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Competing coalitions in Brazil's biofuel-related climate policy

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1. Introduction

This paper analyses the role of Brazil's biofuel transition in terms of current climate policy and the implementation of its NDC. We investigate this transition from the perspective of policy implementation risk as a result of network competition. The framework for analysis distinguishes between relatively open issue networks and closed policy communities presented in this report. The risk analysis requires an assessment of the historical evolution of these networks in order to determine where these respective networks dominate and compete

Competing policy networks emerged in the ethanol policy processes as one of Brazil's central climate actions in three different phases between 2003-2018.

The three phases are marked by the respective presidencies of Worker's Party (PT) leaders Lula da Silva and Dilma Rousseff, the Acting President Michel Temer of the Brazilian Democratic Movement (MDB) leading towards the election of the current president Jair Bolsonaro of the Social Liberal Party (PSL).

The paper is structured as follows: firstly, we briefly describe the historical evolution of the ethanol sector in Brazil as a result of the oil crisis in the 1970s. We then apply the framework of network competition to the evolution of these networks throughout the three phases between 2003 and 2018. We conclude with a perspective on future developments in the sector.

2. Historical background of Brazil's ethanol policy

The development of the ethanol sector in Brazil dates to the 1970s, originally motivated by the first oil shock, the menace of a serious crisis in the balance of payments, and enabled by low sugar prices (Wilkinson e Herrera, 2010). Governmental leadership was crucial to ensure support for the so-called *Pró-Álcool* program from key stakeholders, namely Petrobras, sugarcane and ethanol producers, the car industry, and consumers. The federal government stimulated industrial production of ethanol-powered cars with a subsidy scheme. An initial target incentivised blending anhydrous ethanol to gasoline up to 22.4% (by volume) (La Rovere, Pereira and Simões, 2011).

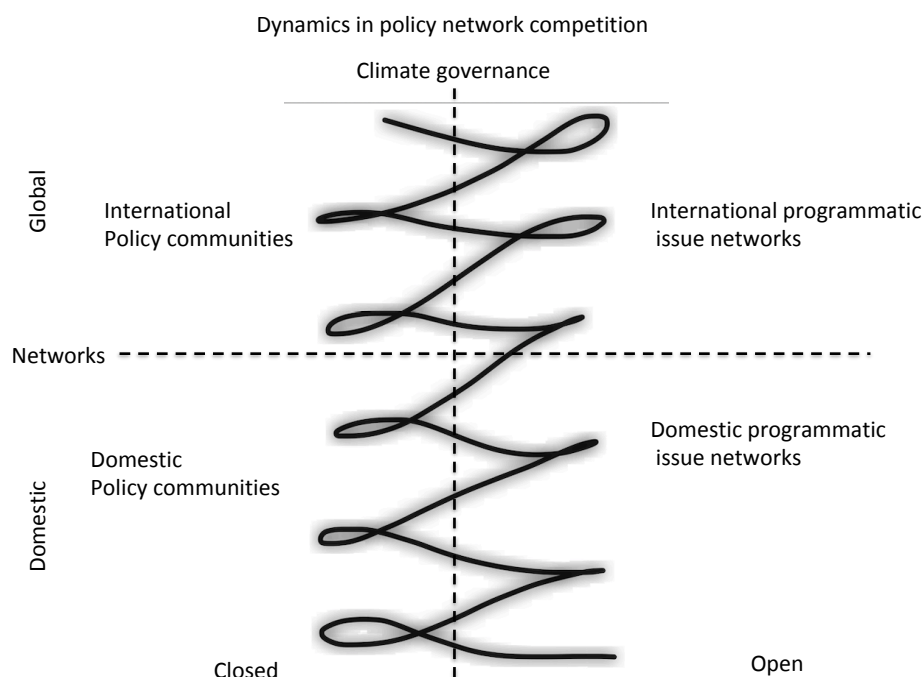
In the late 1980s, reduced public subsidies to new distilleries due to the drop in international oil prices led to a major supply crisis. The share of ethanol-fueled cars fell to just 1.02% of new cars sold in the market by 1989. The ethanol sector survived mainly because of its improvements in air quality, compared with gasoline-fueled cars and employment generation in rural areas (La Rovere, Pereira e Simões, 2011).

From 2003, a major breakthrough guaranteed a massive new investment cycle, during the early years of Lula da Silva's government, which sought to "revive" the ethanol policy in Brazil, namely with the re-launching of the *Pró-Álcool* program. Manufacturers of direct fuel injection systems invested in R&D for the production of systems that can adjust the combustion of the fuel to any proportion of hydrous alcohol and gasohol fed directly into the tank, the so-called flex-fuel cars. Production rose immediately and, by 2007, flex-fuel cars accounted for nearly 90% of new car sales in the Brazilian market (ANFAVEA, 2007).

