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COMPLIANCE AND SUSTAINABILITY

BRAZILIAN AND PORTUGUESE PERSPECTIVES

ORGANISERS

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ENVIRONMENTAL COMPLIANCE AND TAXATION

THE CASE OF AIR QUALITY IN CITIES

SUZANA TAVARES DA SILVA
ANTÓNIO BRAZ SIMÕES

Abstract: Economic taxation is an important tool in implementing environmental and climate policies, but their discrimination effects should be neutralized. The regulation of city air quality from the reduction of polluting emissions caused by urban mobility is just one of this examples and have already several experiences in different European cities

Keywords: taxes; urban mobility; air quality in cities

1. **Environmental compliance and air quality policy**

The replacement of repressive, prohibitive and sanctioning measures by instruments to promote voluntary compliance with legal and regulatory guidelines or even by *soft regulation* (codes of ethics, good practices, etc.) — we refer to what are today referred to as *steering* instruments (direction or

orientation)[1]- is essential in areas where harms arising from breaches of the rules are difficult or impossible to repair, or the causal link is not easy to establish — if we look at the public policy perspective — as well as in situations where sanctions are particularly costly for offenders — if we look at the issue in terms of the reasons for the accession of economic agents to these instruments. The environmental and climate domain is therefore, alongside tax law, an area especially suited to the development of this type of regulation, especially if this regulation can be mobilized by the courts, even if only as an interpretative criterion[2].

Essentially, compliance has shown that the creation of instruments for *internalising the obligation* to adhere to certain values, as well as the adoption of effective measures to achieve compliance and to fulfil the desired objectives, is more effective than the adoption of legal standards for the achievement of targets in certain public policies, even when associated with the repression of infringing conduct. The success of compliance is

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[1] The main aim is to promote the use of alternative or complementary instruments, rather than traditional coercive legal rules, which, instead of coming from an external regulatory authority (in principle legitimized on a democratic basis), are essentially developed internally by institutions (public and private) through the so-called *responsive (self-)regulation* and from the interconnection between organizational and procedural aspects with material dimensions in order to ensure compliance with legal rules and/or public policy objectives. This "regulation mode", which emerges in the context of the expansion of economic privatization, accompanied by deregulation and public (re-)regulation, has proven especially effective, mainly when accompanied by means of *enforcing* the regulatory measures adopted. About the topic *v.*, by all, Ian Ayres / John Braithwaite, *Responsive Regulation. Transcending the Deregulation Debate,* Oxford University Press, 1992, 101 s.

[2] In this sense see Michael Mehling, "Enforcing compliance in an evolving climate regime", in Jutta Brunnée / Meinhard Doelle / Lavanya Rajamani, *Promoting Compliance in an Evolving Climate Regime,* Cambridge University Press, 2012, 194 s.

largely due to the fact that the measures are drafted by the addressees, thus providing greater efficiency and effectiveness because they are more feasible and more easily implemented than those that are "designed" outside the democratic power.

Regarding the environment and climate, where a significant part of the legal rules are international law and, therefore, are more difficult to implement using traditional legal canons of coercivity, it is understandable that compliance finds fertile ground for its implantation. This is also the case in the field of *air quality regulation in cities* and the *decarbonization of urban mobility*, a topic we have selected for this brief communication.

Scientists have long warned of the harmful effects of pollutant emissions on human health[3], and these warnings gave rise to the first international normative documents specifically designed to reduce such emissions: we refer to the various commitments made under the United Nations Framework Convention on Climate Change[4] of 1992 (including the Kyoto Protocol[5], 1997) and the Convention on Long-Range Transboundary Air Pollution (CLRTAP), adopted in 1979 by countries in Europe and North America[6], notably the Göteborg Protocol adopted in 1999 on the Reduction of Acidification, Eutrophication and Ground-level Ozone.

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[3] On the impact of air pollution on human health see the European Court of Auditors report 23/2018: "Air pollution: our health is not yet sufficiently protected", available at <https://www.eca.europa.eu/Lists/ECADocuments/SR18_23/SR_AIR_QUALITY_PT.pdf> (last accessed on 29 June 2019).

[4] Portugal is a party to the United Nations Framework Convention on Climate Change, which was approved for ratification by Decree No. 20/93 of 21 June (as amended by Decree No. 14/2003, of 4 April) and the instrument of ratification was deposited on December 21, 1993, pursuant to Notice No. 129/94 of March 23.

[5] Protocol to the United Nations Framework Convention on Climate Change adopted at the 3rd Conference of the Parties.

[6] Portugal ratified this Convention in 1980 — see Decree 45/80 of 12 July.

European law, under the instruments relating to environmental policy, also addresses the air quality problem by adopting multiple normative instruments, among which we highlight Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe.

This directive was transposed into national law by Decree-Law no. 102/2010 of 23 September[7], which created an air-quality evaluation and management system. This legal regime includes the national strategy for the air (ENAR 2020)[8], air-quality improvement plans[9] and the measures set out in the Strategic Activity Tables for 2020[10] (at the level of implementation of public policy instruments).

All these instruments aim to reduce the level of particles that pollute the air, especially air in urban spaces, which is believed to be — as said before — a threat to the health of the inhabitants. The topic for reflection in this brief text is to see how this objective can be achieved in the field of urban mobility.

2. **Taxation oriented towards decarbonising mobility**

The use of taxation to promote extra-fiscal purposes is not new. In Portugal, the so-called green tax reform, approved in

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[7] In the meantime this diploma was updated by Decree-Law no. 43/2015, of 27 March.

[8] Approved by Resolution of the Council of Ministers no. 46/2016, of August 26.

[9] According to the site of the Portuguese Environment Agency, plans to improve air quality in the northern region are being implemented <http://www.ccdr-n.pt/servicos/ambiente/qualidade-ar> and Lisbon and Tagus Valley <http://www.ccdr-lvt.pt/content/index.php?action=detail-fo&rec=1265&t=QUALIDADE-DO-AR> (last accessed on June 29, 2019).

[10] Cf. <https://www.apambiente.pt/_zdata/DAR/Ar/ENAR_04_Linhas-Estrategicas_vf.pdf> (last accessed on June 29, 2019).

2014[11], had already been preceded by other tax measures with a similar purpose.

This is the case, for example, of the measures adopted under the so-called 2007 car tax reform[12] and, more specifically, of the normative change approved in 2011, which establishes an annual environmental coefficient update (emissions table) in the vehicle tax that is applied to the CO_2 emitted per km[13]. This measure was deepened in 2014 with the consecration of financial incentives for the acquisition of 100% electric vehicles and hybrid *plug-in* vehicles by the aforementioned law that approved the reform of the green tax[14]. This was a first step, although generic, in the context of the policy of car

[11] We refer to the approval of Law no. 82-D/2014, of December 31 (Green Tax Reform Law), prepared by the Commission for the Reform of Green Taxation — 2014 (Order no. 1962/2014), which was entrusted by the government with the task of carrying out a review of environmental and energy taxation in accordance with the said European and international guidelines.

[12] The reform of automobile taxation began with Law no. 22-A/2007, of June 29, which approved the Vehicle Tax Code and the Single Traffic Tax Code, abolishing, at the same time, the car tax, the municipal tax on vehicles, the circulation tax and the trucking tax.

[13] Cf. article 113 of Law no. 55-A/2010, of December 31, which amended article 7 of the Code of the Tax on Vehicles approved by Law no. 22-A/2007. This coefficient was subsequently compounded in several individual modifications with the aim of burdening diesel and higher-emissions gasoline vehicles — *cf.* Suzana Tavares da Silva / Marta Costa Santos, "As medidas tributárias portuguesas orientadas para o cumprimento das metas europeias da política de eficiência energética" (in press). This measure was also introduced in the United Kingdom in 2017, differentiating between diesel vehicles that comply with at least RDE2, other diesel vehicles (on which taxation is heavier) and vehicles using alternative fuels (electricity, biofuels and gas).

[14] We refer to reductions in tax on vehicle rates and autonomous tax rates, as well as financial incentives for buying these vehicles, awarded by the Environmental Fund. These incentives have been updated annually by the law approving the state budgets.

purchase and use to decarbonise mobility and reduce pollutant emissions, which also covered urban mobility.

In 2014, some incentives were also established for so-called *soft mobility*, essentially centred on the use of the bicycle for daily commuting — we refer to the fiscal benefits of *bike sharing* and the acquisition of bicycle fleets by companies — which would be extended in 2019 with the creation of a financial stimulus for the acquisition of electric bicycles[15].

As far as fuel taxation is concerned[16], the extra-fiscal effect of modifying personal behaviour in urban mobility seems less clear, and, consequently, so does the intended decarbonization and reduction of pollutant emissions[17]. Considering that the alternative to fuel consumption requires modification of vehicles (which are durable consumer goods and not easily replaceable), we believe that the only effective stimulus in this regard is that which can be given at the time of purchase of a vehicle or the conclusion of a contract for the use of a vehicle[18]. We also do not share the idea that fuel taxation can act as a stimulus for the use of urban public transport (as an alternative to personal car transport) for two reasons. First, it presupposes the existence of a public urban transport network that constitutes a real transportation alternative (considering price, convenience and journey time), which is not a reality across the country. Thus, this measure is reduced to having

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[15] *See* articles 247 and 248 of the Law of the State Budget for 2019 (Law no. 71/2018, of 31 December).

[16] We refer to "the adding on CO_2 emissions" (the so-called carbon tax) added to the Excise Tax Code (92-A article) by Law 82-D/2014.

[17] In the same vein, see Endre Tvinnereim / Michael Mehling, "Carbon pricing and deep decarbonisation", *Energy Policy* 121 (2018) 185-189.

[18] In this regard, we note as a positive example the measures announced by Uber to promote the use of electric vehicles (UberGreen) by drivers registered on the platform.

purely tax purposes (raising revenue from those who cannot avoid the incidence of the tax). Second, it also reaches people with different economic and financial capacities in a very disparate way, resulting in a discriminatory measure.

More recently, other tax measures have been implemented with the aim of reducing pollutant emissions in cities that aim to overcome some of the criticisms of previous measures. This is the case, for example, for the so-called *congestion charges* (or entrance fees in cities), which aim to remove vehicles from urban centres by encouraging citizens to rethink the use of their individual vehicles in commuting to the city centre and especially within the city[19]. Several cities have already implemented such taxes[20].

