



Public-Private Alliance Foundation



3rd International Debate

Bioenergy Investment Risk Management Through Business Model Innovation

7-9 October 2009

Santo Domingo, Dominican Republic

Final Report

Secretaría de Estado de Relaciones Exteriores

Comisión Nacional de Energía República Dominicana

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"Gestión de Riesgos en Bioenergía
Innovación en el Modelo de Negocios"

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Santo Domingo, República Dominicana

Organizado con la cooperación de:

PPAF IREO United Nations Office for Partnerships CEI-RD Dominican Republic Export & Investment Center VICINI Research Pays

Introduction

From October 7 through 9 in Santo Domingo, Dominican Republic, the Public-Private Alliance Foundation (PPAF) and ResearchPAYS®, Inc., organized the Third International Debate on Bioenergy – Risk Management through Business Model Innovation. Hosted by the Ministry of Foreign Affairs and the National Energy Commission (CNE), the event brought together leaders from the government, business, financial, non-profit and academic sectors as well as from the United Nations. The program included a reception, a debate, case study presentations and a field trip. Earlier events in the series were held at the United Nations in New York in May and June 2009.

Some 65 (mostly Dominican) participants engaged in discussions aimed to achieve investment and commercial opportunities resulting from consultations among interested parties. Mr. Enrique Ramirez, CNE President, opened the session. He emphasized that bioenergy is vital to the future of the Dominican Republic and is a priority for President Fernandez. He said that events such as this one were important in bringing together stakeholders to work together to develop solutions to the energy issues facing the country.

Ambassador Federico Cuello, Permanent Representative of the Dominican Republic to the United Nations, remarked that the country had great opportunities and capabilities and could play a constructive role in promoting bioenergy internationally. Dr. David Stillman, Executive Director of PPAF, addressed the relation of development of bioenergy to achievement of the UN Millennium Development Goals and provided background on international standards for sustainable development and their relation to bioenergy. Mr. Tom Kadala, President of ResearchPAYS, Inc., facilitated the discussions bringing out differing perspectives and points of agreement regarding the current situation and potential steps for the future.

Congressman Pelegrin Castillo, the recognized founder of the Dominican renewable energy law (*Law 57-07*), was an active participant. Others included representatives of several Ministries, government and academic institutions, the Inter-American Development Bank, the World Bank, Banco do Brasil, Fundação Getulio Vargas, the United Nations Development Programme, AES Dominicana, RJS Group, and a number of other Dominican and international companies. Ambassador Joao Solano Carneiro de Cunha, the Brazilian Ambassador to the Dominican Republic, highlighted his country's experience in bioenergy and said that creating a domestic demand for ethanol was extremely important.

Case studies presenters included Jean-Claude Alten, President of FENIX BioEnergy, LLC, who spoke on plans for a project to grow and pelletize *Arundo Donax* (*giant cane*) as an alternative energy source for coal-fired plants. Rafael J. Zapata, President of RJ Zapata & Associates, spoke on plans for converting municipal waste of Santo Domingo to energy. Omar Bros spoke on ethanol production at the small business level, including cooperatives and community development. Tom Kadala discussed an excess energy storage option to produce carbon-free ammonia. The presentations generated much interest and encouragement.

In addition to investment prospects, participants embraced the idea that the Dominican Republic could be a viable testing ground for new ideas, new technologies, and global innovation in the area of renewable energies.

Sponsors of the event included the United Nations Office for Partnerships, Grupo Vicini, the Center for Export and Investment of the Dominican Republic (CEI-RD) and the Intergovernmental Renewable Energy Organization (IREO) in addition to the hosts and organizers. Ing. Diogenes Reyna, Director of International Relations and Events, coordinated the program on behalf of the CNE. This report highlights the discussions and agreements that emerged from the group.