3. A Framework for Analysis: Climate Policy Network Competition in Brazil's Ethanol Transition

The analysis of Brazilian biofuel related climate policy follows the framework proposed in an earlier section in this report. The framework proposes that risk to the implementation of specific climate policies emerges from the competition between historically grown coalitions in support and opposition. These coalitions operate in networks which can be characterized as open issue networks and relatively closed policy communities (Rhodes 2015, Kitschelt 2007). 'Issue networks' emerge from common policy problems that bring political actors together in coalitions in support or opposition of specific policies that aim to solve these problems. Issue networks are typically open; that is, they present no major barriers to access. Relationships between network members are largely consultative. The resources that can be distributed through the network are limited as the main purpose focuses on the policy issue. 'Policy communities', in turn, can be characterized by their club-like nature. Policy communities persist over long periods of time. Members consciously limit the size of the network as they distribute significant resources amongst them (Rhodes 2015).

Figure 1 illustrates the two types of networks adapted for climate governance.



Source: Rennkamp 2020 in this report (4.4)

The following sections present the analysis of the competition between these two types of networks in the case of Brazilian climate policy in the ethanol sector. The analysis of the competition between issue networks and policy communities focuses on domestic and international networks. Brazil's political system is characterized by a strong notion of presidentialism in a federal republic, proclaimed in 1889. Data from policy documents, public expressions and research literature help to show the overall picture of network competition at a macro-political level in three phases. These three phases mark the presidencies of Luiz Inácio Lula da Silva, known as Lula, Dilma Rousseff, and Michel Temer, between 2003-2018.

4. Lula's presidency, domestic industrial policy and «ethanol diplomacy»: Towards open policy networks?

The Presidency of Luiz Inácio Lula da Silva was characterized by a strong presidential agenda of promoting Brazilian biofuel production and export. This political agenda motivated both international and domestic biofuel issue networks.

4.1. International policy and open networks

The period between 2003 and 2006 was marked by an increased productivity in the ethanol sector, enabled by investments in R&D, scale gains and sector verticalization. Incentives to flex-fuel vehicles and high oil prices also sustained a favourable environment for ethanol production and export. The Lula administration understood that biofuel policy could be applied to its multilateral agenda and meet geopolitical interests, and launched what was later called the “ethanol diplomacy” (Basso, 2019, Afionis et al. 2016).

‘Ethanol Diplomacy’ can be considered one of the most iconic features of Lula's government. Afionis et al. (2016) argue that Brazilian ethanol diplomacy was ‘Brazil's quest to exert global leadership within the biofuels arena’ (p. 129). It was a means and an end to Lula's desire of reforming multilateral institutions (with the eventual goal of securing a permanent seat in the UN Security Council).

According to Tasca (2018), for his second term (2007 – 2010), Lula da Silva specified two aims for Brazilian transboundary action for biofuels: (i) enhancing biofuels-related technology exports to Latin American and African countries and (ii) promoting Brazilian ethanol exports and establishing ethanol as a commodity traded freely without barriers as a homogeneous good without qualitative differentiations across markets (Dalgaard, 2012; Roehrkasten, 2015). The World Trade Organization (WTO) classifies ethanol as an agricultural product, which makes it subject to corresponding rules covering taxes and subsidies. There are also the different environmental laws and technical specifications required by each country for trading in this commodity. Brazil, represented on this occasion by UNICA (Sugar Cane Industry Union) and APEX (Brazilian Exports Promotion Agency), sought to modify such status, to re-classify ethanol as an environmental product (Hira, 2011), but met with resistance especially on the part of producing – and even consuming – countries (Medeiros e Froio, 2012). A major struggle consisted of differentiating Brazilian sugar cane ethanol from US corn ethanol, to better reflect the former's much more advantageous energy balance.

International ethanol promotion was one of the main fronts in the strategy pursued by the Ministry of Foreign Affairs. Jointly with UNICA, they sought to disentangle the fuel - food competition issue and influence the European Union (EU) on its first European Directive on Renewable Energy (RED1)¹.

International cooperation was established through a few governmental entities, namely Petrobras Biocombustível, Embrapa and BNDES, the Brazilian National Development Bank. According to Basso (2019), between 2006 and 2008, Brazil launched different multilateral and bilateral initiatives regarding biofuels. Memorandums of Understanding on biofuels were signed in the India-Brazil-South Africa (IBSA) Dialogue Forum and between Brazil and the West African Economic and Monetary Union

¹ EC (2009)

(UEMOA); a working group on the topic was created in Mercosur (the common market trade group composed by South American countries); bilateral cooperation agreements were signed with Benin, Burkina-Faso, Ghana, Mozambique, Kenya, Rwanda, Ethiopia, Senegal, Nigeria, Guinea-Bissau, Algeria and South Africa; partnerships were established with the United States, the EU, Sweden, China and Japan (Machado, 2014). Embrapa – the Brazilian state-owned company leader in agriculture R&D – opened two offices in Africa (Acra and Maputo).

