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INTERNATIONAL INTELLECTUAL PROPERTY INSTITUTE

The Brazilian Energy Revolution

Lessons from the biofuel industry boom

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Introduction

Brazil is a leading developer of biofuels and a leading promoter of the increased use of flex-fuel automobiles. Not only are these decisions showing positive benefits in reducing carbon output for environmental health, but also Brazil has established itself as a technology exporter that brings positive economic benefits. This economic benefit relies on science and technology policy, research and development activity, as well as the need for intellectual property protection. The objective of this paper is to review the evident economic benefits of biofuels in Brazil and analyze the close relationship between technological development and intellectual property protection.

Biofuel development in Brazil is tightly associated with the objective for the country to become self-sufficient on this alternative energy source. By exploring the Brazilian biofuel development we will identify the main actors that make possible research and development in the country. Brazil has taken biofuel production from an idea to a tangible industry that has found protection in the public and private sectors of Brazil. A combination of innovation policy, intellectual property and research and development is essential for the continued success of the biofuels industry. Success of this industry is important to placing Brazil in a position to become a global exporter of new biofuel and clean technology. Technology Transfer and intellectual property have been directing public policies to reach an economic development that has to be protected through IP enforcement; this is a clear example of how developing countries with robust IP systems can become key players in the

world. The report will conclude with a discussion of how IP is essential to the protection of investment in innovation, and will explain how biofuel has impacted Brazil's economy. (p.1)

…**Industrial development (Intellectual Property and Technology Transfer)**
What is happening in Brazil is very peculiar. When we talk about technology transfer we think about the developed countries transferring their know-how to developing countries. Brazil has become the main supplier of biofuels technology for the developed world. The way for Brazil to continue leading this industry is to adapt and adopt technologies that can be transferred to other countries; this is the main reason its policies have to incentivize R&D.

Knowledge exchange is the way to reduce the technological gap between countries and industries. Joint research develops into a joint partnership, and the public and private sector will be working together, instead of one trying to take advantage of the other. R&D in Brazil receives help from multiple sectors.

In the beginning the government exclusively funded this activity, but now public and private researchers are aligned in the key issues surrounding biofuels, technology, industry, competitiveness and infrastructure. Promoting rural and community based development is another driver that has become the explicit intention for a number of biofuel development projects. Building on lessons learned with ethanol, Brazil's ProBiodiesel program has developed measures to enhance social inclusion and promote
more equitable ownership and development of the biodiesel market. Provisions include tax incentives for "family agriculture" as well as preferential treatment for harvests that earn "social fuel stamps" which certify the regional distribution of biodiesel crops. Greenhouse gas emissions and climate change concerns are beginning to serve as social drivers of programs, particularly for biofuels. [54]

When Nicholas Burns, U.S under-secretary of state, visited Brazil in early February, he gave an interview to the newspaper O Estado de Sao Paulo that reveals Washington's plan for the region:

> We are very dependent on oil. So we have to develop alternative fuels, we have to decrease our gasoline consumption. We produce corn ethanol because we have large cornfields. You (Brazil) produce ethanol from sugarcane. We are both world leaders.
>
> We control more than 70% of the world market. We believe that this is a connection with Brazil, it is an area in which we can grow together and we can lead the development of a world market with very positive consequences for the environment and for the economy. Biofuels will become the biggest and most positive point of connection between Brazil and the United States.[55]

Biofuels have achieved in Brazil something that all countries would want to emulate, an increase in technological innovation and economic growth. The private sector, Government and Universities have become research partners, aligning their goals and sharing information, and they have created an investigation system that has increased their knowledge base.

With these tools, patents have become necessary to protect technological innovations since they guarantee that the product of their entire R&D will go back to the developers and spur more interest in the field creating an incentive for investors.

These incentives encourage innovation, which in turn contribute to the continuing enhancement of the quality of human life. In return for the exclusive right, the inventor must adequately disclose the patent invention to the public, so that others can gain the new knowledge and can further develop the technology. The disclosure of the invention is thus an essential consideration in any patent granting procedure. The patent system is so designed to balance the interest of inventors and the interest of the general public. [56]

Brazil's government knows its technology has turned into a bargaining tool with the worlds leading economies. Brazil has committed significant resources to developing national science and technology capacity. There is also a growing consensus between Brazil and the U.S. concerning the benefits of sharing science and technology know-how and protecting the intellectual property rights that underlie it. In fact, a number of joint projects and initiatives between the two countries have evolved, and they have included the participation of both governmental and private (industry, university and nonprofit) institutions.57 (pp.18-19)

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