The pioneer was Singapore. In 1975, that city installed an *Area Licensing Scheme* that restricted entry in a particular area *(restricted zone)* to drivers who possessed a license for that purpose (the drivers had to put the proof of the license on the vehicle's windshield). This license could be unlimited, allowing the driver access to the restricted zone at any time without limiting the times, or partial, allowing access to the zone only during the morning and afternoon rush hours[21]. The verification of the licenses was performed by controlling agents located at points of access to the restricted zone. This system, with the passage of time and the evolution of technology, became obsolete and was replaced in 1998 by an *electronic road pricing* system. The new system, which is

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[19] Marta Rebelo, "Behavior-orienting rates: the extension of Article 19 of the Local Finance Act and the case of the "*Central London Congestion Charging Scheme*", *Juridical Magazine of Urbanism and Environment*, Nos. 21 / 22 (2004), p. 154.

[20] For example, we find these rates in Singapore, London, Milan, Stockholm and Gothenburg.

[21] Georgina Santos, "Urban congestion charging: a comparison between London and Singapore", *Transport Reviews* 5 (2005) 517.

currently still in effect, operates through an electronic device (called an *in-vehicle unit (IU))* that is placed on the vehicle and has a slot for inserting a credit card. When the vehicle passes through the portals placed at the access points to the restricted zone, the *IU* is detected, and the fee is automatically charged. This value varies depending on the type of vehicle and the time when and access point where the driver intends to enter the restricted zone[22]. If, through a photographic record, a vehicle passes without the driver having properly inserted a credit card or without sufficient credit to pay the amount due, the driver will have to pay the fee plus an administrative fee of 10 Singapore dollars[23].

The other paradigmatic example of the implementation of entrance fees in the city is the *Central London Congestion Charging Scheme*[24]. This model was implemented in 2003 and since then has undergone numerous changes. A person wishing to drive in London may have to pay three fees[25]: the *Congestion Charge*, the *Ultra Low Emissions Zone (ULEZ)* fee and the *Low Emissions Zone (LEZ)* fee.

To drive within the *"Congestion Charge"* zone from Monday to Friday in the period between 7:00 and 18:00, the driver

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[22] See *V.* Gopinath Menon / Sarath Guttikunda, "Electronic Road Pricing: experience & Lessons from Singapore", 2010. Documento disponível em <http://www.environmentportal.in/files/erp-Singapore-Lessons.pdf> (last accessed on 29 June 2019).

[23] It is important to remember that Singapore occupies the first place in the world ranking of urban mobility published by the European Observatory of Urban Mobility — Eltis <https://www.eltis.org/discover/news/urban-mobility-index -ranks-100-global-cities> (last accessed June 29, 2019).

[24] Cf. <*https://tfl.gov.uk/modes/driving/pay-to-drive-in-london*>.

[25] On the controversial legal nature of "congestion charges", with regard to the " *Central London Congestion Charging Scheme"*, *see* Mark Bowler Smith, "Towards a classification of the Central London congestion charge", *British Tax Review* 4 (2011) 487-508.

must pay £11.50[26]. The *Congestion Charge* is not applied between 18:00 and 7:00 during the week and weekends or on holidays and in the days between Christmas and New Year.

The fee for the *Ultra Low Emissions Zone*[27] must also be paid if the vehicle does not meet the standards required for this area. The daily "rate" for most vehicles is £12.50. The *Ultra Low Emissions Zone* operates 24 hours a day, 7 days a week and throughout the year.

The *Low Emissions Zone* has a larger geographical coverage than the two other zones, covering most of Greater London. Using European emissions standards as a reference, vehicles travelling in this area and not complying with the Euro emissions standards for that zone are subject to payment of another fee. The *Low Emissions Zone* also operates 24 hours a day, 7 days a week and throughout the year.

However, the "congestion charges" raise doubts regarding their legal nature — are they environmental prices? Are they moderator fees? Are they extra-fiscal taxes? — and regarding their discriminatory effect, as well as for the fact that they can be, after all, a public financing instrument with the excuse of the environment without actually achieving the goals for which they were created.

Indeed, if their purpose is to prevent cars from entering cities in order to improve air quality, then it is important to assess whether their application actually leads to a reduction in the number of vehicles and whether these are the vehicles with the highest pollutant emissions (*test of effectiveness of the measure in the pursuit of the public policy for the improvement of urban air quality*).

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[26] If the driver does not pay in time, he or she will be notified to pay a fine of £160 (however, if he or she pays within 14 days of receipt of the notice, the fine is £80)

[27] This area — which replaced the *T-Charge* — has been in effect since 8 December 2018 and has the same geographical coverage as the *Congestion Charge* zone.

In addition, it is important to assess the social impact of the measure, i.e., whether everyone is affected by the measure in equal proportion (or at least respecting equality) or whether it affects only those who do not have the economic and financial capacity to pay the price of pollution (in that case, it is discriminatory) and to what extent this difference in treatment should be tolerated as an aspect of a democratic state respecting the rule of law. Even though it can be argued that the revenues arising from this taxation allow for the upgrading of the network of urban public transport, it is essential that the measure not constitute an instrument (another one!) of "balkanization in the city"[28].

For this reason, there is currently a tendency (which could be said to be a preferential criterion) to regulate urban mobility and congestion through informal instruments of *soft regulation*, environmental education[29] or regulatory instruments of an administrative nature, such as bans on access and movement in various areas of the city: the so-called reduced emissions areas.

3. **Restrictions on road traffic in cities**

When we analyse the policies adopted by many European cities with regard to plans for the regulation of air quality, we find a common purpose among them: imposing the reduction of the presence of automobiles in the heart of cities[30]. In fact, the

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[28] This is not the right place, nor the opportunity, to address the theme of city regulation for inclusiveness, notwithstanding the relevance that the subject currently represents for scholars of the subject (*see*, for example, Richard Sennett, *Building and Dwelling: Ethics for the City*, Allen Lane, 2018) and for public safety and citizenship. The building of a sociable, open and tolerant city also depends on the regulation of mobility.

[29] This is the case, for example, of institutional advertising to promote *car sharing*, the use of public transport and smooth mobility.

[30] It should be noted that urban transport accounts for 25% of greenhouse gas emissions, mainly due to road traffic, and is estimated to be

individual car, at least as a means of mobility within the city, is now "old-fashioned". Contributing to this transformation, we find, especially, restriction policies on car circulation in cities and the promotion of policies supporting new, environmentally sustainable mobility alternatives: bicycles, scooters, etc. These two policies have a complementary relationship and must be integrated in an articulated way. Let us look at some examples of policies that the states have developed to prevent or restrict the circulation of automobiles in some urban areas.

1. *Reduced Emissions Zones*. The *Reduced Emissions Zones* (ZER) aim to restrict the entry and movement of the most polluting vehicles in certain protected areas or city centres and have already been applied in European cities such as Amsterdam, Stockholm, Berlin, Cologne and London. Additionally, some Reduced Emissions Zones have been implemented in Lisbon since 2011[31] [32].

50% by 2030. *See* INTERNATIONAL ENERGY AGENCY, *Transport, Energy and CO_2: Moving Toward Sustainability*, 2009, <https://www.iea.org/publications/freepublications/publication/transport2009.pdf>, <https://www.iea.org/publications/freepublications/publication/transport2009.pdf> (last accessed June 22, 2019). In view of this, and for the European Union to meet its emissions targets (in particular, to reduce the level of carbon emissions from transport by 60% by 2050), it is crucial to act in the transport sector — *especially* mobility. An example is the Strategic Vector AP13 of the aforementioned National Strategy for the Air 2020.

[31] It should be recalled that in 2011, the city of Lisbon had concentrations of inhalable particulate matter (PM10) exceeding the limits set by national and Community legislation, especially in higher-traffic areas, which prompted the European Commission to bring suit against the Portuguese state at the Court of Justice of the European Union.

[32] In Lisbon, a *first phase* of the ZER entered into force in July 2011 and prohibited the circulation of vehicles that did not comply with the Euro 1 emissions standards (vehicles built before July 1992) along Avenida da Liberdade/Baixa. Subsequently, in a *second phase*, which entered into force in April 2012, the area covered by the ZER was expanded to comprise two areas: (a) Zone 1: only vehicles respecting the Euro 2 emission

The creation of such zones has been considered a truly effective measure to reduce problems of urban air quality, especially problems related to high levels of particulate matter, nitrogen dioxide and ozone, which, when present in high concentrations, are considered harmful to human health[33]. However, it has been found that, by itself, the prohibition of the entry of polluting vehicles into protected areas also contributes to the emergence of alternative routes with a greater distance to the destination and, therefore, higher emissions. Thus, a good solution should be based on a comprehensive preliminary analysis that incorporates alternative responses (either in terms of public transport or encouraging the use of soft mobility alternatives, such as cycling, for which optimal conditions should be immediately created).

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standard (1996 and later vehicles) can circulate on the Av. da Liberdade/Baixa axis and b) Zone 2: a limited area south of Av. de Ceuta /North-South Axis/Av. of the Armed Forces/Av. of the United States of America/Av. Marechal António Spínola/Av. Infante Dom Henrique in which only vehicles complying with the Euro 1 emission standard (vehicles of 1992 and later and heavy vehicles after October 1996) can circulate. In a *third stage*, which has been in force since 15 January 2005, there were stronger environmental requirements in the following terms: a) Zone 1 (Axle Av Liberdade/Baixa) — only vehicles complying with the Euro 3 emission standards (in general, light vehicles manufactured after January 2000 and heavy vehicles manufactured after October 2000) and b) Zone 2 (limit to the south of the Avenida de Ceuta/Eixo Norte-Sul/Avenida das Forças Armadas/Avenida EUA/Avenida Marechal António Spínola/Avenida Infante Dom Henrique) — only vehicles of 1996 and later, that is, vehicles that respect the norms of emissions of Euro 2 (in general, light vehicles manufactured after January 1996 and heavy vehicles manufactured after October 1996). These restrictions apply only on weekdays from 7:00 a.m. to 9:00 p.m. Cf. <http: //www.cm-lisboa.pt/frequentes/en/environment/zer-zona-de-emissoes-reducidas> (last accessed on May 17, 2019).

[33] Helena BRÁS, *Avaliação dos benefícios da implementação de Zonas de Emissões Reduzidas em Lisboa*, Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, 2012, 20.

In Lisbon, although there are currently two Reduced Emissions Zones (Zone 1 and Zone 2), there is general non-compliance by drivers who continue to move within these two areas using cars that do not meet the required standards. Therefore, for the restrictions and purposes to be truly fulfilled, it is essential to introduce a surveillance system — ideally, this inspection would be done through an automatic and immediate identifier.

2. A *Low Emissions Zone* called *"Central Madrid"*[34]. Under the air-quality and sustainable economy legislation and with the aim of protecting people's health from air pollution, the Madrid government approved the Air Quality Plan of the City of Madrid and Climate Change (Plan A) on 21 September 2017. This plan envisaged the creation of an area in the city centre where, in response to a low-emissions urban mobility model, measures could be taken to reduce the circulation of more polluting vehicles, to reduce congestion and to encourage and promote the use of collective public transport and smooth mobility alternative means of transport. It was in this context that the Plenum of the Madrid City Council approved a Sustainable Mobility Ordinance creating a designated *"Central Madrid" Zone* (ZBE) in October 2018.

