



Public-Private Alliance Foundation



**PPAF Third Annual Partners Against Poverty Event
at the United Nations**

**Report of the Discussion on
Business Model Innovation for Investment Partnerships
for Ethanol Development and Production
7 May 2009**

In cooperation with



Mission of Brazil
to the United Nations



Mission of the Dominican Republic
to the United Nations



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Report of the Discussion on Business Model Innovation for Investment Partnerships for Ethanol Development and Production

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Summary

A group of 45 selected professionals from Brazil, the Dominican Republic, Haiti, Honduras, and the United States of America converged at the United Nations on 7 May 2009 for a facilitated discussion organized by Public-Private Alliance Foundation and ResearchPAYS®, Inc. The participants represented the stakeholder interests of government, private sector, civil society and international organizations. Among the participants were representatives of state-of-the-art pioneer companies, business associations, banking and investment firms, university and foundation researchers, and a bioenergy specialist from the Inter-American Development Bank.

The Minister of State and President of the Dominican National Energy Commission, Aristides Fernandez-Zucco, and the Executive President of a major Dominican group of sugar and other companies, Felipe Vicini, and several senior staff of Grupo Vicini, were active participants at the meeting. Their comments gave the discussion a firm footing on the many real energy issues confronting the Dominican Republic and other countries in similar situations.

The discussions drew upon the sugar-based ethanol experience of Brazil, biodiesel issues and waste-to-energy innovations underway in various locations, and capital market commentaries from those involved in financing. The discussions explored the main economic considerations of land, labour, capital and technology in relation to ethanol and other biofuels, and likewise the importance of the internationally agreed Millennium Development Goals (www.un.org/millenniumgoals) and the principles of the United Nations Global Compact (www.unglobalcompact.org), and addressed the following broad questions:

1. What could or should be done differently for ethanol production?
2. How to change current business models in different geographic areas?
3. What should be generally highlighted for priority attention?
4. How to address stakeholder concerns on environmental, social and economic issues in relation to sustainability, profitability and poverty reduction?

In the two hours of lively exchange, the group touched on many key aspects of ethanol development, production, distribution, usage, and policy. The discussants enthusiastically tackled tough issues, including assessment of near-term and longer term petroleum and renewable energy options; the availability of short and long term capital in the current global financial situation; the pace and nature of technological advances; the integration of economic objectives with social, environmental and political ones; specific versus total costs of production (including government infrastructure support to education, health, roads, etc.); conditions of employment, mechanization and workers' training; cultural and political issues generally facing the Island of Hispaniola; and regional and global concerns.

Participants began to identify a framework for business model innovation with emphasis on (a) bringing together local and international stakeholders involved directly and indirectly with ethanol and other biofuels, and (b) focusing on integrating collaborative efforts among stakeholders for sustainable undertakings with a positive business, development and environmental impact.

Views expressed in the meeting included that sugar-based ethanol could make an important contribution to expanding sugar productivity, creating jobs for people in agricultural and related sectors and reducing Dominican dependence on imported petroleum. Cellulosic materials such as sugar cane bagasse and municipal waste could have potential as technology and the industry evolve. At the level of rural communities especially, production of biodiesel from jatropha and other oily plants could be worthwhile, and programs using such feedstock on the frontier with Haiti could help efforts to improve living standards and job training opportunities on both sides of the border.

Participants felt that low-cost and effective distribution of feedstock and biofuels product, and access to capital were two key issues needing attention. They noted that sector development requires long-term capital, though the current financial environment favors short-term periods and projects. With regard to the popular debates on food versus fuel and indirect land use,

discussants felt these were not relevant in the Dominican Republic where sugar production has declined in recent years, fields lie fallow and farmers are out of work.

In brief, it was felt that “green energy” in the Dominican Republic has great potential in economic, environmental and social terms. Discussants agreed that follow-up meetings should be held -- at the United Nations, in the Dominican Republic and possibly elsewhere, with the intent that these exchanges lead to actions and related investments.

Highlights of issues treated by the group are given below.

What are some key regulatory features of the landscape? Important legislation was recently passed in the Dominican Republic to promote ethanol investments (Law 5707), which has been a matter of growing interest for a decade. The so-called “Bush-Lula” agreement of 2007 promotes Brazilian ethanol technology for production in the Caribbean and Central America. The DR-CAFTA (Dominican Republic-Central America Free Trade Agreement) improves access for member products to the USA markets. This can have implications for ethanol exports. Also the work and project funding of the Inter-American Development Bank in the areas of bioenergy and other renewables are significant.

Meeting participants discussed the importance of variables including the artificial influence of price fluctuations for petroleum, the yield improvements derived from advancing technology for different renewables, the nature and utility of various feedstocks, and production and distribution economics at macro or micro-scale. During the session, group members increasingly saw a need to understand more fully the totality of pertinent costs, benefits and risk as viewed from a fully integrated solution.