4.2. Domestic networks, interests and beneficiaries

Having collaborated with the automobile industry of São Paulo and the Brazilian Association of Automotive Engineering (AEA) to promote flex-fuel vehicles, the sugarcane industry lobbied for flexible-fuel vehicles to increase ethanol demand, creating a buffer for fluctuations of international sugar prices.

Volkswagen was the pioneer on launching a flex-fuel light-duty vehicle (“Gol” model). As part of the flex-fuel promotion policy, the Ministry of Development, Industry and Foreign Trade agreed on reducing taxes on industrialized products, an underlying maneuver to get the automotive industry onboard, represented by ANFAVEA (National Association of Motor Vehicle Manufacturers). Such choice can also be indirectly related to the macroeconomic growth engine of Lula’s era – boosting domestic consumption for emerging middle-classes, with a special focus on consumer goods such as private vehicles and white goods (Zanchetta Borghi, 2017).

The expansion of hydrated bioethanol would depend on its competitiveness vis-à-vis gasohol. Accordingly, measures were set to keep hydrated bioethanol competitive in the fuel markets, including tax incentives for the retailing and transport of ethanol (CIDE)² (Rodríguez-Morales, 2018).

During these initial efforts, one can also highlight the role of São Paulo state, main producer of sugarcane in Brazil and headquarters of UNICA. In São Paulo, the greatest fuel market in the country, state tax ICMS (tax on goods and services transactions) was kept at 12% for hydrated ethanol and 24% for gasoline. Local politicians kept close ties to Lula (who had been a local union leader in the state of São Paulo for decades himself) and to his Workers’ Party (PT). Antonio Palocci, former mayor of Ribeirão Preto (a major sugarcane centre) actively engaged on Lula’s campaign and had a prominent role in his administration afterwards, as minister of finance.

The state of São Paulo also launched the ‘Greener Ethanol’ (*Etanol Mais Verde*) and other agro-environmental protocols, setting guidelines to phase out sugarcane burning for manual harvesting, replacing it with mechanical harvesting, along with actions to ensure water and soil quality, among others.

The favorable market conditions rapidly attracted new players. Companies such as Bunge, Rene Dreyfus, Cargill, Shell, Petrobras and British Petroleum searched for opportunities, in line with their ongoing activities on commodity and fuel markets worldwide. These oil companies entered the market with dual agendas: while searching for profits, they sought to improve their image in the public.

Despite the success of flex-fuel vehicles, Tasca (2018) argues that this and other incentives should rather be framed as industrial policy (including financial support from BNDES), given that central government did little to set actual guidelines for biofuel promotion. Central government efforts concentrated on Agroecological Zoning³, specifying that areas of conservation were not eligible for sugar

² Laws No. 10453 and 10636 (2002).

³ Decree No 6961/2009.

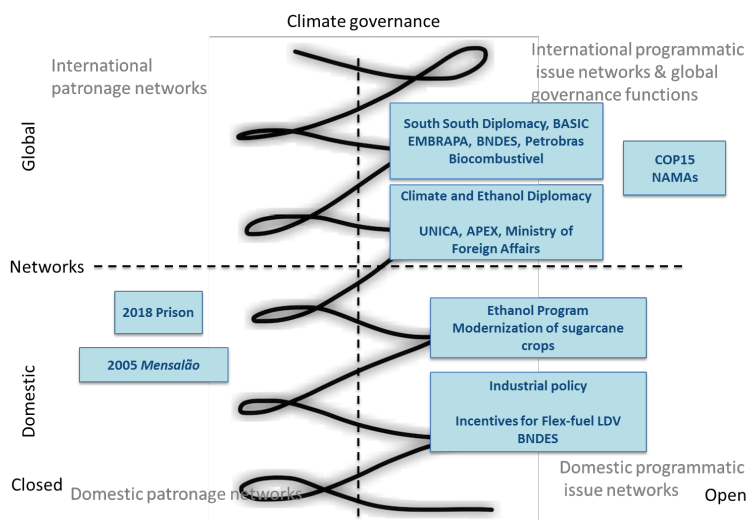
cane crops, namely in the Amazon, *Pantanal*, *Alto Paraguai*, in addition to indigenous lands and conservation units. It also addressed the enforcement of mechanization. These actions were supported by the *ProRenova* program, from BNDES, which funded renovation and implementation of new sugarcane fields.

