International Trade Regulatory Challenges in Brazil: Some Lessons from the Promotion of Ethanol

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This article seeks to contribute to understanding trade as a development tool in Brazil. The nation seeks a unique development model as it faces regulatory challenges at both internal and international levels. The article highlights the case of ethanol as a prime example of this model.

Key words: international trade, law and development, Brazilian foreign trade policy, ethanol promotion, renewable energy policy

Introduction

Regulatory changes at the international level, as well as local economic and political constraints, redefined trade policy in Brazil’s move toward development over the last 20 years. Because Brazil did not fully adopt Washington consensus reforms in liberalizing its economy and because it has a unique position on renewable energy, its development model is intriguing.

Ethanol, a renewable and competitive energy alternative, is considered one of Brazil’s most promising export products. Many studies describe Brazil as the largest supplier of ethanol to the world amid forecasts of rapid growth in demand (see Hira, 2010; Global Biofuels Center, n.d.). New policies to stimulate biofuels in more than 100 countries drive this trend. The search for alternative sources of energy has been an important stimulus for the growth of this market. Nations have become more concerned with the issue of climate change and have begun to seek more diligently the development and use of sustainable energy sources to reduce emissions of greenhouse gases. National policies that determine the increase of renewable fuels in the energy matrix have favored the growth of ethanol consumption in several countries (World Bank, 2007).
Since the 1990s, participation in international trade has been accepted as a tool for development (Bhagwati, 2000). Brazil has carried out a series of changes to achieve development in this way, going from unilateral trade liberalization to integration into international blocks and negotiations in the search for a more structured policy through trade. Classic economic theory accepts free trade as a pathway to development, but it also considers laws, rules, and institutions as part of this process (North, 1990; Rodrik, 2009). Others address these concerns through studies on the relevance of competitiveness and institutions and regulation of international trade (Basu & Das, 2010; Rodrik, 2009).

In an effort to harmonize the legal systems of different nations to cover certain commercial transactions (Spindola, 2010; Wade, 2003), negotiations resulted in the creation of the World Trade Organization (WTO) and an increase in bilateral and regional or bi-regional agreements (WTO, 2011; WTO, n.d.).

In terms of the synchronicity between new strategies for development and international regulatory efforts, the regulation of trade after 1990 stressed three major points: (1) it was not limited to the regulation and diminishment of tariffs; (2) in addition to the regulation of areas connected *stricto sensu* to trade, it has also started to regulate areas that were related to trade; and (3) it has extended its regulation to areas closely related to the public policy of governments (Marceau & Trachtman, 2002; Ostry, 2002). These efforts have forged a new context of regulation of international trade, stipulating positive obligations to domestic regulation in a variegated set of areas (Abbott & Snidal, 2000; Bartels, 2009, p. 355).

These changes to international regulations gave rise to a debate about the limits that new international trade agreements placed on the development of local public policies. There was criticism regarding the access to certain instruments for the promotion of development that were now considered restricted even though the so-called developed nations had used them (Chang, 2003; Rodrik, 2006; Wade, 2003).

There were some proposals for the revision of international commitments, and the debate was renewed and empowered in the late 1990s and early 2000s when new institutional models arose in countries challenged by the new trade system but creative enough to develop local policies under the new regulatory framework (Rodrik, 2006; Sanchez Badin, 2013; Santos, 2013).

International trade at the beginning of this century deals not only with dimension policies and the competitiveness of price and quality of products, but also, and more importantly, with regulatory frameworks and institutional alternatives at national and international levels. The proliferation of institutional and regulatory alternatives brings about a greater degree of fragmentation of the international trade system. Today, trade strategies must take into account factors such as the multiplicity of forums in which policies for a given sector are defined or that influence the degree of openness of a certain market. Similarly, the regulation of the domestic context, whether to promote exports or to restrict imports, is equally as important in assessing the access a product or service has in certain markets to where it is exported.

To promote ethanol in international trade, the Brazilian government has used multilevel action to overcome the fragmentation of centers responsible for the definition of commercial policies and regulatory structure. The Brazilian
government has been seeking specific goals in several thematic forums. Its traditional inherent functions have been revisited, as well as the legal and institutional framework set to have them fulfilled. In this context, collaboration between government and the private sector has been playing a major role, one that seeks to optimize the effectiveness of defined policies and to establish a “learning curve” for both sectors.

This article focuses on the Brazilian effort to promote ethanol as a renewable and competitive energy alternative on the international market from 2003 to 2010. This period was characterized by a unique policy strategy from both the government and the industry to integrate Brazilian sugar cane ethanol into the international trade market.

The public and the private sectors in Brazil built ethanol policies around the main commercial policy as a whole, based on traditionally regulated areas such as agriculture, but combined with new commercial topics, such as energy and the environment. Agriculture’s growing relevance in Brazilian politics and economy and the nation’s leadership in the field provide Brazil with the experience necessary to foresee short- and medium-term challenges to advancing its export capability.

In the following sections of this article, we adopt two approaches. The first is a mapping of the main reforms in the international trade regulation profile and their effects on the Brazilian system, including the policies designed for the ethanol industries. The second is a more in-depth analysis of a proactive policy in the trade area in Brazil from the beginning of the 2000s. In this second part, we focus on the promotion of ethanol and its byproducts from 2003 to 2010 to present the regulatory milestones that are relevant to the definition of development strategies for such an important sector in Brazil. In the last part of the paper, we sum up the main considerations and address brief conclusions from the previous analysis.

Changes in Development Strategy and International Trade: Significance to the Ethanol Sector

Brazil’s national policy for the production of ethanol initially had an essentially national aspect directed toward the domestic market. Development of the ethanol sector was possible only within the regulatory framework for trade similar to the one that preceded the neoliberal model adopted after the 1990s. Today, ethanol production in Brazil is constantly adapted to define its role on the international market.