Summary of Results

The outcome of this international debate highlighted a two-prong strategy for the DR:

- 1. To develop sustainable markets for bioenergy where the supply chain originates in the DR and the final product meets or exceeds European standards for both internal consumption and external exports to Europe, the US, and elsewhere in accordance to the recently-concluded Economic Partnership Agreement between the CARIFORUM Member States and the European Communities and its Member States (CARIFORUM-EC EPA), as well as the Free-Trade Agreement between Central America, the Dominican Republic and the United States (DR-CAFTA).**
- 2. To position the DR as a global innovation center for the development and production of bioenergy. Companies, universities, individuals and relevant public institutions would join a Public-Private Partnership Consortium (PPPC), assisting and facilitating the approvals required for field-testing laboratory-proven bioenergy ideas in the DR and to offer patent registration, licensing, and protection services for new inventions.**

The Dominican Republic can thus take steps toward becoming a world-class brain trust on bioenergy development at the field testing level by providing top university research centers, inventors, promoters, and financial backers with a convenient location to scale their inventions, test more efficient processes, and measure potential impacts to different sectors within an environment of *'game-changing'* breakthroughs. The Consortium should enable exchange of information among a wide network of colleagues/members and integrate collective findings across multiple disciplines.

Discussion Details

I. Change in Attitudes

According to the debate participants, the number one issue confronting the development, production, and consumption of bioenergy in the DR is the need to change people's attitudes in every sector of the economy. Behaviors, perceptions, and support for all issues related to harnessing climate change need to be transformed. The existing energy-generation and consumption patterns call for a renewed commitment with energy conservation best practices. The generalized use of non-renewable fuels and the potential benefits arising from timely export opportunities derived from the CARIFORUM-EC EPA (for the European Union market) and from DR-CAFTA (for Central America and the US markets) create favorable conditions for a vertically-integrated biofuels industry in the DR. These agreements are based upon legal mandates issued in Europe and the US calling for increased blends of biofuels with fossil fuels. Their impact will help to reduce the vulnerability of the DR with respect to its high dependency for imported fossil fuels.

Consistent with Brazilian experience, participants agreed that the DR should develop an internal market based on European-grade bioenergy products. This approach would help local producers service export markets with established agreements and incentives. It could also become a viable catalyst for achieving meaningful attitude changes needed to support a carbon-neutral Dominican economy.

The group agreed that permanent attitude changes were vital from all sectors to achieve 100% energy independence for the DR by the year 2020. To this end, the group evaluated a list of key sectors within the economy whose attitudes would need changing. They began by reviewing their respective **Current Status** and concluded with a **Proposed Solution(s)** for positive change.

Dominican Inventors, Scientists, Researchers and Academics

Current Status: Participants declared that the heart and soul of Dominican intellectual capacity have suffered from an *'anti-innovation'* syndrome that has fostered an unsustainable academic environment plagued with lack of confidence, insufficient funding support, and uncommitted Dominican leadership. It was also agreed that in the past certain outsider influences discouraged Dominicans from tackling global issues with their own resources.

Proposed Solution: - *Ignite a renewed culture of innovation in the DR and attract top world talent.*

Top global experts working side-by-side with Dominican talent on real-world pilot projects tested on Dominican land will encourage professional and student/professor international exchange programs and inspire a sustainable mentorship/leadership model within the DR.

Dominican Bankers

Current Status: The leveraged capacity to support industrial development within the DR is extremely limited, with consumer loans reported at 40% and project loans at 18% interest rates. Currently local banks have little incentive to lend since the bulk of their earnings come from investing deposits with high interest rate government bonds or lending to consumers at commercial rates. The absence of leveraged local lending to the DR's industrial base and the increased competition for

global funding has continued to categorize DR investments as *'high risk'* for international lenders and investors.

Proposed Solution: *Launch a low interest Guarantee Fund for Bioenergy-related projects*

Participants pointed out that the DR's financial system built its current tourism industry with the help of a World Bank *Guarantee Fund* called FIDE (*at a 1% interest rate*) by providing guarantees for the industrial lending portfolios of local banks. A similar *Guarantee Fund* could be introduced as a catalyst to encourage bankers and investors to replace their passive investment portfolio strategies with leveraged industrial project lending practices – specifically structured to integrate and manage international financing. Participants agreed that without local banking lending leverage, the DR bioenergy industry cannot achieve sustainable growth.