Why is access to capital difficult? Participants noted that with the current global economic crisis, commercial banks and private equity have restricted their lending more toward short term loans. This has hurt the potential for ethanol plant installations which require a multi-year lead time. Plant construction may require up to hundreds of millions of dollars and may take several years before producing revenues. They also noted that as biofuel innovations move ahead, ethanol investments risk exposure to technological breakthroughs that could be significant game changers even before a given project can be completed.

As is known from the experience of the past year, the price of petroleum can fluctuate dramatically. The implications of price swings and related uncertainties have had an impact on the attractiveness of investment in biofuels. Meeting participants recognized that both short- and long-term planning issues need to be addressed. Organizations such as the Inter-American Development Bank (IDB) were commended for such work. However since the IDB mandate limits its participation to 25 percent of an investment, commercial banks and other investment partners are necessary. The needs and concerns of the private sector investment group must be addressed.

What about government? Considerable importance was given to the role of public sector entities, with examples given for the Dominican Republic, Brazil, and the USA. As noted, the

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Dominican government has taken steps for legislation and tax incentives to attract foreign investors. Offers of full repatriation of earnings, ten-year tax exemption for imported ethanol production equipment, and accelerated depreciation for capital investments have all been designed to provide cash flow advantages and early returns to foreign investors.

In Brazil it was stated that a main focus has been to align the product with key assets and investors available internally. Drawing from over forty years of experience with sugar-based ethanol, Brazil has deliberately designated ethanol production for large business ventures and biodiesel to smaller scale producers organized by locally owned cooperatives. In each case the government initially subsidized the research and development costs to improve crop yield and land management. The subsidies have since been discontinued allowing businesses to thrive independently.

In the USA the government was recognized for its efforts to institute a cap and trade system for carbon-based pollutants and for providing research and development subsidies to companies working on the most promising biofuels technology. The USA already has mandates for (corn-based) ethanol in gasoline, a system of subsidies for domestic producers, and tariffs against ethanol producers from outside the DR-CAFTA group. (It was noted that the DR has major ports on its shores that could distribute duty-free ethanol to markets in the USA and elsewhere in accordance with the DR-CAFTA agreement.)

How better to align policies and resources? It was felt that the United Nations Climate Change Conference, to be held in Copenhagen in December 2009, could provide standardized policies. Governments would be encouraged to follow these recommendations based on a number of country-specific parameters. Developed countries would be encouraged to provide financial and related support to developing countries. In the current global financial crisis the future of North to South exchanges is constrained, making it all the more important to develop multilateral agreements and funding. Obviously this would require steps beyond the purely governmental, to embrace the major economic role of the private sector.

What are some of the infrastructure issues? Participants saw the necessary infrastructure for ethanol as including arrangements and incentives for production, distribution, marketing, flex-fuel automobile and other equipment specifications, and other technical, policy and social issues. Some of these could be addressed nationally but others would require much broader agreements and standard-setting. It was agreed that establishing pilot initiatives for local solutions could become a cost-effective manner to obtain valuable data for scaling integrated solutions elsewhere.

One problem was in the distribution chain – getting feedstock to processing plants and then the product to market. Another problem was timely availability of feedstock. It was pointed out that in the Dominican Republic sugar can only be harvested 190 days of the year while in Colombia it can be harvested year-round. Another option could be fast-growing switchgrass. Using cellulosic materials as feedstock could help to address the downtime issue as well as taking technology to the next level. Cellulosic ethanol plants represent the next generation of

production, but are not yet well established. Their feedstock can vary widely and can include bagasse (the by-product of sugar cane processors) and municipal waste. Representatives of companies dealing with the latter participated in the discussions and made the case for this feedstock both in terms of energy and of sanitation and public health.

Attention was also drawn to the desirability of a broad agreement on a standard energy molecule such as gasoline, ethanol, or butanol. Standardizing the energy molecule of choice on a broad level would help reduce investor risk while encouraging greater cooperation and exchange of relevant information across borders. As one participant expressed, the need to identify promising technological breakthroughs and offer protection to allow proper scaling is critical, so that the innovation can assume a dominant role, as is currently the case in computer software.

Participants saw petroleum companies, environmentalists, employees dependent on petroleum revenues, and producers and consumers in the global food chain as all having a stake in the questions of the infrastructure for ethanol. It was argued that perhaps the greatest issue for politicians and policymakers would be to accept the uncertain timeline and investment commitments to reach critical mass, a point when biofuels could efficiently replace petroleum sources.