In 1990, under the Collor administration, Brazil began its process of reopening to international trade after more than half a century of market protectionism. It is important to provide a historical background that clarifies the origins of this process and explains the current bottlenecks to the implementation of new development strategies, such as providing the country with an export-oriented profile. We also must identify whether the ethanol sector fits into the same structure. The analysis is carried out in two ways. First, we consider the elements of the national legislation that aim to implement certain politics. Second, we analyze international agreements that Brazil has signed.
Trade Policy Redefinition and the Peculiarities of Ethanol

According to Maria da Conceição Tavares, the policy of import substitution, institutionalized in Brazil in the 1960s and 1970s, attempted to emulate the industrialization process of developed countries but at a faster pace (Tavares, 1972). As a development strategy, Brazil resorted to instruments of foreign trade to prevent the entry of foreign products and to encourage the development of domestic production and the national market. Among the tools used were import licenses, quotas, tariffs, and foreign exchange auctions (Silva, 2004). During this period, Brazil’s major international trade commitments were the General Agreement on Tariffs and Trade (GATT) and the preferential agreements signed with Latin American countries within the Area of Latin American Integration Association. These agreements dealt only with specific tariff concessions and had no effective mechanisms for enforcing their implementation. They exerted very marginal influence on Brazilian trade policy, and Brazil found it simple to abuse the country’s regulatory independence in setting intervention instruments for the economy.6

The trade policy of import replacement had significant effects on the Brazilian economy and its role on the international stage. In foreign trade, the country expanded its production base so that the largest share in exports was transferred from commodities to manufactured goods. It was the result of the extension of production infrastructure, combined with a policy of export promotion that favored higher value-added products (Baumann, Canuto, & Gonçalves, 2004, p. 164). Today, the country has a diversified export portfolio, which affects legal processes in its international integration (including the strategy adopted in negotiation forums and the types of agreements undertaken) and affects domestic regulation on imports and exports.

The government controls economy and trade, with important implications for the sugar–ethanol industry. The current state of development and organization of Brazil’s sugarcane industry are the result of the history of public policies for the sector, especially the era of imports substitution policy. Government intervention in the structure of the sugarcane industry began in the 1930s and lasted for six decades.

Especially in the early programs, the use of alcohol was linked to sugar production, which has been one of Brazil’s main export products since colonial times (Puerto Rico, Mercedes, & Sauer, 2010, p. 1875). In 1933, the Sugar and Alcohol Institute (IAA, in Portuguese) was created with the authority to control virtually the entire structure of the industry, from production cycles to marketing. The IAA set prices, defined quotas, and controlled exports and imports, but by the mid-1970s, the share of sugarcane production dedicated to ethanol was still negligible (UNICA, 2007; Araújo, 2008, p. 6).

The oil crisis that followed, coupled with the falling price of sugar on the international market, provided momentum for the establishment of the National Alcohol Program (Proálcool, in Portuguese). Administered by the Ministry of Industry and Commerce through the Brazilian Executive Commission of Alcohol (Cenal, in Portuguese), the program was a package of measures aimed at reducing dependence on oil through increased production of biofuels and industrial capacity of transformation. The main incentives used during Proálcool can be classified into the following categories: economic policies (fixed prices, subsidies,
and transfers), mandate of mixing, equalization of costs, tax exemptions, guarantee of payments and sales to producers, funding for agriculture production, industry, logistics, and creation of vehicles running on alcohol (Moreira & Goldemberg, 1999, p. 232; Puerto Rico et al., 2010, p. 1879).

During the first phase, efforts focused on increasing the number of distilleries attached to sugar mills already operating in the country. In its second phase, the program increased the incentive to create and use cars that ran exclusively on alcohol (hydrated), which started to be manufactured in 1980. This stage represented the heyday of Proálcool, with the creation of a significant domestic market for the consumption of ethanol and the confirmation of the feasibility of its continued production.

Until the conclusion of the Uruguay Round (1994), no international forum imposed commitments on Brazil to limit its subsidies policy. These limits came about when the Agreement on Subsidies and Countervailing Measures and the Agreement on Agriculture, both signed under the WTO umbrella, were put into effect. At that time, the subsidy import substitution and compensatory promotion of exports policies were combined within the ethanol production program.

There were two main criticisms of the strategy of import substitution and localized promotion of exports. The first was that it induced dependence of the private sector on the public sector, especially for funding. As a result of the dynamics of import substitution policy, a culture of dependency on the state as promoter of private sector interests, both nationally and internationally, was constituted. Also, in the public sector, the bureaucratic apparatus of the state and the organizational culture developed around it aimed at closing the economy and protecting domestic industry from the activities of international trade. This struggle between public and private sectors in Brazil during the years of import substitution became critical obstacles when Brazil opened its market.

The 1980s financial crisis seriously affected the ability of the Brazilian government to articulate economic policies, including in the ethanol sector. The Brazilian government was forced to review its protectionist behavior and to leave room for claims for a deregulated model of trade, such as the one proposed in the Washington Consensus. As a result, Brazil renegotiated its debt, especially its agreements with the International Monetary Fund, which stipulated a review of the government’s subsidy policies.

In the mid-1980s, a crisis in the supply of ethanol brought serious shock to the program and its reliability. Production was diverted from ethanol because sugar prices had gone up, which implied the need to import ethanol and led to a lack of fuel at gas stations. Consumer confidence diminished and the sale of vehicles running on ethanol was dramatically affected. The import substitution model was exhausted in Brazil and there was no longer interest in maintaining Proálcool as a priority state policy. In the early 1990s, the government stopped providing support mechanisms for the sugarcane industry.

The proposal at the international level for free trade in institutional and regulatory framework advocated a single model of development, known as “one size fits all” and based on the belief that a regulatory apparatus that ensured security and predictability for market players would be sufficient to enable economic growth and consequent development in the countries and would allow the problems related to the balance of payments to be solved (Trubek & Santos, 2006,
In the 1990s, under Collor’s administration, Brazil defined new strategies for the implementation of a more liberal development policy (Baumann, 2000; Sikkink, 1991; Williamson, 1990).

Baumann et al. (2004) argue that, compared with other developing countries, Brazil managed to maintain a cautious position regarding its reopening to international trade by simultaneously sustaining different policies, such as having “barriers to imports,” but “incentives to exports” (Baumann, 2000; Sikkink, 1991; Williamson, 1990, p. 164). According to Sucupira and Moreira, in the second half of the 1990s, the subject was addressed again, though on different grounds, when the exports-based development model of Asian countries was pointed to as an example for Brazil to follow (Sucupira & Moreira, 2001, p. 95). Brazilian development policy gradually evolved from a hybrid born of the import substitution policy to a new development model that attempted to combine policies favoring exports, seek appropriate strategies for the country, and identify market niches in which Brazil would be able to specialize.

The Effects of 1990s Emblems and the New Impetus from the 2000s in the Ethanol Industry

Since 1990, domestic and international pressures have contributed to redefine the Brazilian profile when dealing with international trade. The emblems of this movement—based on deregulation, competitiveness, and international integration—had a significant effect on the government’s regulatory and institutional framework and on its position toward new international commitments.