The *Central Madrid Zone* corresponds to an area covering 472 hectares that groups and extends the four previously existing "Areas of Residential Priority". The access criteria and operation of the ZBE depend on the environmental category of vehicles in view of their pollution potential as well as their function and need for access. In a very general way, the regime

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[34] Cf. <https://www.madrid.es/portales/munimadrid/es/Inicio/Movilidad-y-transportes/Madrid-Central-Zone-de-Downs Emissions /? Vgnextfmt = default & vgnextchannel = 508d96d2742f6610Vgnvcm1000001d4a900aRCRD & vgnextoid = 508d96d2742f6610Vgnvcm1000001d4a900aRCRD>.

of the *Low Emissions "Central Madrid" Zone* is characterized by residents, people with reduced mobility and security and emergency services being able to access and move their vehicles in *Central Madrid*; in all other cases, access depends on the environmental classification assigned to the vehicle concerned[35].

The *Low Emissions "Central Madrid" Zone* entered into force on 30 November 2018, with the stipulation that until 15 March 2019, there would be a demonstration and testing period for the computer system that generates the fines. During this period, no sanctions were applied, and in case of breach, drivers were only warned through a communication[36]. The sanctioning regime is now in operation, and anyone found in breach by the video surveillance cameras installed at each entrance to *Central Madrid* is subject to a fine of €90.

Conclusion

The purpose of this writing is not very ambitious. With it, we aim only to warn of the risks of regulation (in particular of the regulation by tax) of air quality in the cities through measures of restrictive use of the car, which can easily have discriminatory and regressive effects because they ultimately disproportionately burden individuals with lower contributing capacity. We are aware that the times ahead will bring great

[35] According to this qualification, *i)* vehicles with a "0 emissions" environmental label may move freely and park in a "Regulated Parking Service (SER)"; *ii)* vehicles with an "ECO" environmental label may enter Central Madrid to park — for a maximum of two hours — in a "Regulated Parking Service"; and *iii)* vehicles with "C and B" environmental labels can enter Central Madrid only to access a public parking or a private garage. It should also be noted that each resident (in the area covered by Central Madrid) is entitled to twenty "tickets" per month for guests.

[36] During the "test period", more than 15,000 people were warned for non-compliance with the rules.

technological and social changes that will necessitate regulatory changes. In the meantime, administrative measures, with gradual implementation (from which we infer an intention to instigate compliance solutions), seem to be the best compromise.

5.

CORPORATE SOCIAL RESPONSIBILITY
CAN CONSUMERS AND INVESTORS BE PARTNERS FOR THIS PURPOSE?

INÊS PENA BARROS

Abstract: In a world in which there is more concern about the environmental and social issues and the necessity of a sustainable development, the consumers and the investors have also become more aware in this matter. Is this change of attitude in the consumers and the investor the key to motivate companies to implement practices of Corporate Social Responsibility?

This article wishes to be an abstract of the state of the art in the matter of Corporate Social Responsibility and of the compliance in the World, in Europe and in Portugal. Therefore, this study will begin by clarifying some essential considerations to the understanding of the article's focus; it follows the analysis of the methods used by the international community to encourage companies to implement practices of Corporate Social Responsibility, as well as some briefs parallels with the situation of the subject in Portugal. The article will conclude, at last, with a synthesis of the, eventual, consequences of the approaches taken until now, at an international and national level.

Keywords: corporate social responsibility; corporate companies; consumer; investor; Greenwashing; non-financial reports; sustainability

1. **Initial Considerations**

The present article analyses the approaches taken by the international community to encourage companies to voluntarily implement practices of corporate social responsibility through international organizations, national organizations or societal legislation, as well as the current paradigm in Portugal.

However, it is necessary to begin by clarifying certain considerations that are essential to the understanding of the subject of corporate social responsibility.

Based on the definition of Gro Harlem Broutland, to achieve truly sustainable development — that is, development that will not jeopardize the possibility of future generations themselves developing[1] — it is necessary to harmonize three dimensions: economic, social and environmental.

In the business context, this means that to contribute to the achievement of sustainable development, a company will have to consider not only the economic aspects but also the social and environmental aspects. If the notion of "corporate social responsibility" established by the European Union in the Communication (2011) 681 final as "actions by companies over and above their legal obligations towards society and the environment"[2] is taken into account, then the implementation of practices of corporate social responsibility is a way for companies to contribute to sustainable development.

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[1] Gro Harlem Brundtland *et al., Our Common Future: Report of the World Commission on Environmental and Development.* Disponível na internet: <http://www.un-documents.net/ocf-02.htm#I>.

[2] communication from the commission to the european parliament, the council, the european economic and social committee and the committee of the regions — *A renewed EU strategy 2011-14 for Corporate Social Responsibility,* 4.

In a utopian world, a company would incorporate corporate social responsibility practices without any form of obligation and incentive, as only in this way would they contribute to sustainable development, which would always be the ultimate goal of the company.

It happens, however, that societal law, in most jurisdictions, has dispositions that encourage directors to try to obtain the greatest possible profits in a short period, thus protecting the shareholders of the company[3]. In the Portuguese legal system, leaning on the notion of "partnership" established in article 980º of the Portuguese civil code (CC)[4], the purpose of the company is to obtain profit, which means that many companies' directors main focus is the economic dimension alone, and they ignore the other dimensions (social and environmental).

In addition to the argument of the notion of "partnership" — and, consequently, the notion of corporation — is the issue of the legal duties of the directors. In most international jurisdictions[5], as well as in Portugal, the director has a legal duty of care that translates to a duty of applying the time, effort and knowledge that are required by the nature of the director position, the competences and the circumstances[6]; it is important to note that this duty has a strong economicconnotation[7]. From the perspective of some authors,

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[3] Stephen J. Turner, *Corporate Practice: Addressing the Balance between Commercial Success and Environmental and Social Responsibility,* 3; and Hanne Birkmose / Mette Neville / Karsten Engsis Sørense, ed., *Boards of Directors in European Companies: Reshaping and Harmonising Their Organisation and Duties.* The Netherlands: Kluwer Law International, 2013, 158.

[4] This notion is the basis for the notion of the corporate company, established in article 1º, nº 2 of the CSC.

[5] Stephen J. Turner, *Corporate Practice,* 3.

[6] Jorge Manuel Coutinho de Abreu, *Responsabilidade Civil dos Administradores de Sociedades.* Coimbra: Almedina, 2010, 18.

[7] Hanne Birkmose / Mette Neville / Karsten Engsis Sørense, ed.,

this duty means that during decision-making, the director must prioritize the economic dimension over the social and environmental dimensions[8].

However, is it possible to pursuit profits and maintain the company's economic viability, even while implementing corporate social responsibility practices?

Many studies have confirmed that a cultural shift has been occurring in the market[9]. Today, most consumers claim that they prefer to acquire a product designed by a sustainable company (that is, by a company that incorporates corporate social responsibility policies in the conception of the product and management of the company) than one made by a company that does not respect its workers, human rights and/or the environment, even if the sustainable product costs more. This means that in principle, being sustainable may be a competitive value for the company.

2. The role of the consumer and of investment in corporate social responsibility

The subject to be analysed in the present article is the one that was introduced in the previous section — the consumer, the investor and theory of the greater long-term profits associated with corporate social responsibility.

As mentioned before, studies have claimed that the consumer prefers a product designed in a sustainable way and

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Boards of Directors in European Companies, 158.

[8] Stephen J. Turner, *Corporate Practice,* 3

[9] *Livro Verde — Promover um quadro europeu para a responsabilidade social das empresas,* Bruxelas, 18/7/2001 [com (2001) 366 final], 8; Nick Feinstein, "Learning from Past Mistakes: Future Regulation to Prevent Greenwashing". *Boston College Environmental Affairs Law Review* 40/1 (2013) 231-232; and Timothy C. Bradley, "Likelihood of Eco-Friendly Confusion: Greenwashing and the ftc Green Guides". *Landslide* 4/1 (2011) 39.

that sustainability has become a competitive value. Therefore, on the basis of the aforementioned economic and financial logic that a company's directors follow and that they must obey to as their legal duty, a director could integrate practices related to social and environmental concerns in the management of the company since in this way, they can increase the profits obtained, which is the purpose of the company.

Based on this premise, international organizations such as the UN Global Compact[10], the World Business Council for Sustainable Development[11], the Organisation for Economic Co-operation and Development[12] and, in a strictly national scope, the Associação Portuguesa de Ética Empresarial[13] have attempted to ensure that companies and groups of companies adhere voluntarily to their organizational goals. Although the company chooses to become part of the organization, from the moment that it does, it must comply with the requirements of the association in order to enjoy the perks that the organization offers. For example, if a company is part of the UN Global Compact, it must produce an annual report, which the Global Compact calls a Communication on Progress (COP), in which it discloses basic non-financial information; if the company fails to report, it may not be able to enjoy the benefits of membership, such as the use of the Global Compact logo[14].

This is how international organizations encourage companies to implement voluntary practices of corporate social responsibility when the jurisdictions themselves do

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[10] Available at: <https://www.unglobalcompact.org/>.

[11] Available at: <https://www.wbcsd.org/>.

[12] Available at: <http://www.oecd.org/>.

[13] Available at: <http://www.apee.pt/>.

[14] Available at: <https://www.unglobalcompact.org/participation/report/cop>.

not do so. Even though most of the main jurisdictions do not mention social responsibility, there are some exceptions, such as the English legal system[15] and, according to Coutinho de Abreu[16], the Portuguese legal system. According to this Portuguese author, under the legal duty of loyalty[17] established by item b) of number 1 of article 64º of the corporate code (CSC), the directors must consider, in their decision-making, actors such as clients, providers, and workers who together may constitute the ratio of corporate social responsibility. Says the author that, by exemplifying, the Portuguese legislation covers all dimensions that corporate social responsibility is intended to protect — which means that it is unnecessary to speak of corporate social responsibility in Portugal[18].

Beyond these exceptions, it is worth mentioning that in the remaining jurisdictions, in which corporate social responsibility is not mentioned, some authors — such as Beate Sjåfjell[19] —

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[15] Companies Act 2006, section 172 (1), particularly (b), (c) e (d). Available at: <https://www.legislation.gov.uk/ukpga/2006/46/section/172>.

[16] Jorge Manuel Coutinho de ABREU, *Responsabilidade Civil dos Administradores de Sociedades*, 7-8 (in press).