What could be the Business Model Innovation? The overall accepted objective by participants was to view the local production of biofuels as a means to become energy independent or at least less energy dependent. To obtain sustainable success, the business model of choice would ensure that all of the stakeholders involved progressed together at the same pace. It was recognized that breakthroughs in technology or yield could disrupt the progress made from the other stakeholders such as feedstock providers, investors, regulatory changes, political endorsements, etc. Overseeing management and system flexibility and policy and support arrangements would be needed to help the various stakeholders catch up or adjust.

Awareness and action on the various moving parts such as feedstock type, plant location, distribution infrastructure, technological breakthroughs, employment and training, policymaking and regulations, and changing consumer perceptions on energy usage so they move coherently was seen as being imperative to the safe keeping of long term investments and progress in the sector. With an understanding that each component is linked to the advancement of the others, participants endorsed the idea that the greatest advantage for each could come from collective advancement with minimal risk for all.

Is ethanol a race to increase product yield, or more? The yield game for ethanol was compared to the evolution of computer software storage space, with advances in sugar production, cellulosic enzyme technology, and waste-to-energy processes leading to continually improving results. Also the overall impact from increasing yields through advanced biological or chemical techniques was seen as having several potentially dramatic effects -- on social and economic factors due to mechanization of feedstock recovery, with possible labor dislocations

and retraining requirements for a more skilled workforce; on regulatory factors within countries; and on geo-political factors due to shifts among energy producing countries

The group concluded that the new business model for biofuels would require attention to increasing the yields of each component -- technology, social, regulatory and geo-political. Already the Government of Brazil was on record as affirming that the well-being of the regional “neighborhood” was important to the well-being of the country. Some felt that helping to shape the respective roles and integrating their advancements could require an overall perspective from a neutral institution such as the United Nations.

How to apply a viable new business model? At some point, all of the components and understandings developed in theory require an actual situation where they can be measured and monitored. In our proposed business model members of the group considered collaborating at some level that would integrate land, labor, capital and technology in a live setting.

Some of the meeting participants emphasized the value of sugarcane as a readily available feedstock which could be distilled into ethanol by companies already in the sugar business. Descriptions also were given of improved housing, health and education being provided to some workers in the Dominican Republic. Brazilian speakers emphasized the importance of such social services through private sector as well as government, and also the importance of a gradual process of mechanization of harvesting, so as to avoid severe dislocations, combined with training programs to improve skills of workers for future jobs.

Participants recognized that both the government and industry in the Dominican Republic and elsewhere are shouldering greater social and economic burdens than the production of ethanol alone could solve, though with a revised business model it could help. This issue was part of a recognition of a general need to take into account the total costs and the total implications of producing and using products, whether biofuels or petroleum or anything else. The realities of the recent global financial crisis, and of climate change, and of international efforts in many fields through the United Nations meant that participants from all perspectives readily grasped this assessment.

As one example of application of this new business model, plans and activities were announced for collaborative initiatives for biodiesel based on jatropha in communities along the border of Haiti and the Dominican Republic. It was reported that the community biodiesel model was also being implemented successfully in Brazil. Since the current high incidence of Haitian immigration to the Dominican Republic was related to extreme poverty and unrest in the home country, it was felt that joint efforts on the frontier could have multiple beneficial results.

Can the Dominican Republic become a model for business innovation internationally?

Group members spoke of the Dominican Republic as offering a microcosm of the multiple components needed to develop a sustainable strategy for development and production of

biofuels. It was small in size yet rich in resources to be developed and with real issues to address within the country, on the island, and in the region.

Speakers asserted the Dominican Republic could support the growth of a basket of sugarcane and several other varieties of ethanol and biodiesel feedstock. Production sites or communities could serve as vocational training grounds, with results that can possibly be replicated elsewhere. Serving as an interim field testing program, the programs undertaken could attract persons from academic institutions, regulatory bodies, civil service entities, and companies, as well as investors, attorneys, and elected officials. These could converge on various sites, become engaged and exchange ideas, review results and adopt new strategies that could be scaled and applied elsewhere.

What are the possibilities for collaboration in ethanol and other biofuels? The meeting ended with questions that these participants and others intend to take up later in greater depth. Initiatives to establish 'next steps' include a similar discussion to take place in Dominican Republic with local representatives from the public, private, academic, field testing, and financial sectors. Other meetings are being discussed in other Latin American and Caribbean countries.

Identifying the interests, willingness and participation of possible collaborators is a critical task that needs to be further pursued. Representatives of government, private sector, civil society and the United Nations agreed that such initiatives are worthwhile and deserve to be pursued.

In closing one participant summed up a critical outcome. He said, "We must stop referring to energy in terms of dollars per gallon but rather in a way that measures the energy dependence and options of an entire country." The task now will be to convene more focused discussions that take these initial perspectives and understandings and make them the basis for action, with a business model that the investment world can embrace long term.

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Appendix A

List of those Present

Participants

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