The phasing out of Proálcool throughout the 1990s, which included the liberalization of production and marketing in 1988, the termination of production quotas in 1991, and price liberalization of anhydrous ethanol and hydrated alcohol in 1999, are examples of the new position. Subsidies and guarantees of purchases were also abolished. The new dynamics of withdrawing the main instruments of government control and incentives caused serious problems for this sector, which was also facing an unfavorable external environment due to oversupply, resulting in low prices on the international market. The ethanol industry had to be restructured. Mechanisms of market logics were introduced into the production process to make it competitive by reducing costs.11 The process culminated in the extinction of the IAA in 1990 under Provisional Measure 151/1990 (UNICA, 2007, p. 26). The functions that remained were divided among various bodies.12 In the early 1990s, ethanol remained as a complementary product to sugar production, with no strategic projection and with even less hope of being represented on the international market.

The role of trade policy as a whole changed drastically in the early 1990s. Foreign trade shifted from an instrument of industrial promotion to a tool for the adjustment of the balance of payments. Domestically, this new perspective resulted in the dismantlement not only of policies but also of institutions responsible for the coordination of foreign trade. There was a growing need for reinvention.

Traditionally, the Ministry of Finance, the current Ministry of Development, Industry and Trade (MDIC, in Portuguese), and the Ministry of Foreign Affairs (MRE, in Portuguese) had shared the power to negotiate, regulate, and manage
issues of trade policy. Two structures relevant today in the MDIC were created during that period, the Chamber of Foreign Trade (CAMEX) and the Secretary of Foreign Trade (SECEX). The creation of these institutions and the reforms they brought about were related not only to the redefinition of national policies but also to Brazil’s international commitments from the 1990s. It had to be determined whether MRE, which had always occupied a prominent position in international trade negotiations, would follow a trade policy similar to that of the United States Trade Representative or the European Ministries of Foreign Trade. MRE would require an internal restructuring (Barbosa, 2010).

From the late 1990s, the greater participation in international negotiations and the expansion of the national debate on international trade and on the effects of its regulation forced the federal executive branch to spread responsibility among different departments (França & Sanchez Badin, 2010). The Ministry of Foreign Affairs created the Interministerial Group on International Trade (GICI, in Portuguese) in 1999, and CAMEX created the Interministerial Group on Intellectual Property (GIPI, in Portuguese), in 2001, for example.

International arrangements to regulate trade were updated in four ways. First, certain areas, such as intellectual property, antidumping, and subsidies, became better regulated. Second, domestic procedures were defined based on the principles of due process, transparency, and participation in areas such as antidumping procedures, and technical barriers were defined. Third, commitments were made to limit some forms of state intervention in the economy from which Brazil had profited greatly during the policy of import substitution. Fourth, at the international level, new institutional spaces for negotiation, monitoring, and questioning trading partners’ practices were created.

The priorities outlined marked Brazil’s performance in international trade and operational spaces. Throughout the negotiations of the Uruguay Round, Collor’s government eased its opposition to allow the inclusion of new topics (such as services and intellectual property) and became a strong supporter of the institutionalization of the multilateral trade regime. The government focused on agriculture and the possibility of strengthening the WTO as an effective forum for negotiations and dispute settlement (Abreu, 1994; Shaffer, Sanchez Badin, & Rosenberg, 2008). Those points became important pillars to support the promotion of ethanol, specifically the strategies pursued in the multilateral system of trade.

Regarding legal instruments, the regulatory apparatus for international trade was incorporated into the Brazilian legal system and into the corresponding domestic regulation. Decree no. 1355/94 incorporated the results of the Uruguay Round and other multilateral trade agreements from the WTO.

Combining regulation from the Uruguay Round and the WTO led to an overlap of rules and procedures among the mini-trade regimes and the multilateral system. Important points to consider different levels of regulation in international trade are: (1) the volume of trade and the flow of commerce strategies (interested sectors, competitiveness, third competitors and their conditions of trade with that market, and possibilities of triangulation of trade); (2) rules that reinforce or may restrict commitments made at the multilateral level; (3) the new rules on issues still not under the multilateral regulation scheme; and (4) institutional and decision-making interfaces, such as when to refer to which agreement (Horn, Mavroidis, & Sapis, 2009; WTO, 2011).
In 2005, Brazil launched “three tracks,” which restricted new commitments to the forum of the WTO and determined that market access issues would be negotiated in coalition with Mercosur partners and other nations. In addition, topics on institutional arrangements could be negotiated freely with other trade partners. Since 2001, Brazil has focused its negotiating efforts on access to markets and rulings in the Doha Round, focusing on demands for the liberalization of agricultural trade, with even greater emphasis on the dispute settlement mechanism of the WTO. Brazil became the fourth most active member in this system, despite being the 24th largest exporter of goods and the 32nd of services. Brazil uses this forum to defend its interests and to develop creative mechanisms to guarantee the effectiveness of the decisions of the Dispute Settlement Body (Santos, 2013; Shaffer et al., 2008).

Since the early 2000s, Brazilian diplomatic strategies on trade have also identified a “global game” beyond the WTO’s multilateral forum and not related to the process of regional agreements. In line with the strategy of preferring multilateral forums, certain Brazilian demands and conflict resolutions gradually crossed the boundaries of WTO, as in the case of intellectual property regulation, with the proposal for a Development Agenda at the World International Property Organization and the resolution of the dispute with Canada on civil aircraft sector financing at the Organisation for Economic Co-operation and Development (Sanchez Badin, 2013). Brazil and its constituencies also learned how to pursue their concerns on the development of trade policies and the implementation of multilateral rules at the domestic level of Brazil’s main trade partners, such as the United States and the European Union. See Figure 1 for the evolution of Brazil’s ethanol exports.

Figure 1. Evolution of Brazilian Exports of Ethanol (2007–2011)


Brazil still faces some problems in international trade, but it has made advances in the implementation of certain strategies. The nation is overcoming internal obstacles and reviewing structures and models to increase its export capacity. It also participates in international forums and is in touch with other governments.

Ethanol illustrates the challenges Brazil has faced in the international trade business because: (1) its competitiveness is based on models that have dramatically changed over the past two decades; (2) the global market for ethanol, although incipient, presents great prospects for expansion; (3) the product faces trade barriers in its major consumer markets; (4) the government has made efforts on several fronts to facilitate the opening of markets and to stimulate the expansion of the sector; and (5) instruments have been designed to overcome domestic and international barriers, including legal and institutional restructuring and the adoption of innovative models of public and private management.