[17] The duty of loyalty is the second general legal duty that a director is obliged to observe. This is the duty of directors to have the interest of the company exclusively in mind and to find ways to satisfying that obligation, abstaining from promoting their own interests or the interests of a third party. Jorge Manuel Coutinho de ABREU, *Responsabilidade Civil dos Administradores de Sociedades*, Coimbra: Edições Almedina, 2010, 25.

[18] The author criticizes the lack of legal instruments at the disposal of these actors to hold responsible the directors who do not comply with the duty of loyalty. Jorge Manuel Coutinho de ABREU, *CSR: "responsabilità" senza responsabilità (giuridica)? Giurisprudenza Comerciale* (in press), 7-8.

[19] Beate SJÅFJELL / Anja WIESBROCK, ed., *The Greening of European Business Under EU Law: Taking Article 11 TFEU Seriously.* London / New York: Routledge, 2015, 97-117; and Hanne BIRKMOSE / Mette NEVILLE / Karsten Engsis SØRENSE, ed., *Boards of Directors in European Companies*,153-178.

question this purely economic mentality and find legal ways through which the directors not only may implement corporate social responsibility practices but also must do so.

In the international panorama, it is necessary to speak of corporate social responsibility as well as the ways through which it is possible to implement such practices in the business environment with greater frequency. In this context, claims Miriam A. Cherry[20], consumers and investors may be determining factors.

In a way, consumers may strongly influence companies to implement corporate social responsibility practices for the reasons mentioned before — if, between two products, the consumer chooses the one designed by a sustainable company, then for a profit reason, any company will have a competitive advantage in being perceived[21] as sustainable. Therefore, a company will gain economic and financial benefits from observing social and environmental concerns, and the directors will be in compliance with their legal duty of care in considering those concerns.

If this motivation for creating sustainable products did not exist through a purely economic and financial logic implemented by company's directors, there would be no benefit in investing in corporate social responsibility. Moreover, the directors could even risk being accountable for the losses of the company owing to not complying with their legal duties[22].

Because consumers want and demand sustainable products (designed in a sustainable way and by sustainable companies), this demand ultimately encourages companies to invest

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[20] Miriam A. Cherry, "The Law and Economics of Corporate Social Responsibility and Greenwashing". *UC Davis Business Law Journal* 14/2 (2014) 283.

[21] The expression "being perceived" is used rather than "being" because of an issue that has being raised and will be explored in the next section: greenwashing.

[22] Except for some cases, such as the Companies Act of 2006.

in a shift of practices to take into consideration social and environmental issues since, in principle, the company will obtain more future profits for being socially responsible.

Another actor mentioned by Stephen Turner who can make a difference in encouraging companies is the investor[23].

Today, many investors have a policy of investing only in companies that are considered sustainable, which means that being perceived as sustainable or not sustainable could be the difference between obtaining an investment or not. For this reason, there are many ways of distinguishing between sustainable and unsustainable companies, either by the creation of different ranking lists[24] or by the creation of indices such as the Dow Jones Sustainability Indices (DJSI)[25].

Regardless of the form used, the result is the same, and the companies are divided into two large groups: sustainable and unsustainable. Through this division, the investor decides whether to invest; therefore, companies must be aware of this classification.

Basically, through the perception of either consumers or of investors, what the company truly needs to manage is its image because through this, it can be perceived as sustainable and thus obtain more future profits.

3. *Greenwashing*

The preceding sections have developed a logic by which it can be concluded that even if a director has a legal duty to prioritize the economic sustainability of the company, a

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[23] Stephen J. Turner, *Corporate Practice,* 9.

[24] Available at: <https://www.ft.com/content/74c1e548-9ccd-11e9-b8ce-8b459ed04726>.

[25] Available at: <*https://www.robecosam.com/csa/indices/?r*>.

company can obtain competitive benefits in implementing corporate social responsibility because consumers and investors are demanding it at this moment. Briefly, being perceived as sustainable results in profits for the company.

The question that arises from this logic is exactly that of "being perceived". Basically, the problem that arises with the theory of greater long-term profits is that companies, instead of implementing practices of corporate social responsibility, implement practices of greenwashing. That is, they develop practices that allow them to create an (untrue) image that they respond to social and environmental concerns so that they can obtain an image that is more appealing to consumers and investors to obtain more profits[26].

As mentioned before, the shift in a company's behaviour implies an early investment in order to consider social and environmental concerns; the company hopes to gain a return on that investment in the future by obtaining more profits for being sustainable, as consumers prefer their sustainable product, or when investors favour their company for investment. What if the company can have "the best of both worlds"?

The truth is that this issue is simply a matter of image management. A company only has to be perceived as sustainable for consumers and investors to prefer it, even if in reality, the company is not truly sustainable. BP and Volkswagen are two known examples that prove that a company needs only good image management. For years, environmentalists recommended that consumers fuel their cars at BP stations because BP was considered a sustainable company; in turn, consumers would go out of their way to fuel at a BP station for

[26] Michelle E. Diffenderfer / Keri-Ann C. Baker, "Greenwashing: What Your Clients Should Avoid". *GPSolo* 28/6 (2011) 2; Nick Feinstein, "Learning from Past Mistakes", 233; e Miriam A. Cherry, "The Law and Economics of Corporate Social Responsibility and Greenwashing", 284.

this reason[27]. However, with the Deepwater Horizon disaster, it became known to the public that BP's practices before and during the disaster not only were not sustainable but also put the lives of workers at risk[28]. In the same way, Volkswagen won sustainability awards for years until 2016, when the public learned that the company had adulterated the results of its car emissions testing in order to comply with the legal requirements, creating what is called the Dieselgate scandal[29].

In this context, it is perceived that this approach to win over consumers and investors, that is, the image of the company, can be beneficial but also harmful. Owing to scandals such as those mentioned above, consumers and investors will become sceptical in believing a company's allegations that is sustainable[30]; in becoming sceptical, they will stop acquiring sustainable products and invest specifically in this type of company, which will eventually lead to the loss of the competitive benefit that the international organizations claim exists[31].

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[27] Miriam A. Cherry / Judd F. Sneirson, "Beyond Profit: Rethinking Corporate Social Responsibility and Greenwashing after the BP Oil Disaster". *Tulane Law Review* 85/4 (2011) 1003.

[28] For more information on the BP scandal, see Miriam A. Cherry / Judd F. Sneirson, "Beyond Profit"; e Brittan J. Bush, "Addressing the Regulatory Collapse behind the Deepwater Horizon Oil Spill: Implementing a Best Available Technology Regulatory Regime for Deepwater Oil Exploration Safety and Clean-up Technology". *Journal of Environmental Law and Litigation* 26/2 (2011).

[29] For more development on the sustainability awards won by Volkswagen, see its sustainability report (specially pages 74 ss.), available at: <https://www.volkswagenag.com/presence/nachhaltigkeit/documents/vw_Sustainability-Report_2016_en.pdf>.

[30] Michelle E. Diffenderfer / Keri-Ann C. Baker, "Greenwashing: What Your Clients Should Avoid". 32.

[31] Miriam A. Cherry / Judd F. Sneirson, "Beyond Profit", 986; Nick Feinstein, "Learning from Past Mistakes", 235 e 250; e Miriam A. Cherry, "The Law and Economics of Corporate Social Responsibility and Greenwashing", 283.

For this reason, watchdogs such as Terrachoice and reports of sustainability (or the availability of non-financial information) have become important. These are ways to oblige companies to disclose information that can confirm that they actually implement practices of corporate social responsibility, that is, that they are truly sustainable.

Terrachoice is an example of a frequently cited watchdog[32]; in 2007, it created a report in which it not only analysed the percentage of "sustainable" companies that use Greenwashing but also managed to educate consumers regarding how to realize whether a company is using greenwashing. In this report, the organization created a list of "sins" — with a brief explanation and practical examples — through which a consumer can understand whether a company is truly sustainable or just trying to be perceived as such; in this way, Terrachoice managed to simplify the complex concept of greenwashing and educate consumers to become watchdogs themselves. In addition to this educational aspect, the report provides statistical dada regarding the amount of products that are actually sustainable. In 2007, when the report was first produced, the organization concluded that only one in 1,018 "sustainable" products analysed was not associated with at least one of the sins, that is, did not resort to greenwashing[33]; in 2010, the last year that the report was produced, 4.5% of the products were sin-free[34].

Despite the good work that these watchdogs are doing to

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[32] Michelle E. Diffenderfer / Keri-Ann C. Baker, "Greenwashing: What Your Clients Should Avoid". 46; Nick Feinstein, "Learning from Past Mistakes", 233-234; e Miriam A. Cherry, "The Law and Economics of Corporate Social Responsibility and Greenwashing", 285.

[33] Available at: <http://sinsofgreenwashing.com/findings/greenwashing-report-2007/index.html>.

[34] Available at: <http://sinsofgreenwashing.com/findings/greenwashing-report-2010/index.html>.

combat greenwashing[35], the truth is that it is not always easy to do so, especially when the information that they need is in the hands of the companies that are being "inspected". It is necessary, therefore, to make companies disclose non-financial information[36] and, in this context, to produce reports containing non-financial information or information about integration or sustainability. Whatever name is given to the report, they all have the same ratio of public information about social and environmental issues as well as the normal financial information[37].

The subject of non-financial reports is particularly relevant, and such reports have been well studied since, despite being initially voluntary, they later emerged in contexts in which they are mandatory for the companies.

Initially, the integrated report emerged in South Africa with the- King III Code, which demanded that the companies listed in the Johannesburg stock exchange produce this report[38]. More recently, in the scope of the European Union, Directive 2014/95/EU[39] — required[40] approximately 6,000

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[35] For this opinion, see Nick Feinstein, "Learning from Past Mistakes", 235.

[36] Miriam A. Cherry, "The Law and Economics of Corporate Social Responsibility and Greenwashing", 292.

[37] Beate Sjåfjell / Anja Wiesbrock, ed., *The Greening of European Business,* 118.

[38] Beate Sjåfjell / Anja Wiesbrock, ed., *The Greening of European Business,* 126-127.

[39] Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014, amending Directive 2013/34/EU regarding the disclosure of non-financial and diversity information by certain large undertakings and groups. Official Journal of the European Union (15.11.2014).

[40] It is relevant to note that this is a slightly different obligation because it applies the comply-or-explain principle, which means that the

large European companies[41] to produce a report that contains non-financial information.

