Biofuels Regulation in Peru

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WHAT ARE BIOFUELS?

- Biofuels are fuels produced directly or indirectly from organic material called biomass.
- A distinction is made between first, second and third generation biofuels. First-generation biofuels are made largely from edible sugars and starches.
- Second-generation biofuels are made from nonedible plant materials and are a result from processing biomass and including liquid biofuels such as ethanol and biodiesel that can be used in vehicles and industrial processes.
- Third-generation biofuels are made from algae and other microbes.

ETHANOL AND BIODIESEL

- Ethanol is a type of alcohol that can be produced by using any feedstock containing significant amounts of sugar, such as sugar cane or sugar beet, or starch, such as corn and wheat.

- Ethanol can be blended with gasoline or burned in nearly pure form in slightly modified spark-ignition engines. A liter of ethanol contains approximately two thirds of the energy provided by a liter of gasoline. However, when mixed with gasoline, it improves the combustion performance and lowers the emissions of carbon monoxide and sulphur oxide.

- Biodiesel is the name of a clean burning alternative fuel, produced from domestic, renewable resources. Biodiesel contains no petroleum, but it can be blended at any level with petroleum diesel to create a biodiesel blend.

ETHANOL PRODUCTION IN PERU

- Ethanol production is a new business in Peru, starting in August 2009. Similar to Brazil and Colombia, sugar cane can be cultivated in Peru all year round, especially on the country's northern coast.

- Peru's competitive edge lies in its efficient use of land to cultivate sugar cane. In fact, Peru is one of the world's most efficient producers of sugar cane.

- Ethanol in Peru is produced using the diffusion method which is broadly used in Brazil. This method consists of shredding the cane very thinly then moving it through thirteen consecutive showers of warm water (between 70 and 80°C). The water that comes out of the last wash then is fermented. Once the alcoholic yeast is finished with the fermentation process, the liquor is distilled.

ONGOING PROJECTS

- With an investment of $210 million, **Caña Brava** is currently the only ethanol producer in Peru. Caña Brava has established 6,000 hectares of sugar cane in Piura and built a processing plant with a capacity of 350,000 liters per day. Caña Brava began operations in August 2009

ONGOING PROJECTS

- **Maple Energy (USA)** is currently in the advanced stages of developing one of the first and most significant ethanol projects in Peru. At an estimated cost of $254 million this agro-industrial project consists of a 7,800 hectare sugar cane plantation in the initial phase which will provide sugar cane feedstock to the Ethanol Project .

- Maple Energy has made significant progress in all aspects of the Ethanol Project, including agricultural development, industrial development and financing and currently expects to commence commercial operations in the second half of 2011.

BIODIESEL PRODUCTION IN PERU

- Up to date, the main feestock for biodiesel production in Peru is palm oil.

- Biodiesel is made through a chemical process called transesterification whereby the glycerin is separated from the fat or vegetable oil. The process leaves behind two products -- methyl esters (the chemical name for biodiesel) and glycerin (a valuable byproduct usually sold to be used in soaps and other products.

ONGOING PROJECTS

- The **Heaven Petroleum (Peru)** plant was the first biodiesel plant in Peru. Their product is known as Biodiesel HB100. When they first started operations the production was expected at 12,000 gallons per day. Then the production is expected to rise to 24,000 gallons per day.

- Pure Biofuels Corporation (USA)
- Industrias del Espino (Peru)

LEGAL FRAMEWORK

- **Law No. 28054**: The Law for the Promotion of the Biofuels Market was enacted in 2004 with the aim of establishing the general framework to promote the use of biofuels based on free market policies and with the objective of increasing employment, diversifying fuel sources, strengthening agricultural development and reduce environmental contamination.

- It also calls for the creation of a Technical Committee to be responsible for determining the blending percentages and schedules, recommending regulations regarding biofuels production and commercialization, and leading a public awareness campaign regarding the benefit of biofuels.

- **Supreme Decree No. 013-2005-EM:** The Regulation for the Promotion of the Biofuels Market, was enacted with the aim of promoting the investment in crops for the production and commercialization of biofuels, spread the economic, social and environmental advantages of its use and establish the safety technical requirements for its production and distribution.

LEGAL FRAMEWORK

- **Supreme Decree No. 021-2007-EM:** In 2007, the Regulation for the Commercialization of Biofuels – was enacted. This norm establishes the requirements for the commercialization and distribution of biofuels.

- Regarding the commercialization requirements, the Regulation states that gasoline must include 7.8% of Fuel Grade and it will denominate Gasohol 97 Plus, Gasohol 95 Plus, Gasohol 90 Plus or Gasohol 84 Plus, depending on the octane number. The Gasohol will be of mandatory use in the country according to the timetable set therein.