Dominican Politicians and Legislators

Current Status: The group felt that the Dominican law 57-07 on renewable energies and other laws related to bioenergy development and production had not been implemented completely due to government officials who were overwhelmed with other issues, despite President Leonel Fernandez's political priority and personal support. As a result, few viable bioenergy project proposals materialized and those that tried had to navigate through a regulatory maze of institutions responsible for issuing the required permits. Measures intended to reduce the bureaucracy either were never launched or had too many members to reach a consensus within a reasonable time frame.

Proposed Solution: *Create facilitated debates among all sectors (i.e. public, private, academic, financial, field testing) to develop, monitor, review, and communicate the development of bioenergy in the DR.*

Brazilian participants at the meeting shared their 40-year expertise with the group. They recommended a work-in-progress, transparent relationship between the government and the private sector to adapt institutionally-driven strategies for permit approvals, national grid requirements, land use, and social responsibility.

They felt trust among all sides could best be achieved through a master plan detailing step-by-step directions, guidance and proper political protocols. Facilitated discussions such as this one were considered to be an excellent medium to exchange and communicate mandate revisions. The group also highlighted that rather than create additional institutions, legislators should fund and re-structure existing ones (i.e. INTEC, UASD, etc.) to include renewable energy initiatives.

Dominican Farmers

Current Status: Dominican farmers are susceptible to free market price fluctuations causing many to clear lands for higher margin products (such as cattle grazing) or to mismanage their land/crop use for short-term gains. These farmer-driven decisions can gravely impede initiatives to prevent deforestation – an international goal. Undercapitalized farmers are most affected by adverse climate or market conditions and eventually become a liability to the overall economy, forcing additional imports of food and fuel to compensate for their losses.

Feedstock for bioenergy production using first generation processing technology (*part of the food supply chain – e.g. sugar cane*) is susceptible to commodity price fluctuations and may command

significantly lower margins than if sold as a food product. Second generation processing technologies (*not part of the food supply chain –e.g. cellulosic, algae-based*) increase fuel yield per ton but require further field testing to reach large scale quantities of production to compete with fossil fuels.

Proposed Solution: *Develop initiatives (using the Brazilian UNICA model) to ensure a comprehensive strategic implementation at local and national levels for optimal land and crop management.*

The Brazilian Sugarcane Industry Association (UNICA) is the largest organization in Brazil representing sugar, ethanol and bioelectricity producers. The model of its organization and member services could be designed to fit the needs of the DR and its farmers. Among its functions, UNICA offers its members training, technology, affordable financing, mentorship programs and more. In Brazil the government's role is minimized and focuses on providing permit approvals, overall strategic guidance and direction. Inviting key members of UNICA to help design and implement a similar initiative in the DR would be a good first step.

Dominican Manufacturers

Current Status: Participants said that due to the lack of local banking leverage for industrial projects, Dominican manufactures depend on international private equity groups for their financing needs. The foreign investment process begins with Dominican experts (*promoters-for-hire*) who navigate the system to expedite required concession permits, land title resolutions, and special assistance for various government-imposed obligations. These export-focused investors seek to take advantage of business anomalies often caused by changing global market conditions. Without a coherent investment policy that is in synch with existing energy-related legislation, these investors are prevented from contributing to the further development of the Dominican internal market. Without these enhancements, the Dominican economy may remain susceptible to external market fluctuations causing the goal of energy independence to become less attainable.

Proposed Solution: *Design an investor program that focuses on innovation.*

As an established center for bioenergy innovation, the DR would attract investors in need of bioenergy breakthroughs for their existing portfolio of companies or for investment opportunities as part of a diversification strategy. Their broad-brush approach to global investments will encourage the development of an internal market adhering to export standards.

Dominican Consumers

Current Status: Many Dominican consumers seem to believe that the government is responsible for their domestic energy costs. This perception is further aggravated by government-contracted wholesale rates that are capped above the normal retail rates charged in surrounding markets. Furthermore, statistics show that nearly half of all households are illegally connected to the grid.

In addition to footing the bill for non-payers, those that can pay their electric bill, which include members of the middle and upper-class consumers, as well as industrial and service sector clients, are forced to purchase their own emergency power generators to meet their energy needs during electrical blackouts. The price to operate these generators is not only substantially higher but also undesirable since it is a source of carbon pollutants.