Mostly, these were attempting to respond to the ‘fuel vs. food’ concerns of potential importers, particularly the US⁴ and EU⁵. However, according to Mercure et al. (2019), zoning efforts remained a technical instrument of a merely indicative nature, which has never been translated into binding law as originally planned.

4.3. Summary

Luiz Inácio Lula da Silva’s term was characterized by an undistinguished balance between open international networks and domestic networks, with convergence between public and private sectors’ objective (Rodríguez-Morales, 2018). Ethanol expansion was favored by the national and international context, namely low sugar prices, high oil prices, increasing light-duty vehicles domestic sales, political support and Lula’s positive image worldwide. The ethanol diplomacy era brought little concrete results. We can observe a dominance of activities through the operation of open international and domestic issue networks.

Figure 2 - Biofuel policy network competition during Luiz Inácio Lula da Silva government



5. Dilma: balancing Lula’s ethanol heritage against Brazil’s oil rush

From 2008 onwards, two major events changed the nature of the network structure and the political game: the discovery of Pre-Salt oil reserves and the international financial crisis. These events resulted in

⁴ Energy Policy Act; Energy Independence and Security Act

⁵ Towards an European Strategy for the Security of Energy Supply

losses of strategic and diplomatic priority of the biofuel agenda which triggered a change in the political discourse.

5.1.Reducing the role of open networks and the shift towards domestic patronage

In 2010, Lula succeeded in promoting Dilma Rousseff as his successor, despite an already deteriorated image for PT, following corruption scandals (such as *Mensalão*). Rousseff came originally from the energy sector, having served as minister of mines and energy. She kept close ties to traditional energy sectors and had lower abilities to bargain among actors in Brazil, compared to Lula.

Despite lower oil prices arising from the shifting international landscape, the perspectives of oil exploitation from Pre-Salt led to the government turning inward, putting Petrobras first via pricing regulations for the benefits of local actors and oil industries, at the expense of the ethanol sector – aiming at becoming a major oil exporter.

Indeed, the price control policy set in motion between 2008 and 2014 is considered a key feature of Rousseff's term. Petrobras kept gasoline prices lower than import prices. In addition, *CIDE combustíveis*, the tax on automotive fuels was reduced until full exemption was granted between 2012 and 2014. This mismatch between international oil and domestic gasoline prices was a short-term measure to control high inflation rates. The choice of keeping gasoline prices artificially low for such a long time led to a huge deterioration of Petrobras' financial situation, since it accommodated the associated losses. By the time the deep offshore oil auctions started, in 2013, Petrobras had no financial capacity to invest and keep up with partnerships, as required by law (Basso, 2018).

In the beginning of this period, many distilleries were already indebted, many of which were partially or fully owned by foreign companies (Wilkinson e Herrera, 2010). Drivers included high production costs (including fertilizers), adverse climatic conditions and the financial crisis itself.

Having disbursed significant amounts in biofuels, BNDES also saw itself in financial struggle. Between 2004 and 2008, BNDES - through its Department of Biofuels - increased its investment in ethanol projects from R \$ 590.5 million in 2004 to \$ 3,557.7 billion in 2008 (Milanez, Filho e Rosa, 2008).

Under these circumstances of great indebtedness of the sector, the measures adopted by the Ministry of Mines and Energy (MME) for the ethanol complex met resistance from the Ministry of Finance. On the one hand, the MME presented modest measures aimed at reducing the crisis of the sector (e.g. limited resources for *ProRenova* to foster the renewal of cane plantations funded by BNDES)⁶ and, on the other hand, the Ministry of Finance sought to cope with a fiscal crisis and controlling inflation rates.

Following a small supply crisis of anhydrous ethanol (the one that is blended in gasohol, and therefore can lead to higher gasoline prices and inflation), a new regulation was passed in 2011⁷. The National Oil Agency (ANP) established the maintenance of minimum stocks of ethanol in the off-season period (diminishing producers' ability to choose between ethanol and sugar in response to market prices). This landmark increased ANP's control of the biofuels market, motivated by a concern for energy security. It is clear however, that it aimed at ensuring the supply of anhydrous ethanol only.

⁶ Laws 12877 and 12865 (2013); Decree 8079/2013

⁷ Resolution 67/2011

According to Tasca (2018), even with the lower international sugar prices from 2013 and reduction of investments in Pre-salt, the ethanol complex could not initiate a counteroffensive. Some reasons for this are:

(i) the singularity of Brazilian politics dominated by short-term policies in order to maintain the particularism of national oligopolies (especially those linked by hydrocarbons) (Viola, Franchini e Ribeiro, 2013); and (ii) the close relationship between the oil complex and the core of the executive (e.g. financing of political campaigns, while the ethanol complex encountered difficulties in dialogue during the two governments of Rousseff).

