap that needs to be closed in order for Colombia to transform itself from a biofuel producer to a world bioenergy leader. The GoC is aware of the tremendous potential of the country. Colombia has more than 7 million hectares of land available for the cultivation of crops that may be used as feedstock for biofuel. In many cases, that available land is being used for illicit crop production and/or as a base of guerilla activity. The introduction of crops to be used as a basis for the production of biofuels would serve the dual purposes of permitting the GoC to decrease the production of illicit crops and to introduce an economically viable alternative for small agricultural entrepreneurs in rural areas. According to the GoC, cultivation of this land would result neither in deforestation nor the displacement of crops used for human or animal consumption. Nevertheless, the GoC and the Bank will work in concert to ensure that measures will be taken to avoid any adverse environmental or social impacts.
- 2.4 The GoC has approved blending mandates for ethanol (10% ethanol with 90% gasoline) and biodiesel (5% biodiesel and 95% diesel), transforming Colombia in the second largest producers of ethanol and biodiesel, after Brazil, in the Latin American and Caribbean Region. The mandate has created an important local market for biofuels; however the impacts (positive and negative) as well as the logistics, human resources, research and development requirements are still broadly undetermined.
- 2.5 Biofuels are a natural and environmentally friendly substitute of MTBE (Methyl Tertiary Butyl Ether), a gasoline enhancer alternative and to some degree, an alternative to fossil fuels. Many countries in the world have already begun to enforce the replacement of MTBE, by blending gasoline with ethanol. Furthermore, Flex Fuel vehicles, widely produced in Brazil and with an increasing demand in US markets, can work both on ethanol and gasoline, enhancing a higher demand for ethanol. The Colombian government, which is fully embarked in their mission to be one of the main biofuel producers in the world, is taking steps in increasing the blending mandate up to 20% of ethanol, which would require Flex Fuel vehicles.
- 2.6 High energy prices and reduction of greenhouse gases (GHG) are topics of great importance for the GoC, therefore the promotion of renewable energy and energy efficiency are government's priorities for its sustainable development agenda, broadly described in the 2006-2010 National Development Plan. The energy and electricity regulatory authority has acknowledged this matter, and in a different study, financed by the Bank, the needs for regulations for renewable energy and energy efficiency will be assessed.
- 2.7 Biofuels industry can produce important by-products or positive externalities such as: power (cogeneration with sugarcane bagasse), carbon credits (for fuel substitution, wastewater treatment and vinasse treatment), animal food (residues from soybean, sugar beat or yucca process), employment in rural areas and bring new opportunities to the regions that are currently under the flagella of the illicit crop production and guerilla activity.

- 2.8 With the recent announcements of 20% substitution of gasoline in the next 20 years in the US, and the Free Trade Agreement currently being discussed in the Colombian and US congresses, the possibilities of exporting biofuels from Colombia to the US, free of tariff, is an enormous opportunity and challenge. Thus, with the enormous availability of land, excluding deforestation, land for livestock or substitution of crops for human consumption, there is a great potential for the expansion for biofuel production in Colombia. The technical support that the Bank can provide to the GoC, will be essential to identify sustainable means of energy generations and use, as well as sustainable production of biofuels.
- 2.9 The Bank is working in parallel with COLCIENCIAS (the Colombia Scientific entity) developing a technical cooperation to promote innovation science and technology related to biofuels and sustainable energy. In addition to that, the Bank is working with DNP in the preparation of the design of financial instrument to promote private investment in the biofuel sector. All these products put together will represent a substantial technical assistance and will serve as inputs for the government of Colombia, which is currently preparing the first document on biofuels to be submitted to the Colombian Council for Economical and Social Policies (CONPES).
- 2.10 The current scenarios for Colombia and the Bank's initiatives are timely to address the requirements of a long term and sustainable energy and biofuel strategy for the country. Implementing the activities identified to fulfill the requirement of the GoC will facilitate a clear understanding for the government to develop and update the renewable energy and biofuel sector, as well as promote foreign investment in these areas. The expected outcomes are a list of programs and actions that would help the GoC achieve a sustainable production of Biofuels and promote efficient use of energy, while addressing the environmental, social, and regulatory and infrastructure issues associated with sustainable energy and Biofuels in Colombia.
- 2.11 The products and findings of this TC will open the dialogue between the Bank and the government, due to the fact that both have identified biofuels and sustainable energy as two of their main priorities. Colombia has a great potential for biofuel production, however, in order for Colombia to transform itself from a biofuel producer to a world biofuel leader, there are still many obstacles that need to be tackled. With the technical and financial assistance of the Bank, Colombia could eventually overcome these problems and transform these obstacles into opportunities, in areas such as: infrastructure related to biofuel production, infrastructure for transport and distribution of biofuels, and financial vehicles (mezzanine finance, venture capital funds, pre-investment support and seed capital) to support the preparation and funding of investment proposals.