When all is said and done, the government subsidizes the difference by paying a high opportunity cost from a list of circumstances including lost investor confidence, mixed messages to law-abiding

citizens who do pay their utility bills, unsustainable subsidies to make up for payment shortfalls, a 40% decrease in overall grid efficiency from leakages, the absence of carbon-neutral, alternatives within the DR that can counter energy production patterns and an infectious negative attitude towards the government's expected role for other public services.

Proposed Solution: *Communicate comprehensive guidelines and incentives to consumers for energy conservation to reduce their carbon footprint.*

The DR's internal bioenergy market should be launched with consumer-driven options that inspire personal initiatives to reduce energy consumption while contributing towards a carbon-free Dominican economy. Similar to other countries, the DR should publicly announce concrete steps to reduce the country's dependence on imported non-renewable fuels by reducing its carbon footprint through the growth of a bioenergy sector. Measureable steps should be taken such as promoting the conversion of public transportation vehicles to biodiesel, introducing a schedule of blend increases that move beyond the currently approved 5% (*biodiesel*) and 7.5% (*ethanol*), and replacing the tax revenue loss incurred from increased blends with new taxes on carbon-producing goods and services.

International Community

Current Status: In spite of recent advances, awareness of the DR as a country is still not as widespread as it could be, particularly among the international investment community. In Brazil alone, a study showed 70% of the population had no idea of the DR's geographic location. The country's investment potential and its access to a young talented workforce are similarly unknown. Internationally, those who have heard of the DR view it as a Third World country with scattered destination resorts. Rum, sun, and fun have become synonymous with the DR's capabilities, while its potential as a global player in the bioenergy industry remains hidden.

Proposed Solution: *Position the DR as a center of innovation for global bioenergy field testing research.*

To enter the global bioenergy arena, the DR could leverage its reputation as a tourist destination and create a Bureau for Bioenergy Field Research (*BBFR*). Rather than book rooms, the BBFR would book plots of land and laboratory space where member scientists could conduct their respective experiments, participate in panel discussion forums, and hold investor presentations. Working side-by-side with Dominican professors and inventors, researchers could learn first-hand the value proposition that the BBFR offers and the value of the DR's convenient geographic location to top laboratories and academic institutions in the US, Europe, Brazil and elsewhere. Professor, student, and scientist exchange programs would evolve naturally, helping to build a sustainable base of Dominican research talent for its future.

II. Summary of Proposed Solutions

1. Ignite a renewed culture of innovation in the DR and attract top world talent.
2. Launch a low interest Guarantee Fund for Bioenergy-related projects
3. Create facilitated debates among all sectors (*public, private, academic, financial, field testing*) to develop, monitor, review, and communicate the development of bioenergy in the DR.
4. Develop new initiatives using the Brazilian UNICA model to ensure strategic implementation at local and national levels for optimal land and crop management.
5. Design an investor program that focuses on innovation.
6. Communicate comprehensive guidelines and incentives to consumers for energy conservation to reduce the carbon footprint of their consumption patterns.
7. Position the DR as a center of innovation for global bioenergy field testing research.

III. Recommendations for Implementation

The following recommendations developed by the debate participants offer a concrete implementation strategy that addresses most of the *Proposed Solutions*:

Three-Member Task Force

Create a **Three-Member Task Force** with decision-making authority represented by three key organizations:

1. National Energy Commission (CNE)
2. Ministry of Industry and Commerce (SEIC)
3. Ministry of Environment and Natural Resources.(SEMARENA)

Purpose

- Create strategic zones within the DR for bioenergy field testing pilot projects.
- Develop a streamlined approach to expedite pilot project permits based on research requirements and time of use.
- Create a checklist of items that must be completed to expedite approvals.
- Assign members to several **Project Advisory Boards** that will
 - Handle all project inquiries for bioenergy projects to the DR – ‘one-stop window’
 - Provide an approved checklist of items required for project proposal submission
 - Answer any questions from interested parties
 - Prepare all projects for submission and review by the **Three-Member Task Force**
- Review, approve, and reject submitted project proposals.