In fact, there is a clear distinction between the contact channels available for the oil and the sugarcane sectors concerning political decisions in the central government. The State is the major shareholder of Petrobras - a company that has been systematically used as a means for politics, including bribery and embezzlement. Meanwhile, the sugarcane sector is primarily private, so that it must resort to other channels of action in order to meet its interests (legislate, civil society, national agencies and unions).

A third reason emerges from the need to build refineries for the production of derivatives from Pre-Salt reserves. On this issue, there was great pressure in the National Congress, especially in the Chamber of Deputies (lower chamber) - the one with the highest number of representatives linked to the oil and energy sector, for the construction and decentralization of these refineries in their regions and electoral bases.

The use of gasoline prices as a "heterodox economic tool" as defined by Basso (2018) was decisive for the outcome of the 2014 presidential elections - a very tight second term between Dilma Rousseff and Aécio Neves. The fact that PT managed to keep gasoline prices artificially low for so long (alongside with reducing CIDE) reveals some level of instrumentalization. It also contributed to a certain verticalization trend of the sugar and alcohol sector in Brazil (Wilkinson e Herrera, 2010). Major groups capitalized on the smaller and scattered producers which found themselves in financial difficulty.

5.2. Gearing up for Paris while *Lava Jato* takes off

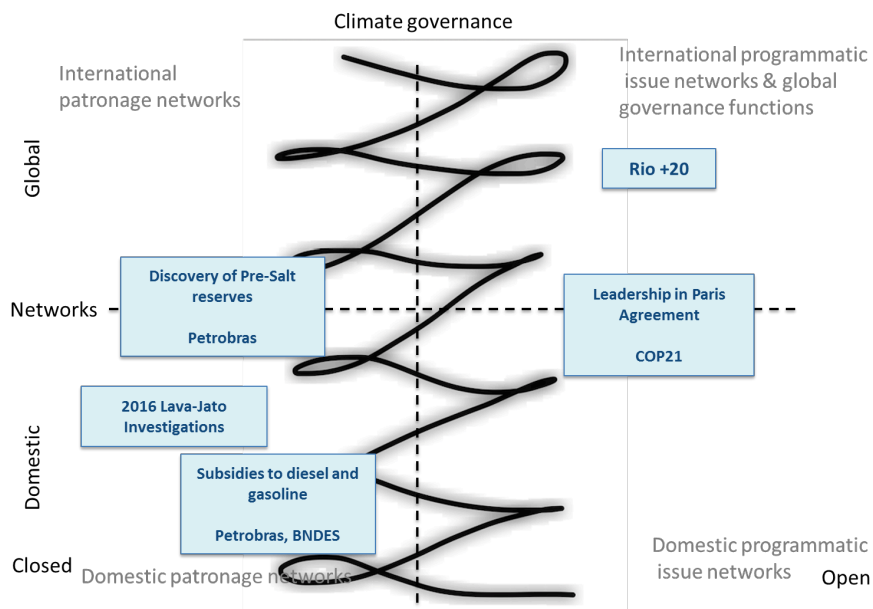
The worsening of the financial status of Petrobras, coupled to corruption scandals revealed in the *Lava Jato* operation were major drivers of the increasing disapproval of Rousseff's government, which led to her ousting in 2016. The price of Petrobras' shares collapsed, with minority shareholders filing lawsuits in the United States, where Petrobras shares are also listed. The corruption scandals that followed would increase the number of class actions (Basso, 2018).

Notwithstanding the delicate domestic situation, the Brazilian contribution to the success of the Paris Agreement outcome was decisive. The Brazilian intended Nationally Determined Contribution (iNDC) consisted of an economy-wide reduction in GHG emissions of 37% in 2025 and 43% in 2030, compared to 2005 levels (2.1 Gt CO₂e). Key biofuel-related measures in the pledge aimed at increasing the share of sustainable biofuels in the Brazilian energy mix to approximately 18% by 2030, by expanding biofuel consumption, increasing ethanol supply, including advanced biofuels (second generation), and increasing the share of biodiesel in the diesel mix (Brazil, 2015).

5.3. Summary

The discovery of Pre-Salt reserves contributed to undermining coordinated efforts on ethanol development previously put in place. The growing dominance of the oil sector networks dominated at the end of Rousseff's presidency. These included the changes in the domestic subsidy regime and a growing patronage network which extracted rents from the Pre-Salt project through civil engineering companies. Despite these domestic changes, the government under Dilma Rousseff continued to serve the international climate agreement and the monitoring of the deforestation activities to meet the national emission reduction targets.

Figure 3 - Biofuel policy network competition during Dilma Rousseff's presidency



6. Temer holding the fort (2015-2018):

When Michel Temer took over in 2016 as Acting President, the Brazilian sugar and alcohol sector found itself in troubled waters, with several bankrupted plants. Petrobras announced its 2017-2021 Business Plan, determining the integral withdrawal from the biofuel sector, as part of its attempt to recover financial health (Agência Petrobras, 2017).