Ethanol: A New Market in a New Context for Brazil

Since the early 2000s, changes in the national and foreign context have led to a renewed interest in ethanol (Guedes & Teixeira, 2009, p. 5). The changes have included: (1) a continuous increase in the global demand for energy, driven mainly by economic growth in emerging economies, especially China; (2) repeated increases in international oil prices; and (3) the increasing importance of environmental issues in international forums and the emergence and consolidation of arguments for sustainable development.

Brazil has made ethanol a strategic part of the development plan since 2003, with the Lula administration, leading to renewed investment and growth in the sector, which had been neglected due to low market confidence in general (personal communication, September 15, 2010). The government emphasized three reasons for its ethanol strategy. First, it sought energy security by reducing dependence on oil. Second, it noted the environmental issue, especially the maintenance of Brazil’s position as a key player in the fight for clean energy. Third, it noted that more employment would be generated than in the petrochemical industry (personal communication, September 15, 2010). In 2008, production of sugar and ethanol moved 48 billion Brazilian reales, 1% of gross domestic product. Another important reason to use ethanol as a fuel was the introduction in 2003 of flex-fuel vehicles,\textsuperscript{15} with incentives for tax exemption. Between 2003 and 2008, the participation of flex-fuel cars in the Brazilian fleet increased from 4% to 90%. During that same period, sales of hydrated ethanol increased five times and surpassed those of gasoline (Jank, 2010, p. 11; MDIC, 2010a).

It was necessary to develop more efficient agricultural and industrial techniques in the ethanol sector to increase competitiveness when the government withdrew subsidies. Substantial productivity gains and cost reductions were achieved. Average production is 73 tons per hectare and reaches 110 tons per hectare in the State of São Paulo, while the production cost is about 20.00 Brazilian reales per ton (Coelho, Goldemberg, Lucon, & Guardabassi, 2006; Neto, 2005,
p. 5). Brazil is competitive with other ethanol producers. The cost per liter of ethanol produced in Brazil is U.S.$0.17; in the United States, it is U.S.$0.32; in the European Union, it is U.S.$0.56 (Souza, 2006, p. 45).

Sugar cane processing also leads to electric power cogeneration. The Brazilian sugar industry is self-sufficient in energy terms because burning sugarcane bagasse produces almost all energy used in the plant. This source of energy is known as biomass. In Brazil, surpluses of biomass energy are generated that go toward the general electricity supply. In 2010, biomass reached 4.7% of all electricity demand in Brazil (MME, 2011).

Ethanol production also requires fertilizers, tractors, and industrial equipment, providing other areas with an economic boost. It is estimated that the agribusiness sugar–ethanol system moves about U.S.$80 billion annually (Neves, Trombin, & Consoli, 2010, p. 34).

A First Step: Fighting the Stigma
The vigorous growth of the ethanol sector has not been achieved without social and environmental effects. Since Proálcool, the expansion of sugarcane cultivation and production has drawn criticism about the negative effects on the environment and on the social actors involved (Vian & Belik, 2003, p. 181). Schaffel and La Rovere note that the legal system at the time the program was implemented was weak, allowing the continuation of practices that provided a stigmatization of the ethanol sector. The sugar–ethanol industry has attempted to overcome that stigma (Schaffel & La Rovere, 2010, p. 1667). The main environmental and social problems include deforestation, the use of burns as the traditional method of preparation to harvest, allegations of child labor, and poor working conditions (Abramovay, 2008, pp. 8–9; Rodrigues & Ortiz, 2006). Usually in reference to the Amazon region, deforestation became one of the biggest stigmas of Brazilian ethanol.

The expansion of sugarcane plantations in lieu of plantations growing food products has raised issues about changes in land use. It was identified as a cause of the increase in food prices in the 2008 and 2011 crises.

The public, the government, and the private sector have become more aware of the socio-environmental effects of ethanol production, and control mechanisms and rules have been optimized (Schaffel & La Rovere, 2010, p. 1667). Traditional instruments of regulation were reinforced along with new management models designed to deal with those problems. These instruments include: (1) the Agro-Environmental Protocol of the State of São Paulo (SMA, n.d.), (2) the National Commitment to Improve Labor Conditions on Sugarcane Plantations, and (3) the Sugarcane Agro-Ecological Zoning.

The first two instruments assume the cooperation of the private sector and intend to drive their behavior according to increased acknowledgment of socio-environmental implications. The Agro-Environmental Protocol of the State of São Paulo rewards producers who comply with the guidelines through the issuance of a certificate of compliance (SMA, n.d). The National Commitment to Improve Labor Conditions on Sugarcane Plantations aims to get producers to guarantee good work practices. The rate of compliance with these commitments had been significant. At the beginning of 2010, the protocol of São Paulo bound more than
90% of plants in the state (UNICA, 2010a); in 2009, 75% of plants operating in Brazil had joined the National Commitment (UNICA, 2010b).

The Sugarcane Agro-Ecological Zoning is a more comprehensive legislation that guides the expansion of sugarcane production in Brazil. Based on a study by the Brazilian Agricultural Research Corporation (Embrapa, in Portuguese), a mapping of regions with favorable conditions to expansion of cultivation was carried out, taking into account the vulnerability of the land, climate risk, the potential for sustainable agricultural production, and the environmental legislation in force (Embrapa, 2009). Production in areas outside the stipulated demarcation should then be prohibited (UNICA, 2010c). According to a representative of the sector, even before the regulation formal approval, producers were already following its guidelines, as the release of credit for production was linked to compliance with the stipulated areas (personal communication, September 10, 2010).

The adoption of these standards strengthens the competitive advantage of ethanol, especially when considering that it can be directly associated with the concept of sustainability. Through the use of fair practices of production, acceptance on the international market tends to be higher and the creation of technical barriers through environmental and social criteria tends to be avoided.

The Creation and Expansion of Markets: Main Limits to Ethanol Markets

Ethanol faces virtually all forms of trade limitations and restrictions. First, because there is no continuous and permanent purchase and sale of the product, it is difficult to pinpoint the existence of an international market for ethanol. When it is traded, it is difficult to classify ethanol according to the harmonized system for tariffs adopted by the international trading system. Severe tariff burdens also apply that protect the domestic competitor. Ethanol remains subject to nontariff barriers, especially in aspects related to environment. To allow for the international expansion of ethanol, Brazil looks for means of articulation in the domestic environment and for ways to overcome the international barriers, taking into account its productive capacity in the industry, technological innovation, and the strategies associated with this form of renewable energy.