Even in scenarios (such as those ones mentioned before) in which it is mandatory to report, integrated reports do not always emerge in these contexts. Sometimes, companies wishing to improve their image and show how sustainable they are voluntarily produce this kind of report[42]. When such reporting happens, however, from the initiative of the company, it is also the company that decides what criteria to use and what information is relevant. Therefore, the innumerable reports that result are ultimately useless because it is impossible to compare them[43]; in addition, they show only what the company wants to share with the public and do not disclose information that is relevant to consumers and investors[44]. In this context, a set of international organizations — of which Global Reporting Initiative[45] and International

company can not produce this report but then must justify why it did not do so. See article 19º-A of the DIRECTIVE 2014/95/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 October 2014, amending Directive 2013/34/EU regarding the disclosure of non-financial and diversity information by certain large undertakings and groups. Official Journal of the European Union (15.11.2014).

41 Beate SJÅFJELL / Anja WIESBROCK, ed., *The Greening of European Business,* 141; Stephen J. TURNER, *Corporate Practice*, 8; and Martha C. WILSON, "A Critical Review of Environmental Sustainability", 5.

42 Martha C. WILSON, "A Critical Review of Environmental Sustainability Reporting in the Consumer Goods Industry: Greenwashing or Good Business". *Journal of Management and Sustainability* 3/4 (2013) 1.

43 Beate SJÅFJELL / Anja WIESBROCK, ed., *The Greening of European Business,* 141; Stephen J. TURNER, *Corporate Practice*, 8; e Martha C. WILSON, "A Critical Review of Environmental Sustainability", 5.

44 About the potential manipulation, see Martha C. WILSON, "A Critical Review of Environmental Sustainability", 8.

45 Available at: <https://www.globalreporting.org/Pages/default.aspx>.

Integrated Reporting Council[46] are examples — has emerged of which the only goal is to create criteria for this kind of report in order to make it universal and thus comparable.

Despite these attempts to create universal criteria for non-financial reports, the truth is that these attempts have not been truly productive. On the one hand, these criteria must be abstract enough to be applied to any company and to different industry sectors; on the other hand, they cannot be ambiguous to the point of not giving the necessary information to enable consumers and investors to form an opinion about the company in terms of social and environmental issues. According to some critics, this balance has not yet been found, but the existence (and, in some cases, the obligation) of these reports is nonetheless an important step towards the goal of sustainable development.

4. **Conclusion**

It can be concluded from this analysis that in the current paradigm, the course of corporate social responsibility has been mainly voluntary.

Basically, a company is encouraged to concern itself with social and environmental issues since, in principle, such efforts will be recognized by consumers and investors, who will prefer this sustainable company to others that have not made the same investment.

Although this approach has many benefits, the truth is that it may also be harmful to the goal. Through this approach, the encouragement to implement practices of corporate social responsibility ultimately improves the companies' image for consumers and investors, but what if the company implements practices that only give the appearance that it is sustainable?

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[46] Available at: <https://integratedreporting.org/the-iirc-2/>.

This is a great risk, and to overcome it, even in part, it is mandatory that the companies be more transparent and disclose information that can confirm this appearance. Currently, this "inspection" of companies — in hopes of overcoming the problem of greenwashing — is being performed mostly by watchdogs and through reports of non-financial information.

Even as these matters develop and potentially contribute more assertively to the achievement of sustainable development, the truth is that it can be more productive to explore other approaches in order to achieve this global goal as soon as possible.

III

SPECIAL PART

SECTOR COMPLIANCE: ENERGY, AGRICULTURE, TOURISM AND MINING

1.

SOCIO-ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT IN THE BRAZILIAN ELECTRICAL SECTOR

AN APPROACH TO REGULATION IN THE ELECTRICITY SECTOR AND SOCIO--ENVIRONMENTAL COMPLIANCE THROUGH THE STUDY OF LEGISLATION AND OTHER LEGAL ASPECTS REGARDING ENVIRONMENTAL LICENSING RESTRICTIONS TO MITIGATE THE SOCIO-ENVIRONMENTAL AND ECONOMIC RISKS OF THE GENERATION AND DISTRIBUTION OF THE ELECTRIC POWER INDUSTRY

MÁRCIO DE CASTRO ZUCATELLI

Abstract: This legal article is divided into four sections. In the first, a brief history about the Brazilian scenario for the construction of the idea of Environmental Compliance to reinforcing the basic principles and guidelines in the treatment of social and environmental issues, delineating the contours and scope of this action by the Companies of the Electric Sector. In the second, the text addresses the management of

environmental risk in electricity distribution and the need to establish urgent schedules for PCBs *(Polychlorinated Biphenyls)* to be eliminated from the environment and properly discarded until 2028, according to the Stockholm Convention (2001). In the third, the social component will be analyzed as condition of the environmental licensing correlated with the financial compensation and payment of royalties collected by the company responsible for the activities of exploration and production of hydroelectric generation in Brazil. In the fourth, the land issue as environmental condition of the respective licence.

Keywords: electrical sector; environmental licensing; compensation; environmental conditioners; social component; hydropower plant; risks; socio-environmental; royalties; PCBs

1. **Introduction**

In Brazil, in November 1986, the Master Plan for the Conservation and Recovery of the Environment in the Works and Services of the Electricity Sector (I PDMA) was revised to mark the sector reorientation in socio-environmental issues through a joint effort of the Consultative Committee Eletrobrás and the World Bank. This plan contemplated the treatment of socio-environmental issues and the results achieved in this process of sectoral training.

The second stage of the Environmental Sector Master Plan — II PDMA (1991/1993) resulted from a process of improving the previous one and was marked by great political, legal and institutional transformations in Brazil, among which the Federal Constitution of 1988 and a significant modification of the structure of the federal agencies that deal with environmental issues stand out.

At that moment, in the Brazilian electricity sector, there was a convergence of efforts regarding the need to implement corporate governance and environmental compliance or environmental enforcement and assurance aspects in energy companies in accordance with the basic principles and guidelines for dealing with socio-environmental issues and

actions taken by governmental agencies in co-operation with other stakeholders to plan, implement and operate such enterprises, compatible with the guidelines and instruments of the National Environmental Policy (Law 6.938/81).

The PDMAs had the following objectives: *(i)* the consolidation, systematization and improvement of knowledge in the sector of how to treat socio-environmental issues; *(ii)* the monitoring of the most relevant socio-environmental actions related to the projects being planned, implemented and operated; *(iii)* the characterization of the socio-environmental costs and benefits of the sector's performance; *(iv)* the adequate allocation of financial resources, depending on multiple uses, by other sectors related to activity, works and services executed under the leadership of the electricity sector or with its participation; and *(v)* the clarification and involvement of public opinion necessary for defining the projects and programmes that best respond to social concerns.

In response to the need to observe the environmental laws and the harmful effects of non-compliance owing to multiple civil, criminal and administrative sanctions, and not exclusively as a requirement for environmental licensing, electricity sector companies had to develop an environmental compliance programme and socio-environmental risk management with a direct interface with sustainability policies aimed at mitigating these inherent risks in the sector's ventures.

Federal Law 13.303/16 recognizes the social function of public companies and a mixed-capital society, and Paragraph 2 of Article 27 states that these companies must "adopt practices of environmental sustainability and corporate social responsibility compatible with the market in which they act".

Since the advent of Federal Law 12.846/13, which provided for the civil and administrative liability of legal persons that perform acts against the public, national or foreign government, compliance policies had to be implemented through internal mechanisms, integrity procedures, auditing and encouraging the reporting of irregularities.

In fact, electricity sector companies had to be concerned with risk management within the process of socio-environmental diligence that is directly linked to their activities; they had to adopt good practices of governance, sustainability and integrity, relating, for the purposes elaborated in this article, to the adoption of socio-environmental practices that are in full harmony with environmental legislation, under penalty of acts that are confusing to the public administration, thus mitigating the civil, criminal and administrative liability risks of natural and legal persons and serving as an important and necessary instrument in business crisis management.

2. Electric energy distribution networks and the 2028 deadline for the elimination of equipment and materials contaminated with polychlorinated biphenyls (PCBs) above 50 mg/kg

The business units of the electricity sector associated with the distribution of electric energy in Brazil have encountered severe difficulties in meeting the deadlines of adequate management of PCBs in terms of their final destination and residues through regular industrial processing via incineration or decontamination because the regulatory and operational risks increase each year.

Persistent organic pollutants (POPs) pose significant and growing threats to human health and the environment. In May 1995, the Governing Council of the United Nations Environment Programme (UNEP) requested, in Decision 18/32, that an international process be initiated to evaluate a list of 12 POPs, namely, aldrin, chlordane, DDT, dieldrin, dioxins, endrin, furans, hexachlorobenzene, heptachlor, mirex, PCBs and toxaphene.

The list of POPs includes PCBs, which are man-made chlorinated organic aromatic compounds (biphenyls). In

industrialized countries, PCBs were manufactured between the mid-1920s and 1970, and for decades, their characteristics, such as high stability and low flammability and conductivity, made them the most widely used liquid dielectric insulators in transformers and other electrical equipment.

PCBs were never manufactured in Brazil but arrived by import under different commercial names, such as *ascarel* and *aroclor*, which represent environmental threats to birds and other wildlife as well as to human health because they produce a liver-damaging toxin and an acute danger of skin disorders. However, management still hoped that PCBs would prove not to be a human carcinogen.

Within the old conception of the abstract or uncertain risks described by Raffaele De Giorgi[1], after events, tests and data, PCBs[2] were classified as a concrete risk under the Stockholm Convention (2001) given the demonstrated causality and predictions based on statistics and the probability of actual damage to human health and to the environment.

The need to manage the environmental risk and establish urgent schedules and an adequate methodology for PCBs to be removed from circulation and properly disposed of by 2028

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[1] Apud Domingos Sávio de Barros ARRUDA. "A categoria acautelatória da responsabilidade ambiental". *Revista de Direito Ambiental* 11/42 (2006) 25, citing Raffale De GIORGI. "O risco na sociedade contemporânea". *Revista de Direito Sanitário.* São Paulo. 9/1 (mar/jun. 2008) 37-49.

[2] "Evidence of the toxic effects of PCBs dates back to the 1930s, but only with research conducted between the 1960s and 1970s by scientists from a Swedish research institute, researchers of the biological effects of DDT, were high levels of PCBs found in the blood, hair and fatty tissues of wild animals. Research during the 1960s and 1970s revealed that PCBs and other organochlorine and aromatic compounds were powerful carcinogens, and also related them to a wide range of reproductive, developmental and immune system disorders". In Letícia ALBUQUERQUE. *Poluentes Orgânicos Persistentes — Uma análise da Convenção de Estocolmo.* Curitiba: Juruá, 2008 72-73.

is a major concern for electricity power distributors around the world due to the operational and technical difficulty of performing such a procedure without compromising their core activity of supplying power to millions of users.