III. Program objective and description

- 3.1 The objective of this Technical Cooperation is to provide the GoC with a solid framework and information that will enable the investment in sustainable energy and biofuels projects, through a set of tools, studies, and institutional strengthening in sustainable energy and biofuels.

- 3.2 The TC will support the identification of the strategic needs of a long-term plan to generate renewable energy and energy efficiency and the Biofuels. The activities include; the preparation of operative guidelines for a Sustainable and Renewable Energy Strategy for Colombia (SREC); a Life Cycle Assessment (LCA) for the Biofuels and a toolkit to promote investment in the biofuel sector; a Biofuel market study and toolkit for export of biofuels; a study to identify barriers and opportunities for small size biofuel entrepreneurs and design and implementation/launching of a pilot program to promote efficient use of energy and biofuels production among small biofuel entrepreneurs and finally the support for the National Coordination for the Sustainable Development of the Biofuels (NCB) and dissemination of findings of this TC.
- 3.3 Local and international consulting firms will perform the activities in this TC. The activities to be financed are the following:
- a. ***Component 1 – Preparation of the Operative Guidelines for the Sustainable and Renewable Energy Strategy for Colombia (SREC):*** Under this activity the operative guidelines for the Sustainable and Renewable Energy Strategy for Colombia (SREC) will be prepared as part of the Rational and Efficient Use of Energy Program (PROURE). The SREC will provide the necessary inputs to prepare a long-term Colombia sustainable energy strategy that includes targets for the participation renewable energies and biofuels in the energy matrix of the country and recommendations on how to achieve those targets. The SREC will address the current status of the sector, economic instruments, regulations, policies and tax incentive required/recommend to promote renewable energy and biofuels. The SREC will also address the potential for renewable energy, energy efficiency and carbon credit through the Clean Development Mechanism (CDM).
 - b. ***Component 2 – Preparation of a Life Cycle Assessment (LCA) of the production chain of biofuels in Colombia and toolkit to promote investment in the biofuel sector:*** This assessment will: i) study the implications of biofuel industry, from the plantation of crops to produce biofuel, to end users of ethanol or biodiesel (flex fuel vehicles or normal vehicles). With this analysis the current and planned infrastructure requirements for expansion of biofuels market will also be addressed. The LCA will also identify, the infrastructure, industrial, agricultural, economical, social and environmental bottlenecks in the production chain of biofuels, as well as available land for biofuel production, logistic requirements and policy and regulatory gaps. Therefore the LCA is expected to become the guiding instrument for decision makers in order to understand the environmental, economical, social and political implications for the nationally required production of 1.6 million liters-day of bioethanol (mainly from sugar cane), 5,500 barrels-day of biodiesel (mainly from palm oil) and the development of 2 to 4 millions hectares of crops required for biofuels. ii) Additionally, a toolkit to promote investment in the biofuel sector will be designed. The toolkit will specify: available land, price of land, availability of feedstock, possibilities of partnership with small and medium farmers, access to utilities and water, access to roads or other means of transport, access to processing plants and storage, and access to ports or local biofuel buyers.