The international ethanol market is not large, due to the lack of surplus production in most countries, where the focus remains on the domestic market. Brazil is one of a few countries that set aside part of their production for export (Souza, 2006, p. 45). The country dominated the supply side in 2010 and was responsible for 48% of global exports of ethanol (Hira, 2010, p. 3). Major Brazilian export expansions occurred in 2003 and 2008, both driven by an increase in U.S. demand (UNICA, 2010c).

Sales to the United States—directly or via the Caribbean countries—and to the European Union were responsible for 80% of total national exports up to 2009 (UNICA, 2009b). Perspectives on market expansion were optimistic at the time. There was a projected increase of 260% in global consumption by 2020 (REN21, 2010). Besides the two largest markets, 24 other countries and 41 states or provinces have enacted legislation requiring mandatory blending of ethanol in the gasoline (REN21, 2010).
Because ethanol has not been consolidated as an international commodity, it does not fit a standardized customs nomenclature. This fact not only harms data collection about the market but also seriously affects the transparency of price quoting on the world market (Piacente, 2006, p. 21). The frequent use of a common classification for natured ethanol and denatured ethanol (HS 2207) complicates the tracking that would allow distinction between exports of ethanol meant for chemical or fuel use and exports of ethanol meant for the manufacture of alcoholic beverages (Hira, 2010, p. 3). One of the major Brazilian pleas is for the recognition of the product as fuel on the international market.

On top of the limitations imposed by the structure of the international market, the two main consumer markets of Brazilian ethanol—the United States and the European Union—imposed heavy tariff barriers in 2010 as a means of protecting their domestic industries. In addition to the ad valorem rate of 2.5% over imports of “alcohol,” the United States applies a specific rate of U.S.$0.14 per gallon. The European Union imposes tariffs of U.S.$0.24 per gallon for ethyl “alcohol” (MDIC, 2010a). The United States and the European Union also subsidize domestic production (Masiero & Lopes, 2008, pp. 60–79).

Another limit on the expansion of Brazilian ethanol exports is the increasing imposition of criteria related to its production process, meaning real non-tariff barriers to imports. This constraint refers to a broader context of resistance to and criticism of biofuels. Schaffel and La Rovere emphasize that the initial enthusiasm about renewable fuels was soon followed by doubts related to sustainability. In contrast to the motivations in the domestic sphere, international market demands have focused on three basic claims, (1) that biofuels contribute to deforestation of tropical forests, (2) that the competition between food and agro-energy culture would result in competition for raw materials and a consequent increase in food prices, and (3) that the objectives related to reducing greenhouse gas (GHG) emissions would be suppressed due to emissions from the manufacturing process of biofuels and their consumption (Schaffel & La Rovere, 2010, p. 1667). The renewable energy policies of the United States and the European Union, which determine an increase in the participation of biofuels in the energy matrix, have limitations related to these concerns, particularly the reduction of GHG emissions.

In the United States, the Renewable Fuel Standard—RFS1—and its reissue (RFS2) set targets for increasing the use of biofuels, but they also established conditions for that increase. Part of the goals would be achieved through the use of “advanced biofuels,” which reach a minimum volume of emission reduction over their life cycle.18 In the European Union, Brazil’s second most important market, the Renewable Energy Directive stated that biofuels must meet two criteria relevant to importers, reduce emissions in the life cycle by at least 35% in comparison to fossil fuels, and not be produced from raw materials cultivated in high biodiversity areas, such as primary forests. Even though implementing such exigencies is still pending four years later, the mere inclusion of these criteria is controversial, and many models have been created to allow identifying the potential that biofuels have on the change of land use (Ros, Overmars, Stehfest, & van Notenboom, 2010).

The challenge has not only been to meet the criteria, but also to promote and strengthen the image of the production process in Brazil and the country’s
commitment to sustainable patterns defined by the major importing markets. The
government has taken a reticent position regarding the recognition of the legiti-
мacy of the requirements included in U.S. and European policies. Environmental
certification for compliance with those requirements has been seen as an option
for private sector agents rather than as public policy (personal communication,
September 20, 2010).

International spaces in which countries can negotiate and question classifica-
tion, the barriers to ethanol, and the sustainability criteria for biofuels are still
needed.

**Government’s Actions for International Expansion of Ethanol**

To overcome the obstacles, the Brazilian government has been acting on several
fronts. First, it attempts to overcome uncertainty of consumer markets regarding
the feasibility of supply. The sector has made efforts to improve the regulatory
framework of ethanol. Because Proálcool established the main regulatory frame-
work for the sector, legal discipline does not address many of the current
demands on the sector (Comissão de Minas e Energia da Câmara dos Deputados,
2008). Because alcohol is still considered by law an agricultural commodity, the
dynamics of price formation are even more unstable. By means of a reform,
alcohol would be classified as fuel and would be controlled differently. Accord-
ing to its evaluation, the government believes that this change would prove that
the sector is mature and would lead to a greater commitment to stable supply.

The initiative to revise the classification should not be limited to the domestic
sphere. In the WTO, the Brazilian government sought to classify ethanol as an
environmental good, for which there is a negotiation mandate aimed at reducing
or eliminating tariffs in the Doha Round, but these negotiations failed to reach a
definition list that would include this category of goods (IPC & REIL, 2006).

The Brazilian government also hopes to correct the precariousness of the
ethanol market by increasing the number of producer countries. Strengthening
the Brazilian position as a reference in technology for production (related to the
supply of machines and fertilizers), and expanding areas where national produc-
ers could invest are other possibilities in the initiative to increase the number of
ethanol producers. Brazil has worked with a group of developing countries in
Central America and Africa to identify their potential to produce ethanol and
other biofuels. Information is made available to governments, and lines of credit
from the Inter-American Development Bank (IDB) and the Organization of
American States, among other Brazilian domestic agencies, have been created to
finance projects based on the studies (Moraes & Mattos, 2012). The United States
and the European Union were both part of such initiatives to a certain extent. The
United States participated through the regional organizations, and the European
Union formalized its support upon the signature of the Third European Union–
Brazil Joint Statement, in Stockholm, on October 6, 2009, stating a joint collabo-
ration on energy projects in Africa.