The first normative attempt to address the subject in Brazil was Interministerial Ordinance MINTER/MIC/MME 19, of 01.29.1981, stating that "the implementation of processes that have as their main purpose the production of polychlorinated biphenyls — PCBs" as well as "the use and commercialization of polychlorinated biphenyls — PCBs, in all the state, pure or in mixture, in any concentration or physical state are prohibited in the whole National Territory".

According to item III of the ordinance, the equipment of the electricity system in operation that used PCBs as dielectric fluid could continue to be used until it was necessary to empty it, after which it could be filled only with fluids that did not contain PCBs.

In fact, the electricity power distributors should consider, in the specifications of new power capacitors, the acquisition of equipment that did not use PCBs.

Normative Instruction SEMA/STC/CRS 1, of 06.10.1983, specified the constraints that should be observed in the handling, storage and transport of polychlorinated biphenyls and/or contaminated residues.

In 1988, CONAMA Resolution 6 established in article 4 and annex I the obligation for electric energy concessionaires to present to the competent environmental control organ, within sixty days of the publication of the resolution, their inventory of stock containing materials and/or equipment contaminated with PCBs.

Federal Decree 875 of July 19, 1993, enacted the Convention on the Control of Transboundary Movements of Wastes and Their Disposal (Basel Convention), which established international mechanisms to control the transportation of such contents, seeking to curb illicit trafficking and intensify

international cooperation regarding the proper management of wastes.

In this regard, CONAMA Resolution 452, of 07.02.2012, provides " procedures for controlling the import of waste, according to the standards adopted by the Basel Convention", replicated in IBAMA Normative Instruction 12, of 07.16.2013.

The Stockholm Convention on Persistent Organic Pollutants has the legal nature of a federal law and the status of a supralegal norm. It is a general rule that falls under the concept of article 24, paragraph 1, of the Federal Constitution.

As a signatory to the Stockholm Convention, which was enacted by Federal Decree 5472/2005, Brazil must require electricity distributors that hold the largest equipment parks containing this insulating mineral oil to meet the requirements set forth in Part II of the Convention:

> Part II - Polychlorinated biphenyls:
>
> Each Party shall:
>
> (a) with reference to the elimination of the use of polychlorinated biphenyls in equipment (e.g. transformers, capacitors or other receptacles containing stored liquids) by 2025, subject to review by the Conference of the Parties, act in accordance with the following priorities:
>
> (i) endeavour to identify, label and withdraw from use equipment containing more than 10% polychlorinated biphenyls and volumes greater than 5 litres;
>
> (ii) make efforts to identify, label and withdraw from use equipment containing more than 0.05% polychlorinated biphenyls and volumes greater than 5 litres;
>
> (iii) endeavour to identify and withdraw from use equipment containing more than 0.005% polychlorinated biphenyls and volumes greater than 0,05 litres.

The Brazilian state, therefore, was obliged, within the scope of the international relations between states, to implement, in its sovereign field, an internal norm whose commandment — for the handling of liquids that contain PCBs — confers term that do not extend beyond 2028.

In the state of São Paulo, state legislation has determined

that the maximum term for the final destination of materials and devices contaminated with PCBs will end in December 2020 (article 6). Those who do not comply will be subject to penalties described in articles 19 to 24 of Law 12.288/2006. Examples of non-compliance are as follows:

> Article 21 - They constitute serious offences:
>
> I - Delivery of the inventory and elimination schedule with incorrect or false information;
>
> II - Emission of incorrect or false chemical analyses;
>
> III - Issuance of invoices with incorrect or false information;
>
> IV - Non-compliance with the elimination schedule;
>
> V - Final destination in disagreement with the provisions of this law;
>
> VI - Commercialization of PCBs and their residues, transformers, capacitors and other electric equipment containing PCBs, as well as the regeneration of insulating oils in disagreement with what is established in this law.

If the deadline is not met, the sanctions of embargo of activity and suspension or cancellation of environmental licensing, among others, as well as the specific pecuniary sanctions established by Law 12.288/2006, may be applied to individuals or legal entities that have been charged with such administrative illegality.

In addition, inattention to the legal command to eliminate the electricity energy distribution and disposal of PCBs can lead to consequences in the criminal sphere, owing to the global interest in the control of PCB destinations and the notorious carcinogenic potential of PCBs, as typified in the criminal conduct established by article 68 of Law nº 9.605/98 due to the simple non-fulfilment of the obligation imposed by the law. Depending on the interpretation given to a case, it will also be possible to invoke the typification of the crime foreseen in article 56 of Law 9.605/98 — having in deposit a substance harmful to human health or to the environment — or even, finally, the crime foreseen in article 54 of the same law — the crime of pollution.

The verification of the occurrence of the crime will cause electricity power distribution concessionaires, as well as the individual or individuals responsible for the act of inattention, to be subject to the applicable sanctions, such as those established in article 22 of Law 9.605/98, with respect to the legal entity, and the sanctions restricting freedom, with respect to the individual, as established for each of the criminal types of action indicated above.

In this scenario, regardless of the perspectives of federal regulation in coming years and the adequacy of Brazilian efforts to establish a methodology for collecting samples, labelling insulating oil samples for analysis of PCBs, and PCB screening tests and laboratories using identification chromatography of transformers with dielectric fluid, the theme should be monitored and the risks evaluated on the basis of the terms and deadlines effectively established in the legislation.

3. The problematic established by the social component in the fulfilment of the environmental licensing constraints of projects related to hydroelectric reservoirs in Brazil

The environmental constraints make compatible the constitutional principles of the economic order and the protection of the environment with the primary purpose of mitigating or compensating for the verified negative environmental impacts of infrastructure projects — and, in this article, the approach is focused completely on hydroelectric power plants (UHEs) in light of the objectives and instruments of legal protection provided in Law 6.938 of August 21, 1981, which established the National Environmental Policy (PNMA) in Brazil.

In addition to establishing the PNMA, Law 6.938/81 created the National Environmental Council (CONAMA) and the National Environmental System (SISNAMA) to regulate the state's inspection of the environment by presenting the

necessary instruments for both the environmental licensing and the evaluation of the environmental impacts of projects aiming to reconcile socio-environmental and economic interests and, at the same time, preserve the quality of the environment.

As provided in CONAMA Resolution n. 237/1997, environmental licensing is the administrative process by which the competent environmental agency permits the location, installation, expansion and operation of enterprises and activities that use environmental resources considered effective and potentially polluting or those that in any way may cause degradation during the design, installation, operation and so-called demobilization phases.

The experience of hydroelectric exploitation of the Brazilian energy grid has shown over the years that the socioeconomic liabilities that pre-date the implementation of such enterprises represent the distortion of the proper function of the environmental constraints, which is to mitigate or compensate for the environmental impacts and the dynamicity of their fulfilment in reasonable periods, in instances of flagrant abuse of power or misuse of the state's purpose.

From this perspective, it is worth mentioning the conclusion of the World Bank in pointing out the indicators of the incidence of costs associated with the environmental licensing process of hydroelectric plants in Brazil, emphasizing the need to regulate the social component:

> Most of the problems associated with environmental licensing in Brazil occur in the first phase (Previous License (LP)) of a process that comprises three stages. These problems include lack of adequate government planning, lack of clarity about which governmental (federal or state) sphere has legal authority to issue environmental permits, delays in issuing terms of reference (ToRs) for the environmental impact study (EIA) required by legislation, poor quality of EIAs prepared by project proponents, inconsistent evaluation of EIAs, lack of an adequate system for conflict resolution, lack of clear rules for social compensation.

The analysis presented in this study focuses on the social component of environmental licensing, which is a prominent issue that is directly related to the pre-existing socioeconomic liabilities associated with the installation of hydroelectric power generation projects. Such projects are often implemented in an abusive manner by operators who take advantage of the economic entrepreneurial potential and the state's omissions because the plants are installed in less developed municipalities.

The fact is that the environmental licensing body must identify the best way to promote economically viable alternatives to such enterprises and, at the same time, minimize the environmental impacts. Eduardo Bim points out the following:

> In terms of environmental decision making, this means that it is not enough to choose the environment with the least environmental impact, if the other values in play are promoted with the same intensity.

The preliminary phase of the enterprise, which includes environmental impact assessments (EIAs)[3] and environmental impact reports (RIMAs), represents the moment when the licensing body becomes aware of the economic activities that will be initiated and the potential local development and should evaluate the cumulative and synergistic impacts of the issuance of the term of reference that defines the scope of the studies that should be developed and delivered by the entrepreneur and that will serve as a basis for the EIA.

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[3] CONAMA Resolution no. 01/1986 states that the EIA shall contemplate all technological alternatives and project location, identify and systematically evaluate the environmental impacts generated in the phases of implementation and operation, define the limits of the geographic area to be directly or indirectly affected by the impacts and consider the government plans and programs in the project's area of influence and their compatibility with the project.

The digression on the theme is intended to draw attention to the conflict of interest with the actors in the licensing process and the importance of the so-called "direct environmental impact" and sufficient legal and regulatory frameworks to define the "socioeconomic liabilities" generated by the impact of the projects, as the UHEs are presented in Brazil, considering the forecast of financial compensation[4] and payment of royalties collected by the company responsible for the activities of exploration and production of hydroelectric generation in a particular place.

The value to be applied in three major UHE projects in Brazil, namely, Santo Antônio (RO)[5], Jirau (RO) and Belo Monte (PA), is approximately 50 billion reais; thus, the totally improper delegation of the enforcement of public policies to

[4] Financial compensation, established by the Federal Constitution of 1988, in Article 20, paragraph 1, and regulated by Law 7,990/1989, corresponds to the indemnification to the states, the Federal District and municipalitiesas well as Union direct administration agencies, of the results of the exploitation of water resources for the purpose of generating electric energy. Based on Law 9,648/1998, the monthly amount collected as financial compensation corresponds to 7% of the value of energy produced, to be paid by the electric energy service concessionaires to the states, Federal District and the counties. A proportion of 0.75% is transferred to the MMA for application in the implementation of the National Water Resources Policy and the National Water Resources Management System. Of the percentage of 6.25%, as established in Law No. 8,001, dated March 13, 1990, with changes made by Laws 9,433/97, 9,984/00, 9,993/00, 13,360/16 and 13,661/18, exactly 65% is destined for the municipalities affected by the reservoirs of hydroelectric plants, while the states are entitled to another 25%. The Union holds the remaining 10%, divided between the Ministry of the Environment (3%); the Ministry of Mines and Energy (3%) and the National Fund for Scientific and Technological Development (4%), administered by the Ministry of Science, Technology and Innovation. Hydroelectric projects classified as small hydropower plants are exempt from the collection of financial compensation, pursuant to Law No. 9,427, of December 26, 1996.

[5] IBAMA Operation License 1,044/2011, IBAMA Operation License 1,097/2011 and IBAMA Operation License 795/2011, respectively.

the entrepreneurs may make it impossible for them to comply with constraints on the operation of the power plant for electric power generation.