In addition, rules for exploring Pre-Salt reserves immediately changed, leading to a lower mandatory participation share for Petrobras, benefiting private and foreign companies. The government also established tax breaks for the oil producing sector, as well as reduction of import tariffs for Exploration and Production E&P equipment⁸. In addition, new guidelines also established a revised price policy for oil products, responding to international oil prices. Fuel prices rapidly soared, with higher diesel costs severely impacting freight activity. This led to a major 'truckers strike' in May 2018, with

⁸ Provisional Measure No 795/2017

supply shortages across the country. However, it also contributed to levelling the playing field for the sugar and alcohol producers, which had been struggling in the previous years.

6.1. *RenovaBio* – Biofuel development as a lever to meet NDC targets

In contrast to Petrobras' withdrawal from the biofuel sector, the Temer administration launched the *RenovaBio* programme⁹, formally approved by Congress in 2018. This was a new attempt to foster biofuels production in Brazil based upon market predictability, sustainability and the imperative of climate change mitigation.

Inspired by California's Low Carbon Fuel Standards (LCFS), *RenovaBio* includes the following mechanisms: (i) targets for GHG emissions reduction in the fuel mix, including individual targets to distributors (ii) decarbonisation credits, (iii) biofuel certification, (iv) addition of biofuels to fossil fuels, (v) incentives on tax, finances and credits (Mercure *et al.*, 2019). *RenovaBio* sought to reduce the carbon intensity of the Brazilian fuel supply, contemplating the following products: gasoline, diesel, aviation kerosene; vehicular natural gas; anhydrous ethanol; hydrous ethanol and biodiesel. It targeted a 10% reduction of carbon intensity up to 2028¹⁰.

ANP regulated the certification of efficient biofuel production or importation and the accreditation of certifying firms¹¹. Producers and importers willing to join the programme were required to hire such companies in order to carry out the Biofuel Certification and validate their Energy-Environmental Efficiency Note, valid for three years from the date of its approval by the ANP.

Distributors must prove compliance with compulsory individual targets through the purchase of Decarbonization Credits (CBIO), a tradable financial asset derived from the certification of the biofuel production process based on the respective efficiency levels achieved in relation to their emissions. In addition, those who voluntarily join the program may trade these credits from certified production.

An endeavour initially promoted by the ethanol producers with influence on the Ministry of Energy and Mines (MME), *RenovaBio* relied on extensive support from governmental entities, producers' associations and cooperatives, workers' unions, the civil society, among others. The Brazilian based vehicle manufacturers have perceived the programme in alignment with their strategic planning, because it contributes to slowing of the transition from internal combustion vehicles to BEV and hybrid motor technology. This trend is unique to the Brazilian situation and cannot be found in countries with lower biofuel availability.

The Brazilian Confederation of Agriculture and Livestock (CNA), in contrast, argued that farmers should also be entitled to the earnings derived from efficiency gains, exclusively directed to agents associated with the biofuel production. Given that *RenovaBio* established the regulation point at the distribution stage, fuel distributors have argued that it tends to favour producers, at their expense. Brazil has nearly 40 fuel distributors, many of which are affiliated to *Plural*, one of the institutions partially resistant to the programme.

⁹ Law No 13576/2017

¹⁰ Reaching 66.75 gCO₂eq/MJ, compared to 74.25 gCO₂eq/MJ in 2017.

¹¹ Resolution 758/2018

Table 1 - Discourse in support of and opposition to RenovaBio

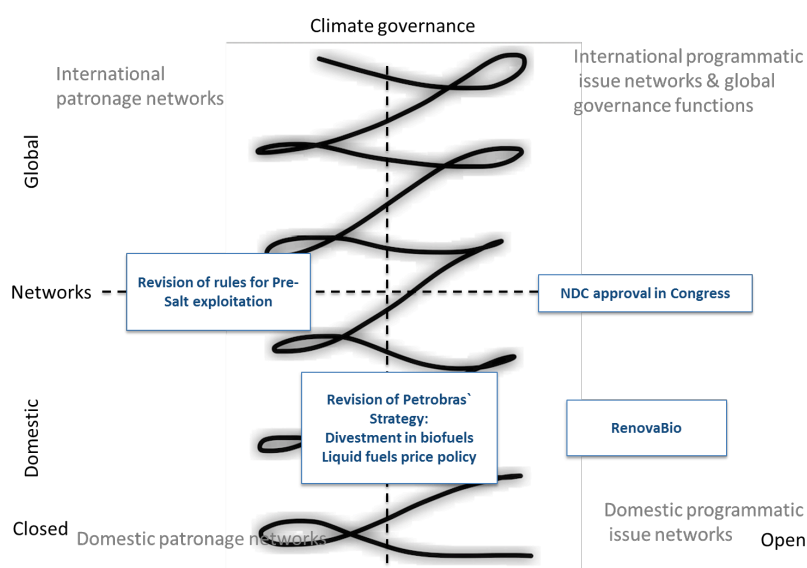
Main arguments pro RenovaBio	Main arguments against RenovaBio
Increased share of sustainable biofuels in energy matrix Contribution to NDC achievement Reduced demand and external dependency on fossil fuels Job creation	Pressure on energy prices Pressure on land use and food prices Loss of international competitiveness