To address market access issues, the government and the private sector have
identified that, in addition to high tariffs and other customs duties, protectionism
against ethanol is due to the unpredictability of foreign policies for biofuels. In
response, the Brazilian embassies in Washington and Brussels have been closely
following the decision-making processes and have been lobbying for the dismantlement of protectionism. They have also supported the implementation of private sector commercial offices in those cities (UNICA, 2010b).

Brazil also considered the alternative of resorting to the Dispute Settlement Body of the WTO to defend its commercial interests protected by agreements in the multilateral system. The WTO could be an option for challenging the excessive tariff protectionism and the environmental requirements for ethanol. The Brazilian government stated on several formal and informal occasions that it had already considered the possibility of initiating a dispute against the taxes that the United States imposes on ethanol imports.

The Brazilian government (via the Brazilian Trade and Investment Promotion Agency, APEX–Brazil), along with the private sector, has sought to promote the image of Brazilian ethanol from sugarcane as clean energy abroad. This objective has been accomplished through marketing and business intelligence studies (UNICA, 2010c). In the opinion of high-level officers in the Ministry of Foreign Affairs, the biggest challenge lies on overcoming the fallacies that biofuels represent a threat to the environment and food security and that their production is based on degrading working conditions.

Developed countries have criticized these arguments in international forums such as the World Bank and the Convention on Biological Diversity (CBD), and developing countries have also taken this stance. These stigmas are an impediment to the development of supplier markets because they discourage tropical countries from producing biofuels. Brazilian officials focus on dismantling the labels attributed to biofuels through information and awareness in international meetings.

In addition, the Brazilian government seeks to establish quality criteria and to promote a harmonization of standards to be used in the domestic sphere and in international trade, in specialized forums on biofuels—such as the Tripartite Task Force United States–European Union–Brazil and the International Biofuels Forum. In another multistakeholder forum, the Global Bioenergy Partnership (GBEP, n.d.), the Brazilian government works to dissociate the creation of sustainability criteria and indicators from commercial objectives.

In the bilateral sphere, several memoranda of understanding have been signed over the last few years. Such agreements celebrate joint initiatives to establish criteria and standards harmonization, areas for the transfer of technology, and research funding for the sector. One of the most outstanding of these documents is the Memorandum signed with the United States, which includes the clause of production funding in third countries. Studies on the viability of producing biofuels in Central America were carried out under this provision of joint incentive (MDIC, 2010a). The Brazilian government hopes to present ethanol as a differentiated product in bilateral agreements and understandings, whether directly related to trade or not.

The Mobilization of the Private Sector

Since its deregulation, the sugar–ethanol sector has presented its positions in an articulate manner to the Brazilian government, to foreign governments and institutions, and to international forums and coalitions. The Sugarcane Industry
Association (UNICA) headed this movement and has consecrated itself as the main representative of the private sector since 1997, having its heyday during Marcos Yank’s presidency from 2007 to 2012. Since its creation, UNICA has conveyed the interests of the sector and acted as a representative at the government level, in international forums, such as the WTO Ministerial Conferences and the Conference of Parties of the United Nations Framework Convention on Climate Change, and in other countries (with offices in Washington and Brussels) (Henrique Neto & Oliveira, 2009). These international strategies in the private sector benefited from Jank’s expertise on the internationalization of the agribusiness sector and experiences with international trade negotiations at the Institute of Studies on International Trade and Negotiations (ICONE), a Brazilian think tank for the agribusiness, and in the IDB’s trade and integration division.

UNICA has presented creative alternatives to some market access barriers, such as compliance requirements for the production process, particularly those imposed by the main importers of Brazilian ethanol, the United States, and the European Union. According to a representative of UNICA, to move forward in compliance with such requirements, the private sector will bear the costs involved in the adaptation and certification required, creating certification mechanisms recognized internationally (personal communication, September 9, 2010). UNICA has actively participated in the Better Sugarcane Initiative, the organization aimed at developing comprehensive indicators and standards for production, including sustainability requirements. Compliance with established criteria is voluntary and enables the acquisition of a certification after independent verification (UNICA, 2009a).

Although compliance with private certificate criteria does not guarantee that the product meets U.S. and European requirements, the private sector sees it as an additional mechanism to favor a better understanding of its production process and to emphasize the sector’s commitment to the requirements. Today, certifications are part of the reliability dynamics process in the market (Caffaggi, 2010).

Among other private sector initiatives, ICONE has played an important role as an information mechanism that inspires policies in the sector. ICONE’s creation of a methodology to calculate the effects of sugarcane production on the land offers a counter position to the studies presented by the U.S. Environmental Protection Agency (EPA), the Brazilian Model of Use of the Land. The model clarifies which criteria should be considered when evaluating the effects of land use for production in Brazil (Nassar, 2009). Taking these new references into account, the EPA cooperated with Brazilian researchers to set a common, adequate model (FAPESP, 2010).

**Articulation in Drawing up Priorities and Strategies**

When ethanol took on a greater importance in the national economy and the government agenda, it became necessary for Brazil to review the institutional and legal framework in which public policies for ethanol were to be created. The powers and functions of the structures that had been dismantled during the 1990s were reassigned to different bodies within the executive branch (Araújo, 2008, p. 8). In 2000, the Interministerial Council for Sugar and Ethanol (CIMA, in
Portuguese), chaired by the Ministry of Agriculture, and made up of MIDC, the Ministry of Energy and the Ministry of Finance, was created to reverse the fragmentation in the structure responsible for formulating policies for the sector. It was a CIMA decision that maintained the mandatory blending of ethanol with oil (Carvalho & Carrijo, 2007).

In 2002, the Brazilian government realized that the organizations were not communicating or acting in unison. An informal working group was created to address the connections between all ministries and departments, complementing CIMA’s work. The presidency of the central government in Brazil coordinates this informal group, known as “ciminha” (“little” CIMA), which maps the actions related to ethanol and identifies needs and obstacles to the growth of the sector to develop or adapt policies.

Under Lula’s administration (2003–2010), ethanol production gained importance and any decisions related to it had to be reported to “ciminha.” The Executive office has mapped out these activities to consolidate them into a single database. The actions of the Ministry of Foreign Affairs at international forums serve as an example of such joint efforts. Previously, agreements and international cooperation initiatives that included ethanol were signed without prior discussion with other bodies. Today those acts are reported and discussed in “ciminha,” allowing this organization to identify the origin and contents of the demands and to formulate public policies for the sector.