The constraints that go beyond the limits of local liability compatibility with the direct impact of the enterprise itself are directly linked to the economic aspects of the areas of influence of the enterprise, according to the following indicators: gross domestic product; trade balance; companies installed; primary sector (agriculture, breeding and extractivism); employment and income; and municipal public finances.

A perfunctory analysis of the social component shows that the GDP of three economic sectors (agriculture, industry, and services) is highlighted to determine the constraints after the analysis of agricultural activities; forestry and logging; livestock; fishing; the mineral extractive industry; the transformation industry; construction; the production and distribution of electricity and gas, water, sewage and urban cleaning; maintenance and repair services; accommodation and food services; transport, storage and mail; information services; and financial intermediation, insurance and supplementary pension, among others.

In comparison with the EIA-RIMA, the social component of environmental licensing should be the object of constant study owing to its contours with a view to restrictive regulation, considering that it is directly related to the pre-existing socioeconomic liabilities associated with the installation of the hydroelectric project; such licensing is often improperly implemented, as it takes advantage of the entrepreneur's economic potential to overcome the state's omissions because the plants are installed in less developed municipalities.

The hydroelectric power plants in Brazil are great generators of public revenues, providing financial compensation for the use of water resources and the operation of Itaipu Binacional to the public coffers of 6 states and 331 municipalities in the amount of more than 5 billion reais.

In Brazil, in May 2018, the percentages of the distribution of royalties were changed: 65% to municipalities, 25% to states and 10% to federal agencies under Law 13.661/2018, which amended Law 8.001/90.

In practice, in the system of collection of financial compensation for the use of water resources (CFURH), the hydroelectric plants that benefit from reservoirs by the amount of the increase of energy provided by them will be considered to be generation associated with these regularizing reservoirs, competing with the ANEEL (Brazilian National Agency of Electric Energy) to make the corresponding assessment to determine the proportion of financial compensation due to the states, Federal District and municipalities affected.

According to ANEEL, in 2015, the state of Rondônia and the municipality of Porto Velho received the amount of R$56,953,942.16 from the Santo Antônio Hydroelectric Plant, of which 45% was destined for these controversial social components.

Through ANEEL statistical data and surveys of the collection and distribution of resources among beneficiaries, the social component has been used as a means of implementing public policies by the entrepreneur as a substitute for the state with the seal of the licensing body, although the restrictive interpretation of the CONAMA resolution clarifies that it must "consider the governmental plans and programs proposed and implemented in the area of influence of the project and its compatibility".

In Brazil, this deficiency of local public power has been passed on to the entrepreneur through environmental constraints in an attempt to use licensing as an instrument to equate local problems that do not have a causal link with environmental impacts for compensation purposes of the CONAMA Resolution 01/1986 and CONAMA 237 — which may inevitably lead to the nullification of the constraint.

4. Environmental Licensing and Land Regularization: Administrative servitude by the entrepreneur of the Permanent Preservation Areas (APPs) created in the surroundings of hydroelectric reservoirs

Currently, APPs are defined and regulated by Law 12.651/2012. APPs are defined as regions that are protected, whether or not they are covered by native vegetation, with the environmental function of preserving water resources, the landscape, geological stability and biodiversity; facilitating the gene flow of fauna and flora; protecting the soil; and ensuring the well-being of human populations[6].

Notably, the permanent preservation areas do not depend on a specific administrative act for their creation since they are legally imposed administrative limitations. Thus, a general and public order is imposed that conditions the exercise of rights or private activities.

Native vegetation in APPs must be maintained by the owner or occupant of the area in any capacity, who is also be obliged to promote the restoration of vegetation in the event of its suppression or degradation.

In general, the concept of the permanent preservation area, as it is known today (preserving the area and not only the vegetation), was introduced only in Provisional Measure 2.166-67 of August 24, 2001, which amended the 1965 Forest Code.

Until that moment, the legislation was clear about the obligation to preserve only the forests and natural vegetation

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[6] "Art. 3 - For the purposes of this Law, is defined as:
[...]
II - Permanent Preservation Area — APP: protected area, covered or not by native vegetation, with the environmental function of preserving water resources, landscape, geological stability and biodiversity, facilitating the gene flow of fauna and flora, protecting the soil and ensuring the well-being of human populations;"

existing in these protected environments, and not the area itself, if vegetation was discovered.

Specifically, in relation to the surroundings of artificial reservoirs, the obligation to preserve the forests and other forms of vegetation located there, aiming at the protection of this hydric body, was established by means of paragraph b of article 2 of the Forest Code of 1965[7].

As such, CONAMA edited Resolution 302, of March 20, 2002, requiring, in article 3, that the permanent preservation areas should be 30 (thirty) metres around artificial reservoirs located in consolidated urban areas and 100 (one hundred) metres for those located in rural areas. The same device provided that permanent preservation areas around artificial reservoirs are measured in horizontal projection from the normal maximum level.

More recently, Federal Law 12,651 came into force on May 25, 2012, and became known as the new Forest Code. This law provides for the protection of native vegetation and, in article 62, establishes new limits for the definition of the APP from artificial reservoirs in 'old' hydroelectric plants, *in verbis:*

Art. 62 For artificial water reservoirs destined to power generation or public supply that were registered or had their concession or authorization contracts signed prior to Provisional Measure No. 2.166-67, of August 24, 2001, the range of the Permanent Preservation Area shall be the distance between the maximum normal operating level and the maximum quota maximorum.

Thus, the application to the case of article 62 of the new Forest Code does not mean an environmental regression; on the contrary, this provision finally allows for the implementation

[7] "Art. 2 The forests and other forms of natural vegetation located are considered of permanent preservation, by the sole effect of this Law: (...) b) around natural or artificial lagoons, lakes or water reservoirs".

of a permanent preservation area consistent with the reality that has been verified in the area surrounding the reservoir since the time of its implementation.

Furthermore, it is necessary to mention that the eventual uses of permanent preservation areas in the surroundings of artificial reservoirs are allowed only according to the Environmental Plan for Conservation and Use of the Surroundings of the Artificial Reservoir (PACUERA) and within the limit of 10% of the total area[8].

From that point of view, the topographic demarcation of the areas corresponding to the flood area and the safety quota in relation to the normal floods that occur in the backwater region of the reservoir are a determining factor because, after the formation of the lake, the range between the safety quota of the normal floods and the safety quota of the exceptional floods should be demarcated. The Forest Code incorporated the institute of administrative servitude in article 5:

> Art. 5 - In the implementation of artificial water reservoirs for power generation or public supply, it is mandatory the acquisition, expropriation or institution of administrative servitude by the entrepreneur of the Permanent Preservation Areas created in its surroundings, as established in the environmental licensing, observing the minimum range of 30 (thirty) meters and maximum of 100 (one hundred) meters in rural area, and the minimum range of 15 (fifteen) meters and maximum of 30 (thirty) meters in urban area.
>
> § 1 In the implementation of artificial water reservoirs referred to in the caput, the entrepreneur, within the scope of environmental licensing, shall prepare an Environmental Plan for Conservation and Use of the Surroundings of the Reservoir,

[8] 1o§Article 5(1) of the new Forest Code, in verbis: "Art. 5 (...) § 1 In the implementation of artificial water reservoirs dealt with in the caput, the entrepreneur, within the scope of environmental licensing, shall prepare an Environmental Plan for Conservation and Use of the Surroundings of the Reservoir, in accordance with the term of reference issued by the competent body of the National Environmental System — Sisnama, the use of which may not exceed 10% (ten percent) of the total Permanent Preservation Area".

> in accordance with a term of reference issued by the competent body of the National Environmental System (Sisnama), and the use may not exceed 10% (ten percent) of the total Permanent Preservation Area.

The new Forest Code established that the permanent preservation area of the artificial water reservoir must be implemented through the acquisition, expropriation or institution of administrative servitude.

The current provision, allowing the institution of administrative servitude, is adherent to what has long been established by Federal Law 9,074 of 07.07.1995, which deals with granting and extending concessions and permits for public services; the National Agency of Electric Energy (ANEEL) is responsible for the declaration of public utility:

> Art. 10 It is incumbent upon the National Agency of Electric Energy — ANEEL, to declare the public utility, for purposes of expropriation or institution of administrative servitude, of the areas necessary for the implementation of facilities of concessionaires, permissionaires and authorized electric power.

In the same sense, it is the text of Federal Decree No. 2,003 of September 10, 1996, that, in article 30, provides as follows:

> Art. 30 - At the justified request of the interested party, the grantor power may declare the public utility, for purposes of expropriation or institution of administrative servitude, of land and improvements, in order to enable the performance of works and services for the implementation of hydraulic use or thermoelectric power plant, being the independent producer or self-producer interested to promote, amicably or judicially, in the form of specific legislation, the implementation of the measure and payment of the compensation due.

ANEEL Resolution 740, of 11.10.2016, establishes the general procedures for requesting the Declaration of Public Utility (DUP) that justifies the intervention in the property, allowing the institution of administrative servitude or

expropriation in private properties[9] (article 1º, §2º).

The institution of administrative servitude is applicable when it does not denote the need for the transfer of property — an unavoidable effect of expropriation — and can be as much for permanent preservation areas as for the security zone of the reservoir. In other words, it does not give rise to loss of property, as is the case of expropriation; however, the socio-environmental impact should be analysed with the economic impact. In this sense, the decision of the Federal Regional Court of the 3rd Region (São Paulo)[10] is cited to prevent the claim of the concessionaire of institution of administrative servitude insofar as it was evidenced the annihilation of the use of property.

In conclusion, in consideration of the characteristic of administrative servitude, compensation should be considered only if there was a reduction in the potential for economic exploitation of real estate; the cases of hydroelectric plants are specifically based on the judgements of the Federal Regional Courts.

In this case, therefore, the rule is that administrative servitude does not give rise to compensation if the use by the government does not cause damage to the owner and the right in rem of use does not cause damage to dominus; in the latter case, compensation should be paid in an amount equivalent to the damage because the burden of proof is on the owner.

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[9] Regarding public goods, the DUP denotes the specific allocation for purposes of electricity, and it is up to the interested party to postulate instruments that allow the intended use (article 1, paragraph 3).

[10] EXPROPRIATION - CONSTRUCTION OF HYDROELECTRIC POWER PLANT - RESERVED LAND - MID-POINT FIXATION - SERVITUDE AREA - LAND VALUE FIXATION - IMPROVEMENTS.1. The fact that the party, in an investigation and trial hearing, expresses its confidence in the magistrate does not mean that it will be subject to the amount of the fixed fees, if this does not correspond to its expectations. 2. In expropriations, the attorney's fees, set at 5% of the difference between the offer and the indemnity and plus the legal consecrated persons, under the provisions of article 20, paragraph 4, of the CPC.