- Diesel must include a range between 2 and 20% of biodiesel depending on the type of diesel (For Diesel B2 (2%), for Diesel B5 (5%) and for Diesel B20 (20%)) It is important to mention that the Regulation also states that, since January 1st, 2009 the commercialization of Diesel B2 is mandatory in replacement of Diesel No. 2 and that since January 1st, 2011, the commercialization of Diesel B5 is mandatory, replacing Diesel B2.

ENVIRONMENTAL IMPLICATIONS

- **Food impacts:** There has been worldwide criticism of the effect of increased ethanol production on food prices. Because the cost of feedstock dominates the production cost of biofuels, all crops compete for the same inputs: land, fertilizer and irrigation water.

- **Water impacts:** Depletion and contamination of water supplies can have profound effects on human and animal health. Many biofuel crops require large amounts of water for their cultivation, particularly harmful in water areas where water is scarce.

- **Forest impacts:** The cutting of forests in order to create land available for the growing of biofuel crops has grave impacts on greenhouse gas reduction as well as biodiversity.

- **Greenhouse Gases:** There is increasing evidence that the total emissions and environmental damage from producing many “clean” biofuels often outweigh their lower emissions when compared with fossil fuels.

HOW PERU IS DEALING WITH THE POTENTIAL ENVIRONMENTAL IMPACTS OF BIOFUELS

- **Supreme Decree No. 012-2009-MINAM:** The National Environmental Policy was enacted with the aim of enhancing the quality of human life, guarantee the long term existence of healthy, viable and functional ecosystems, and assure the sustainable development of Peru through the prevention of adverse effects and protection and restoration of the environment and its components, and conservation and sustainability use of its natural resources .

- The main policy guidelines applicable to biofuels and their impact on the environment are the following:
  - Encourage the use of clean technologies in mining and energy activities to minimize risks and adverse impacts on the environment.
  - Promote investment, development, and use of biofuels, renewable energies, and methane gas derived from landfills as alternatives to fossil fuels so as to reduce carbon emissions within a new energy matrix.

OW PERU IS DEALING WITH THE POTENTIAL NVIRONMENTAL IMPACTS OF BIOFUELS

- Prevent the reduction and degradation of forests and their resources, resulting from illegal logging, slashing, burning, trade, and land-use change.
- Encourage energy efficiency through the use of modern technologies, economic incentives, and transparent information systems.

- **Supreme Decree No. 019-2009-MINAM:** According to the Regulation of the Law of the National System of Environmental Assessment, all projects that involve works, constructions, extractive, productive or service activities that can cause significant negative environmental impacts are part of the National System of Environmental Impact Assessment. Specifically, item 39 of title II, which includes a list of projects that are part of SEIA, mentions the projects of crops for the production of biofuels.

- In such sense, the biofuels projects must have an environmental certification in order to carry out their project.

HOW PERU IS DEALING WITH THE POTENTIAL ENVIRONMENTAL IMPACTS OF BIOFUELS

- **Policies of the Ministry of the Environment regarding Biofuels:**
  - For the cultivation of biofuels, primary forests cannot be cut down
  - Efficient Use of Water
  - For the development of biofuels projects no lands that are dedicated to grow food can be used

- **The Agency for Environmental Assessment and Audit (OEFA)**
  - This institution has the responsibility of verifying the compliance with environmental legislation. Likewise, it has the function of ensuring that environmental evaluation, supervision, control, sanctioning and incentive functions conducted by various government agencies, are carry out independently, impartially and efficiently

WHAT CAN PERU LEARN FROM OTHER COUNTRIES?

- **United States**: The Energy policy in the United States continues to place a strong emphasis on incentivizing the use of biofuels in an effort to capture their social benefits of enhancing energy security, furthering environmental goals, and promoting rural development.

- The US Congress instituted a tax benefit for the use of ethanol as an additive to gasoline.

- Peru acknowledges that private investment is a key element in the development of the biofuels market but unfortunately has not yet approved any regulation - specifically for biofuels - that gives tax incentives can help increase the amount invested in biofuel projects.

WHAT CAN PERU LEARN FROM OTHER COUNTRIES?

- **Brazil:** Brazil is the pioneer of the ethanol industry. Brazil is also the only country that uses ethanol as a complete substitute for gasoline.

- At least for components have contributed significantly to the development of the Brazilian ethanol industry: governmental support, research and development, abundant raw materials (especially sugar cane) and labour.

- In order to develop Peru's potential to its fullest, Peru must rely in the experience of other countries, especially Brazil.

- In 2008, it signed a Technical and Scientific Cooperation Agreement with Brazil regarding the biofuels industry.

CONCLUSIONS

- Although Peru has enacted some norms that specifically promote the development of the biofuels market, this norms mainly regulate biofuel production and commercialization requirements.

- It would be important that Peru creates a regulatory framework applicable to biofuels that show how the objectives that is has set for the biofuels market are going to be implemented.

- Although Peru has enacted several norms and regulations that protect biodiversity and the environment, is it important for the development of biofuels projects that the government makes clear that this environmental legal framework is applicable to biofuels projects.

THANK YOU