- c. ***Component 3 – Preparation of a Biofuel Market study and toolkit for export of biofuels:*** i) One of the main bottle necks for the GoC in order to be a more important player in the biofuels international market and to attract foreign private investors, is the lack of a market study for export of biofuels. The main concern for the government is to know how, where, at what price and in what conditions should the biofuel be exported. This part of the TC will address these questions together with providing recommendations to see how to use the free trade agreement with the US, the internal biofuel consumption and the great export potential for biodiesel for palm, as tools to promote a secure biofuel industry. ii) Together with the Biofuel market study, a toolkit for the export of biofuels will be prepared in order to facilitate to export of ethanol and biodiesel.
- d. ***Component 4 – Preparation of a study to identify barriers and opportunities for small size biofuel entrepreneurs and design and implementation/launching of a pilot program to promote efficient use of energy and biofuels production among small biofuel entrepreneurs:*** i) The objective of this study is to identify barriers and opportunities for small size biofuel entrepreneurs to develop their businesses. Biofuels could provide a unique opportunity to bring new jobs and a decent income for many small-size biofuel entrepreneurs and additionally, the cultivation of crops that can be used as feedstock for biofuels can be an effective way of substituting illicit crops and generate an effective rural development. ii) Additionally, in order to test the study and detect barriers and opportunities for small biofuel entrepreneurs, the TC will finance a pilot program to promote efficient use of energy and biofuels production among small biofuel entrepreneurs. The GoC have already identified specific areas to start a pilot program. These areas have a high cost of fossil fuel for energy generation, mainly because the fuel has to be brought by air. Therefore the possibility of a pilot program to produce local biofuel to replace imported diesel presents ideal conditions for an energy saving program. The program could provide an alternative to small size agriculture entrepreneurs to replace illicit crops, with crops that can produce biofuels.
- e. ***Component 5 – Support for the National Coordination for the Sustainable Development of the Biofuels (NCB) and dissemination of findings:*** i) This activity will contribute to support and strengthen the National Coordination for the Sustainable Development of the Biofuels (NCB), in order to provide capacity building required to upgrade the local support to the activities involved in this TC. The NCB will provide technical and analytical support not only to the components included in this TC but also to programs and plans of the government for the government to promote the production of biofuels and sustainable energy in the country. ii) The TC will validate and disseminate its findings through a series of workshop, inviting the main stakeholders such as national authorities, project developers, private investors within Colombia and the LAC region.

IV. Cost and financing

4.1 Provide a cost estimate and source(s) of financing: Bank and Counterpart:

Table 1: Budget Summary (in US\$)

Component		JSF financing	JCF financing	Local funds	Total
1	Preparation of the Operative Guidelines for the Sustainable and Renewable Energy Strategy for Colombia (SREC)	0	432,000	10,000	442,000
2	Preparation of a Life Cycle Assessment (LCA) of the production chain of biofuels in Colombia and toolkit to promote investment in the biofuel sector	370,400	0	0	370,400
3	Preparation of a Biofuel Market study and toolkit for export of biofuels	0	162,000	10,000	172,000
4	Preparation of a study to identify barriers and opportunities for small size biofuel entrepreneurs and design and implementation/launching of a pilot program to promote efficient use of energy and biofuels production among small biofuel entrepreneurs	301,600	0	171,000	472,600
5	Support for the National Coordination for the Sustainable Development of the Biofuels (NCB) and dissemination of findings	210,000	0	188,000	398,000
6	Auditing	15,000	0	0	15,000
	Monitoring (National Consultant)	21,700	0	0	21,700
	Contingencies	3,300	0	0	3,300
Grand Total		922,000	594,000	379,000	1,895,000
		48.65%	31.35%	20.00%	100.00%

4.2 In each activity honoraries, travel and perdiem costs are included.

V. Executing agency and execution structure

5.1 The Ministry of Mines and Energy (MME) in Colombia is in charge of the developing the national policy on sustainable energy and Biofuels. The nature of the activities to be financed by this TC is well within the realm of The Ministry of Mines and Energy and therefore MME will be the executing agency for the studies under this TC. The Ministry of Environment, Housing and Territorial Development and the Ministry of Agriculture and Rural development will be the beneficiaries of this TC. The Energy Division (INE/ENE) and IDB Country Office in Colombia (COF/CCO) will have, respectively, the technical responsibility in the execution of this TC.

VI. Major issues

6.1 The local counterpart of this technical cooperation is the Ministry of Mines and Energy (MME). The MME will have to delegate this task to a division within this Ministry. The

team will evaluate the capacity of this office to execute this TC and if necessary include the institutional strengthening component foreseen in this operation in component 5.

VII. Environmental And Social Strategy

- 7.1 There are no foreseeable issues or impacts (environmental or social) to the preparation of the Plan of Operation or the execution of this technical cooperation. In the contrary, this TC will help to identify the possible impacts from an environmental, social and economical perspective.
- 7.2 The plan conceived in this document would allow Colombia to generate knowledge and identify the environmental impacts related to the expansion of crops used as feedstock for biofuels. This TC will analyze associated environmental problems such as methane recovery, effective wastewater treatment, vinasse control as well as reduction of erosion and recovery of degraded land. Especially component 3 may also address issues such as protection of ecosystems and forests, and food security. Each of the financed components will comply with the environmental and safeguards compliance (OP-703) of the Bank.
- 7.3 Considering its nature, this project is not expected to generate negative environmental or social impacts. Moreover, this initiative will help to detect the land that would be available for biofuel production without incurring into deforestation or affecting food security aspects.
- 7.4 This project has been qualified as a type "C" kind of project according to the Safeguard Screening Form toolkit.