Comments:

The creation of the *Three-Member Task Force* and the *Project Advisory Boards* will send a clear message that the DR is serious about becoming a center for innovation by streamlining the approval process with a clear innovation-driven orientation. Rather than have innovators compete for permits, they will compete with current technology and each other to provide the DR and other countries with the best solutions for the development and production of bioenergy.

Public-Private Partnership Consortium

Create a *Public-Private Partnership Consortium* (PPPC) as a member-based organization consisting of stakeholders representing the key sectors most affected by the implementation of bioenergy field

study pilot initiatives. Further discussions on the preferred structure of the *Public-Private Partnership Consortium* should be done in a future facilitated discussion.

Purpose

- Create one entity, one voice that personifies the DR's commitment to becoming a global center for innovation.
- Incubate innovators, patent pending and patent holders in a research-friendly environment designed to foster innovation.
- Provide comprehensive outlets for the international investment community including the development of a Guaranteed Fund for internal market development and realizing the export potential.
- Offer patent registration, licensing, and protection services for new inventions.
- Provide the President of the DR with an ongoing list of recommendations for bioenergy development and production for both internal and exports markets in the DR.

**DEBATE INTERNACIONAL EN BIOENERGIA
OCTUBRE 7 – 9, 2009
REGISTRO DE PARTICIPANTES**

**BIOENERGY INTERNATIONAL DEBATE
OCTOBER 7 – 9, 2009
PARTICIPANT LIST**

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Camara de Diputado de la Republica	Dr. Pelegrin	Castillo	Congressman
Cancilleria	H.E. Carlos	Morales	Minister
Comision Nacional de Energia	Dr. Enrique	Ramirez	President
Comision Nacional de Energia	Francisco	Gomez	Representante
Comision Nacional de Energia	Santana	Juan	Representative
Comision Nacional de Energia	Rafael	Cuello	Asuntos Nucleares
Comision Nacional de Energia	Ing. Manuel	Capriles	Gerencia de Hidrocarburos
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Comision Nacional de Energia	Elsy	Fernández	Gerencia de Comunicación
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Programa de las Naciones Unidas para el Desarrollo	Jehova	Pena	Renewable Energy Coordinator
Secretaria de Estado de Agricultura	Ing. Manuel	Gonzalez	Asesor Tecnico
Secretaria de Estado de Industria y Comercio	Ing. Salvador	Rivas	Chief, Renewable Energy
Secretaria de Estado de Media Ambiente y Rec.Nat.	Isabel	Guzman	Representative
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World Bank	Todd M.	Johnson	Representative

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Samana College Research Center	Dr. Dana F.	Minaya	Director
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Globasol	Dolores	Figueroa	Representative
Grupo Vicini	Alvaro	Londono	Representative
Instituto Azucarero Dominicano	Faustino	Jimenez	Director
RJ Zapata and Associates	Rafael	Zapata	Representative
RJS Group	Rafael Emilio	Fernandez	Chairman & CEO
RJS Group	Fausto	Reyes	Representative
RJS Group	Grisel	Abreu	Representative

EXPERIENCIA SOBRE EL TERRENO

Comercializadora Los Montones	Jesus	Moreno	President
Comercializadora Los Montones	Edison	Santos	Commercial Director
Consortio Tecno DEAH	Omar	Bros	Executive Director
Dominican Renewables S.A.	Geranimo (Gero)	Chotin	General Manager
Fenix BioEnergy LLC	Jean-Claude	Alten	President
Fenix Bioenergy LLC	Jose	Marti	Vice President and COO
Fenix BioEnergy LLC	Dr. Rafael	Ortiz Quezada	Senior Agricultural Consultant
Green Power Systems, LLP	Ingo	Krieg	President
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Inveravante	Wilfredo	Gonzalez	Representative
Jasper	Peguero	Ortega	Representant
Pan-American Development Foundation (PADF)	Daniel	O'Neill	Country Director

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Comision Nacional de Energia	Diogenes	Reyna	Dir. Ejecutivo, Depart. Internacional y Eventos
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