6.2. Summary

The incentive system under the Temer administration pulled in opposite directions. Governmental investments in the biofuel sector were withdrawn, while the government announced an ambitious long-term biofuel program, the *RenovaBio*.

This period is also characterized by incentives to the oil sector and changing rules for Pre-Salt exploitation, detrimental to Petrobras' participation.

Figure 4 - Biofuel policy network competition during Michel Temer's presidency



7. 2019 - the first year of Bolsonaro's presidency

Jair Bolsonaro's election signaled changes in multilateralism and climate diplomacy, for example the refusal to host the United Nations Conference of the Parties (UNFCCC COP25), initially planned to take place in Brazil. Amazon deforestation rates have been soaring, driven by the weakening of control activities and laxer penalties for illegal environmental practices. The rise of deforestation rates poses a

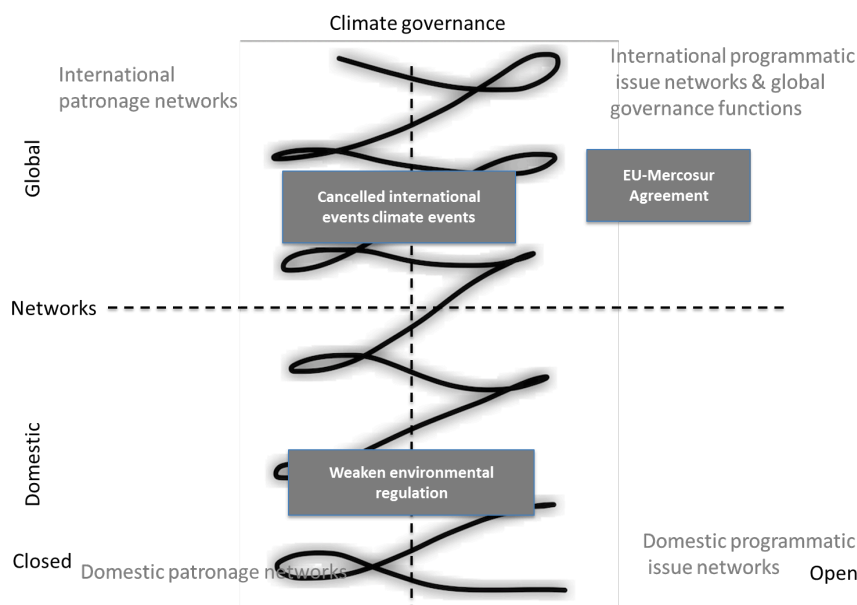
major challenge for Brazil to meet its NDC targets, which requires the total elimination of illegal deforestation in the Amazon by 2030.

At the same time, perspectives for the biofuel sector are fairly positive, with producers recovering from the tough years experienced during the gasoline price control period. The major bet on *RenovaBio* was low international sugar prices which result from massive governmental subsidies in India, a major player on the sugar market. In addition, the possibility of mandatory blending of ethanol in the fuel mix in major economies such as China, India and other Asian countries also cheered investors. Harvests have nevertheless remained at similar levels, partially due to decreasing productivity resulting from the lack of investments in field renovation.

In parallel, the continuity of tariff exemptions and higher quotas has been granted to US corn ethanol imports¹². Notwithstanding a laxer protection regarding imports, Brazilian producers expect better access to the US market for Brazilian sugar in exchange, even though this has not been determined yet.

To what extent the negative repercussions of the Bolsonaro-led environmental policy on the international arena will spill over into the biofuel sector is still to be revealed. It has held up important negotiations, namely the EU-Mercosur agreement, which foresees trade quotas for Brazilian ethanol (including ethanol for industrial use) and sugar. The massive international repercussion of fires and higher deforestation rates, as recently experienced – a 29.5% increase compared to 2018 (INPE, 2019) – can undermine Brazil's bargaining power in securing access to European markets.