VIII. Action Plan

- 8.1 The proposed chronogram of activities is presented in table 2.
- 8.2 Upon approval of this profile, the Plan of Operation will be prepared, and could be submitted to the Board of Directors for approval during the fourth quarter of 2007.

Table 2: Chronogram of activities

Component		2007	2008				2009			
#	Activity	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	SREC		X	X	X					
2	Biofuels LCA		X	X	X	X				
2	Biofuel Investment Toolkit					X	X			
3	Biofuel Market study		X	X	X					
3	Biofuel Export Toolkit				X	X				
4	Study for small biofuel entrepreneurs		X	X	X	X				
4	Pilot program			X	X	X	X	X	X	
5	NCB strengthening	X	X	X	X	X	X	X		
5	Workshops	X				X				X



Libertad y Orden

Ministerio de Minas y Energía
República de Colombia

Bogotá D.C.

Ministerio de Minas y Energía
Origen: DESPACHO DEL VICEMINISTRO
Rad: 2007029157 04-07-2007 01:39 PM
Anexos: 0
Destino: BANCO INTERAMERICANO DESARROLLO
Serie:

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H.S.
RODRIGO PAROT
Representante en Colombia
Banco Interamericano de Desarrollo
Cra. 7 No. 71 - 21 Torre B piso 19
Teléfono 3257000
Ciudad

Asunto: Cooperación Técnica Ministerio de Minas y Energía - BID

Estimado señor Parot:

El Ministerio de Minas y Energía de Colombia ha solicitado al Banco Interamericano de Desarrollo, asistencia técnica para la formulación y preparación del Programa de Uso Eficiente y Racional de Energía y demás formas de Energía No Convencionales (PROURE), lo que ha justificado que desde el mes de febrero de la presente anualidad el Banco haya desplazado a sus representantes a Colombia para recopilar la información necesaria, y adelantar las entrevistas con los actores relevantes involucrados.

Con la formulación del mencionado Programa Nacional se pretende desarrollar una Estrategia de Energía Renovable y Sostenible de Largo Plazo para Colombia (ERSC), que aborde entre otros asuntos el uso racional y eficiente de la energía, la promoción de las energías renovables, el fomento de los biocombustibles, la exploración de formas para la adaptación al cambio climático y el fomento de mercados de carbono.

Para lo anterior, estamos solicitando una cooperación técnica no reembolsable por un monto de USD 1.895.000 frente a la cual actuaremos como entidad ejecutora.

La iniciativa propuesta tiene, entre otros propósitos, definir los cambios políticos, institucionales y regulatorios necesarios para fomentar y promover el uso racional de la energía, cumple con los objetivos del milenio y se inserta en el Plan Nacional de Desarrollo.

Cordial saludo,


MANUEL MAIGUASHCA OLANO
Viceministro

Copias Kurt Focke, Banco Interamericano de Desarrollo.
Alberto Levy, Banco Interamericano de Desarrollo.



Libertad y Orden

Ministerio de Minas y Energía
República de Colombia

Bogotá D.C.

12

Ministerio de Minas y Energía
Origen: DESPACHO DEL VICEMINISTRO
Rad: 2007029158 04-07-2007 01:41 PM
Anexos: 0

Destino: AGENCIA PRESIDENCIAL PARA LA ACCION SOCIAL Y LA COOPERACION INTERNACIONAL
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Asunto: Cooperación Técnica BID - Ministerio de Minas y Energía

Estimada doctora Sandra:

El Ministerio de Minas y Energía de Colombia ha solicitado al Banco Interamericano de Desarrollo, asistencia técnica para la formulación y preparación del Programa de Uso Eficiente y Racional de Energía y demás formas de Energía No Convencionales (PROURE), lo que ha justificado que desde el mes de febrero de la presente anualidad el Banco haya desplazado a sus representantes a Colombia para recopilar la información necesaria, y adelantar las entrevistas con los actores relevantes involucrados.

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La iniciativa propuesta tiene, entre otros propósitos, definir los cambios políticos, institucionales y regulatorios necesarios para fomentar y promover el uso racional de la energía, cumple con los objetivos del milenio y se inserta en los propósitos del Plan Nacional de Desarrollo.

En razón de lo anterior, estamos solicitando el aval de esa agencia para continuar con el proceso tendiente a obtener del Banco Interamericano de Desarrollo una cooperación técnica no reembolsable por un monto de USD 1.895.000 frente a la cual actuaremos como entidad ejecutora.

Cordial saludo,


MANUEL MAIUGWASHCA OLANO
Viceministro

Copias Kurt Focke. Banco Interamericano de Desarrollo.
Alberto Levy. Banco Interamericano de Desarrollo.