On the domestic market, this initiative identified the need for collaboration between the government and the sector to ease the sharp fluctuations in production that cause supply uncertainty (MAPA, 2010). Once it was determined that the percentage of mandatory ethanol blending with gasoline would not be expanded, it was clear that government and industry had to find new mechanisms to influence the market. On the foreign market, the working group has identified and deconstructed fallacies about biofuels, especially ethanol. Since 2007, involved parties and world experts have organized workshops and roundtables to scrutinize the difficulties in transforming ethanol into an international commodity, as well as invested in the promotion of the product abroad (UNICA, 2008).

The sector has also faced the need to create a new management model. According to Vian and Belik (2003), that task has proved to be extremely difficult. On the one hand, there are difficulties in obtaining consensus among key stakeholders representing the industry—UNICA, Copersucar, and the Coalition of Producers of Sugar and Alcohol (Cepaal, in Portuguese) (p. 161). On the other hand, state articulation must be reviewed to regulate the sector and promote its expansion amid new demands from foreign markets and new interest groups, such as environmentalists and human rights groups.

**Conclusions**

This article has identified some challenges to the insertion of Brazil in international trade and in implementing it as part of the country’s development strategy since the 1990s. According to Maria Regina Soares, one of the strongest points of this policy was its strong bureaucratic structures, as well as the support of the country’s political and economic elite (Lima, 2002). The case of ethanol policy from 2003 to 2010 shows the results of this policy. After a decade of crisis, the
ethanol sector—like many others in the Brazilian economy—was reaffirmed in the context of an incipient pact.

The hindrances to trade development in Brazil and the case of ethanol elucidate the difficulty of coordinating domestic policy and of formulating sound strategies, especially in partnership and dialogue with the private sector and civil society. International trade and trade-related issues address an agenda that demands the involvement of different agencies from the public sector as well as the private sector and civil society. CIMA and the emergence of an informal group called “ciminha” suggest similar difficulties for effective engagement in the executive branch in the case of ethanol.

The ethanol sector’s story provides lessons that may be useful in other sectors. One is its ability to combat the stigma about its production process and its image. The other is the mobilization of the private sector in initiatives to face limits on the access to international markets. These initiatives, their legal validity, and the promotion of similar ways of solving problems of access to markets and of gaining competitiveness can be strengthened once the government agenda absorbs them.

Internationally, it has become vital to understand the different levels of articulation, negotiation, and dispute resolution (multilateral, regional, bilateral, and international). Because ethanol is so important to Brazil, the government has invested in special provisions and concessions in bilateral agreements in addition to the standard strategy in the WTO and other negotiations to liberalize the agricultural sector.

Nontariff barriers increasingly represent the most significant obstacles in the major consumer markets of the world, the United States, the European Union, and Japan. To overcome them, negotiations to harmonize technical standards and procedures for the establishment of requirements for imports, at different levels of articulation and negotiation, are fundamental. Mapping these barriers is a fundamental step to recognize the real obstacle to market access. The databases of the Brazilian Agency on Technical Regulation of Metrology, Quality and Technology (INMETRO, in Portuguese) on technical barriers are essential to integrate analytical work prepared under MDIC or other ministries and the definition of strategies by the national executive branch. The initiative in the ethanol industry to set up offices in other countries is another way to help in the mapping of these barriers and possible resources for questioning them. The arbitrary imposition of non-tariff barriers can be questioned in the dispute settlement system of the WTO, and Brazil has a comparative advantage over other midsize countries because it has successfully used this mechanism. Preserving the structure of work within the Brazilian government and its relationship with the private sector becomes highly desirable.

The example of ethanol is peculiar on the international arena because it is not limited to the access to markets through the reduction of tariff and nontariff barriers. The most relevant strategy to this sector is how to classify it by tariff line and what qualification to give it (an environmental good, for example). In this sense, Brazil’s initiatives can completely change the market structure.

Today, international trade regulation goes beyond traditional border issues focusing on regulatory aspects of trade (WTO, 2011), and this is closely connected with the Brazilian strategy for companies’ internationalization. If exports are considered a first step in this internationalization process, the next steps depend
greatly on the regulation of issues related to trade, such as intellectual property (which also involves technology transfer) and investments. In the case of ethanol, the Brazilian government’s attempt to create an international market, even by means of incentives for new producers, may be in line with the strengthening of the internationalization process of the Brazilian companies to other tropical regions of the world to the extent that domestic investments and technology are included in this expansion.

The relationship established between trade and other issues affects the current format of agreements and regulatory systems of international trade, and also affects the expanding of the alternative or cumulative international forums to be joined as channels to coordinate the objectives of economic growth with other development objectives. The expansion of ethanol exports and the promotion of ethanol as a clean fuel worldwide involve concerns of trade expansion and the strengthening of commitments to environmental protection and reduction of GHG emission goals in climate change negotiations. Specific interest groups are concerned with these topics. Coordination between different spheres that deal with the same topic or sector in the domestic context is crucial, and the interests of economic growth must be aligned with interests related to sustainable development. The articulation of the Brazilian government and society needs to be improved at the international level.

Finally, it is necessary to see trade as a part of a set of closely related economic policies. If from 2007 to 2010, 76 new ethanol plants were built in Brazil, in the following 2 years one-third either closed down or underwent judicial reorganization. Limits of credit, the pricing policy at the domestic level, and the reduction of the mixing quota of ethanol to gasoline from 25% to 20% from April 2011 to April 2013 are among the main reasons for the downsizing scenario (Meneghin & Nassar, 2013). The ethanol sector is still strongly dependent on the domestic market and coordinated national policies are needed for it to become an aggressive sector on the international trade market. It is clear that trade initiatives to overcome barriers and limits on development may be insufficient to correct the system’s flaws, but taking things step-by-step helps identify the extent of the remaining problems.

The ethanol sector benefitted from the expertise and reforms on the national and international trade systems as a whole, implemented beginning in the 1990s. Seeking an internationalization process as it went through a recovery process, the sector developed its own strategies through public–private mutually beneficial strategies. Such strategies considered the multiple regulatory and governance levels that could either improve the acknowledgment of the local production or revise the sugar cane ethanol international trade regulation. Despite the achievements made over the last decade, other challenges for an effective integration of ethanol into the international market need to be overcome. Otherwise, an international market for ethanol will remain a sweet dream for Brazil.