Figure 5 - Biofuel policy network competition during Jair Bolsonaro's presidency



¹² Ordinance 547/2019



8. Conclusion

This study analysed the ups and downs of Brazil's ethanol cycle that started with the advent of flex-fuel cars up to the present day (November 2019). The Brazilian strategy for ethanol can be framed as a transition to low carbon. The evidence suggests that, from 2003 on, Brazil has not fostered a long-term, perennial policy for ethanol, but has rather acted under existing circumstances. In spite of the country's efforts to foster the creation of a global commodity market for ethanol, domestic biofuels policy responded to variables beyond oil and sugar prices. These include election-oriented decisions and the role of the conservative socio-political force usually linked to fossil energy (Tasca, 2017).

Biofuel development is an underlying element in low carbon scenarios consistent with the Paris Agreement goals (UNFCCC 2015, La Rovere et al., 2018; Neves et al., 2019). In Brazil, there are currently strategic plans aiming at increasing the biofuel share in the transportation sector. However, an analysis of the past decades shows that the implementation of biofuel-related policies was subject to unbalanced power relations. The incentives and policies set in place will determine if the biofuel sector will contribute to reaching the Brazilian NDC goals at its full potential. A process exempted from instrumentalization and protected from the influence of powerful opposing coalitions is needed to ensure such transition.

9. References

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Supporting actors:	Opposing actors
<p>Associação Brasileira de Biogás e Biometano</p> <p>Associação Brasileira de Biotecnologia Industrial</p> <p>Associação Brasileira de Indústria de Máquinas e Equipamentos</p> <p>Associação Brasileira do Agronegócio</p> <p>Associação Comercial e Industrial de Araçatuba</p> <p>Associação Comercial e Industrial de Piracicaba</p> <p>Associação das Indústrias Sucroenergéticas de Minas Gerais</p> <p>Associação dos Micromunicípios da Região do Vale do Rio Grande</p> <p>Associação dos Plantadores de Cana da Paraíba</p> <p>Associação Mineira de Municípios</p> <p>Associação Pró-Desenvolvimento Industrial do Estado de Goiás</p> <p>Centro de Integração Empresa-Escola</p> <p>Coalizão Brasil Clima Florestas e Agricultura</p> <p>Confederação Nacional da Indústria</p> <p>Conselho Empresarial Brasileiro para o Desenvolvimento Sustentável</p> <p>Conselho Regional de Engenharia e Agronomia do Mato Grosso do Sul</p> <p>Consórcio Interestadual de Desenvolvimento do Brasil Central</p> <p>Cooperativa dos Plantadores de Cana</p> <p>Federação da Agricultura e Pecuária do Estado de Alagoas</p> <p>Federação da Agricultura e Pecuária do Mato Grosso do Sul</p> <p>Federação das Indústrias do Estado de Goiás</p> <p>Federação das Indústrias do Estado de Minas Gerais</p> <p>Federação dos Plantadores de Cana do Brasil</p> <p>Organização dos Plantadores de Cana da Região Centro-Sul do Brasil</p> <p>Secretaria Estadual de Agricultura e Abastecimento de São Paulo</p> <p>Secretaria Estadual de Agricultura, Pecuária e Irrigação do Rio Grande do Sul</p> <p>Secretaria Estadual de Desenvolvimento Agropecuária e Pesca</p> <p>Sindicato dos Trabalhadores da Indústria do Açúcar de Minas Gerais</p> <p>Sociedade Rural Brasileira</p> <p>União dos Produtores de Bioenergia</p>	<p>PLURAL</p> <p>CNA (partially)</p>

10. Annex: RenovaBio stakeholder network



<p>ÚNICA - União da Agroindústria Canavieira do Estado de São Paulo</p> <p>ABIOVE - Associação Brasileira Indústrias Óleos Vegetais</p> <p>APROBIO - Associação dos Produtores de Biodiesel do Brasil</p> <p>FNS - Fórum Nacional Sucroenergético</p> <p>Viralcool</p> <p>IBP – Instituto Brasileiro de Petróleo, Gás Natural e Biocombustíveis</p> <p>Montadoras (ex. FIAT)</p> <p>RenovaBio Committee:</p> <p>MME – Ministério de Minas e Energia</p> <p>MMA – Ministério do Meio Ambiente</p> <p>MAPA – Ministério da Agricultura e Pecuária</p> <p>MDIC – Min. Desenvolvimento Industrial</p> <p>MF – Ministério da Fazenda</p> <p>MPDG - Ministério do Planejamento, Desenvolvimento e Gestão</p> <p>CC/PR – Casa Civil</p> <p>Guests:</p> <p>MCTIC - Ministério da Ciência, Tecnologia, Inovações e Comunicações</p> <p>MTPA - Ministério dos Transportes, Portos e Aviação Civil</p> <p>MRE – Ministério das Relações Exteriores</p> <p>ANP – Agência Nacional de Petróleo, Gás Natural e Biocombustíveis</p>	
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