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Notes

1 We use alcohol as a synonym to ethanol in its role as a fuel. The customs classification of ethanol is not homogeneous, making it difficult to distinguish fuel ethanol from alcohol used, for example, to make beverages.

2 The number of countries adopting some sort of policy to encourage the use of renewable energy was small in the 1980s and 1990s. Between 2005 and 2010, it jumped from 55 to more than 100 (REN21, 2010).

3 Overall, the incentive to use biofuels is implemented through the increase in production and mandates of compulsory blending of biofuels with fossil fuels. Currently, approximately 17 countries and 36 states or provinces have introduced legislation for mandatory blending. The determination often requires a mixture of 10% ethanol to gasoline (UNEP, 2009).

4 The debate led to the creation of proposals for the revision of international commitments, such as the Doha Round negotiations for the revision of WTO agreements, launched in 2001, and the São Paulo Consensus within the United Nations Conference on Trade and Development (UNCTAD, 2004).

5 Since the beginning of the 20th century, especially post-World War II, Brazil has adopted a policy of protectionism in international trade, with some variations according to the development of productive and financial international capitalism. See Abreu (1990).

6 Under GATT’s multilateral regime, which regulated the procedures and instruments of state intervention in trade policy, Brazil’s participation was marginal, although it had been a founding member and followed the successive rounds of negotiations. Brazil has focused on negotiations of different conditions for developing countries. A structure of à la carte negotiation has favored Brazil, allowing it not to be bound to the main commitments regarding the regulatory policy (e.g., the Subsidies Code of 1979). See Lima (2002) and Baumann et al. (2004, p. 176).

7 The results of the increase in production were impressive. Between 1975 and 1979, annual production jumped from 5.5 million liters to 25 million liters. The majority—20 million gallons—consisted of anhydrous ethanol used in blending with gasoline. See Carvalho and Carrijo (2007, p. 3). Between 1979 and 1986, the share of alcohol in the vehicle fleet increased from 0.5% to 66%. In the same period, consumption of ethanol fuel jumped from 1% to 55%. See Carvalho and Carrijo (2007, p. 3).

8 According to Carvalho and Carrijo (2007), alcohol production reached a peak in 1985–1986, at 11.8 billion liters a year. During this period, Proálcool relied mainly on research and technological development, involving the chemical, agricultural, automotive, and heavy machinery industries (p. 3).

9 One concern of the government at this time was to provoke reflection, together with the private sector, on the implications of foreign trade policies. This concern resulted in the creation of Foundation Center of Studies on Foreign Trade (FUNCEX) in 1976. Born of public–private partnership, the institution has the participation of a number of government agencies, enterprises, and business associations. The main work of FUNCEX has been the preparation of studies and the promotion of the debate on foreign trade and export. See FUNCEX (1993).

10 The mills whose existence was inevitably linked to state support and which could not adapt to this new environment did not survive the crisis. Between 1987 and 1997, more than 130 alcohol producers went bankrupt or were bought. Together with the country’s economic crisis, there was a crisis in the industry (Vian & Belik, 2003, p. 163). Araújo (2008, p. 9) highlights the government’s official position.

11 According to Puerto Rico, Mercedes, and Sauer, Decree-Law 99180, under the Ministry of Infrastructure, created the National Department of Fuel (DNC), which became responsible for the regulation of the sector in Brazil. Many of the functions performed by the IAA were passed on to the DNC. The Secretariat of Regional Development (SDR), linked directly to the Presidency through the Department of Sugar–alcohol Issues (DAS), took over the pricing and control of tax and credit policies. The Ministry of Economy, Finance and Planning took over the supervision, coordination, and standardization of sugar–alcohol activities (Puerto Rico et al., 2010, p. 1879).

12 CAMEX was established under the Presidency of the Republic in 1995 (Decree no. 1386, September 6, 1995) and was subsequently incorporated into the MDIC, with the role of coordinating interministerial conduct of Brazilian trade policy. At present, CAMEX is composed of MDIC, which presides it; Civil House; Ministry of Foreign Affairs; Ministry of Agriculture, Livestock and Supply; Ministry of Planning, Budget and Management; and Ministry of Agricultural Development. The SECEX’s story dates to 1990, with the creation of the Department of Foreign Trade in the former...
Ministry of Economy and Finance (MEFP). SECEX has five departments: Department of International Negotiations, Department of Planning and Development of Foreign Trade, Department of Foreign Trade Operations, Department of Trade, and the Department of Standards and Competitiveness. See MDIC (2010b).

For example, Decree no. 4732, on June 10, 2003, defined CAMEX’s responsibilities, with explicit references to its activities in relation to certain agreements and international organizations in the area of trade. See MDIC (2010b).

The flex-fuel engines are designed to allow the supply of alcohol, gasoline, or any mixture of both fuels. This allowed consumer choice to dictate the balance between the prices of gasoline and alcohol. Buyers started to consider the relative advantage of prices at the time of supply.

Despite the recurrent association to Amazon deforestation, the soil and natural conditions of the region are not conducive to the cultivation of sugarcane, but the pressure exerted on the Cerrado biome from the expansion is considered more worrisome. Abramovay (2008, p. 8) highlights that the social pressure to protect Cerrado is weaker, and the monitoring systems are more precarious.

Gases emitted in fires cause several injuries to the environment and to the health of people and animals. Besides the carbon dioxide emitted by burning sugar straw, other toxic compounds that pollute water and soil are released into the atmosphere. The smoke also causes disease in people living near the plantation (Rodrigues & Ortiz, 2006).

The RFS1 established that the consumption of biofuels, from 4 billion gallons in 2006, should increase progressively to reach 7.5 billion gallons in 2012. In 2007, the RFS1 was reissued, introducing a further increase to 136 billion liters in 2022 (Pires & Schechtman, 2010, pp. 204–5).

Brazil has signed memoranda of understanding with the United States, Panama, Chile, Mexico, The Netherlands, Denmark, Sweden, Mozambique, the Economic and Monetary Union of West Africa, and among the Mercosur countries, and has signed a trilateral agreement with South Africa and India.

UNICA was originated from the merger of several industry organizations in the State of São Paulo, and today represents 50% ethanol and 60% of sugar produced in Brazil. See UNICA (n.d.).

ICONE is a think tank formed by major Brazilian agribusiness organizations, including UNICA. Its studies and projects are the basis of the definition of public policies and negotiation strategies in the international trade arena. See ICONE (n.d.).

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