5. **Conclusion**

Based on the facts and legal aspects described above, it is concluded that environmental legislation and governance environmental compliance policies observance in electricity sector companies aims to achieve the ideal model of socio-environmental risk management in which developing enterprises, without allowing the diversion of environmental licensing purposes, guarantee the legal certainty and costs predictability involved in the monitoring of, mitigation of and environmental compensation for the impacts that will be generated during the implementation and operational stages, especially in the country that has the greatest renewable energy source in the world.

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COMPLIANCE AND SUSTAINABILITY

ENVIRONMENTAL IMPACTS AND RISK MANAGEMENT ASSOCIATED WITH WIND FARMS IN BRAZIL

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Abstract: This article aims to present the relevant aspects of environmental permitting in Brazil related to the implementation and operation of wind projects, especially regarding compliance with international standards of good practices. Biodiversity surveys, cumulative assessment data gaps, and stakeholder management are identified as key challenges.

Keywords: wind power; sustainability; environmental impact assessment; performance standards.

Contextualization of wind power in the power market in Brazil

Since 2004, the Brazilian Energy Policy has been implemented by the Energy Research Company (EPE), which is associated with the Ministry of Mines and Energy (MME). Created by Law 10,847 and regulated by Decree 5.184/04, the purpose of the EPE is to develop studies that support the formulation, planning and implementation of MME actions within the scope of the national energy policy (art. 4, single paragraph, of Law 10,847/04)

In this way, energy planning in Brazil is a responsibility of the national government and is led by the EPE. Periodically, the EPE publishes a Ten-Year Energy Expansion Plan (PDE), which presents the planned expansion of the energy sector over the ten-year period, considering all economic sectors and power generation sources. The PDE 2027 goals are to increase the reliability of the national integrated power grid, reduce generation costs and reduce environmental impacts.

The expansion of electricity supply sources in Brazil is planned according to demand forecast studies. The EPE organizes periodic energy auctions to contract new supply sources. Even during economic crises, Brazil has been an international reference in terms of the availability and generation of renewable energy.

According to the EPE, the ongoing challenge for Brazil is to promote the expansion of the energy matrix while guaranteeing security, following internationally agreed sustainable development objectives and assuring tariff justice. The strategic vision presented in PDE 2027 envisions Brazil investing in a greater diversification of clean sources and promoting the greater participation of the private sector.

According to PDE 2027, in 2017, 84.7% of all sources

in the Brazilian energy matrix were renewable sources, with 62.9% large hydropower plants and 21.7% other renewable sources (wind, solar, small hydropower and biomass). By 2027, although large hydro participation is expected to decrease to 49.4% of all sources, renewable sources other than large hydro power are expected to increase to 29.0% of all sources (Figure 1).

Installed capacity by generation source	2017		2027	
	GW	%	GW	%
Renewable Sources	125.9	84.7	164.2	78.4
Large hydro	93.6	62.9	103.4	49.4
Wind	12.3	8.3	26.7	12.7
Solar	0.5	0.3	8.6	4.1
Other (small hydro and biomass)	19.5	13.1	25.5	12.2
Non-renewable	22.6	15.3	32.0	15.3
Thermal Power Open Cycle and Storage	0.0	0.0	13.1	6.3
Total Sources	148.5	100.0	209.3	100.0

Figure 1: Installed capacity by generation source in 2017 and 2027.

Source: EPE, 2018.

For these prospects to materialize, investments of approximately R$1.8 trillion are expected in the period 2018-2027. Wind power is expected to be the source with the largest increase in installed capacity, with 14.4 GW of additional installed capacity. In 2017, the wind power plant represented 8.3% of the total energy sources, and it is expected to rise to 12.7% of the total installed generation capacity in Brazil by 2027. Considering that the Brazilian energy transmission system is integrated, the entire country benefits from the diversity of sources available throughout its territory.

Federal Law No. 10,438, of April 26, 2002, established the Incentive Programme for Alternative Energy Sources

(PROINFA). This programme consolidated the strategy for investment in renewable energies and encouraged the growth of wind power generation in Brazil, which in 2017 was 12.3 GW of installed capacity, distributed among 536 wind farms, all onshore, located in 95 municipalities, mainly in the northeast and in the south of the country (ANEEL, 2018).

According to the Global Wind Report (GWR, 2015), Brazil has one of the best wind resources in the world, mainly in the northeast and south coasts, in the northeast and southeast elevations, and in northern Roraima state The need for an increase in the power transmission network, especially in the northeastern region of Brazil, is considered one of the main obstacles for the implantation of new wind power generating plants.

Brazilian legislation, environmental permitting and power sector

In the mid-1970s, environmental permitting in Brazil was first introduced in some states, and it was then incorporated into federal legislation as one of the instruments of the National Environmental Policy (PNMA).

Modern Brazilian legislation began in the state of Rio de Janeiro with Decree-Law 134 of 1975, which made "prior authorization for the operation and operation of the installation of actual or potentially polluting activities compulsory". Decree 1,633 of 1977 established the Pollution Activities Permitting system, stipulating that the state must issue a preliminary permit, installation permit and operation permit, a model that is still current in Brazilian federal law and in several states.

In 1976, the state of São Paulo promulgated Law 997, which created the System for the Prevention and Control of Environmental Pollution; the system was further detailed in Decree 8,468 of 1976. This decree contemplated two types of permits, one for installation and another for operation (SÁNCHEZ, 2013).

The PNMA was established by Law 6,938 of 1981 and is considered the initial normative framework of Brazilian environmental legislation. The National Environmental System (SISNAMA) covers the entire national territory and is responsible for the protection and improvement of environmental quality. This system is constituted by national, state, and municipal entities.

According to Garbaccio *et al.* (2018), Law 6,938 of 1981 first listed several instruments for use by SISNAMA entities. The environmental impact assessment and environmental permitting are two of these new instruments.

In Brazil, to carry out activities that have the potential to cause environmental degradation or that use environmental resources, governmental authorization must be obtained, and socio-environmental studies are required before this authorization can be issued. This authorization, known as the environmental permit, is one of the most important instruments of public environmental policy.

Article 18 of the Brazilian Constitution establishes that each entity that makes up the Brazilian state (Union, states, municipalities and the Federal District) is autonomous and can establish laws (legislative competence) and its own management structure (administrative competence). Article 24 of the Constitution stipulates that legislative competence in environmental matters is concurrent between the Union and the states, and it is for the federal body to determine the general standards and for the states to supplement the standards to bring the standards in line with each state's reality.

State environmental agencies are the competent entities for the permitting of most wind power projects in Brazil, as established by Federal Complementary Law 140 of 2011 (LC 140/2011). When wind power projects are located in a single state, do not affect marine areas, or do not interfere in federal conservation units or Union lands, states are considered to

have the adequate competence to issue the environmental permit for such an enterprise.[1]

It is worth mentioning that in Brazil, power generation is a public utility activity, and once legal requirements are met, legal permission may be granted for future interference in all premises to be occupied by the enterprise, including interventions in permanent preservation areas and the suppression of vegetation in the Atlantic Forest biome.

According to the aforementioned LC 140/2011,[2] the entity responsible for environmental permitting is also responsible for issuing the ancillary permits. This is the case of authorization for the suppression of vegetation, intervention in areas of permanent preservation and management of wild fauna, as stated in article 16, §1, III, IV and VIII.

Other authorizations not within the scope of the permitting entity may be required and shall be requested from the entities responsible for issues related to indigenous or Quilombola indigenous communities and the management of national, state or municipal conservation units.

In 1996, the National Electric Energy Agency (ANEEL) was established by Law 9,427 of 1996 (articles 2 and 3). ANEEL is responsible for the regulation and supervision of the production, transmission, distribution and sale of electricity. ANEEL's responsibilities and most important procedures are defined in Decree 2,335 of 1997.

In 1997, Law 9,478 established the National Energy Policy and the National Energy Policy Council, and Decree 3,520

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[1] LC 140/2011, article 7º, XIV, article 8º, XV and article 9º, XIV and Federal Decree 8,437/2015.

[2] LC 140/2011, article 13: "The enterprises and activities are permitted or authorized, in an environmentally friendly way, by a single federal entity, in accordance with the attributions established under the terms of this Complementary Law. Paragraph 2. The suppression of vegetation resulting from environmental permitting is authorized by the federal permitting entity".

of 2000 defined the structure and overall procedures of these entities. This law also established the National Electric System Operator (ONS), which is responsible for coordinating and controlling the operation, generation and transmission of electricity in Brazil.

Law 9,488 of 1998 granted ANEEL the power to declare the "public utility" of land for the purposes of the expropriation or institution of administrative easements of the areas necessary for the installation of power projects.

It is important to highlight that the protection of the environment and the promotion and conservation of energy are among the objectives of the Energy Policy.

The power sector represents a significant part of the Brazilian economy. Large infrastructure projects are associated with power generation and are directly related to environmental interventions and subject to permitting and regulation. Therefore, a healthy economy and a healthy environment require an efficient and effective environmental permitting process.

Main environmental impacts and wind projects

The main objective of preparing an assessment of socio-environmental impacts resulting from the implementation of projects is to obtain relevant information for the management of the associated risks. The assessment begins with a survey of the socioeconomic characteristics of the area in which the new enterprise is to be installed. Then, the activities and actions necessary for the enterprise to be installed, operated and maintained must be identified, characterized and distributed in time and space.

By means of a multidisciplinary team, surveys of primary and secondary data, and an established methodology, the initial impact assessment is prepared. There are many methodologies adopted that identify, assess, and prioritize the impacts and thus propose measures and actions that can minimize,

compensate, mitigate or even enhance the impacts resulting from the actions necessary for the implementation, operation and maintenance of the enterprises. Sustainable development requires that the best possible measures be adopted to achieve the desired economic growth within the restrictions determined by national legislation and international guidelines on good practices and socio-environmental management.

The various stakeholders have distinct and complementary roles in the management of the territory and in the decision-making process related to the socio-environmental viability of an enterprise. Stakeholder management poses a challenge if one considers the heterogeneity of those involved, such as government agencies issuing social and environmental permits and state regulatory representatives, investors and entrepreneurs, directly and indirectly affected local communities, the academic community and consultants who prepare and are co-responsible for the content of the required studies.

According to Garbaccio *et al.* (2018), the environmental impact assessment is a management tool that, while not imposing any specific environmental protection, serves as a basis for the decision-making processes of granting or rejecting a project. According to the adopted concept, the environmental impact assessment should be useful, rigorous, practical, relevant, cost-effective, efficient, focused, adaptive, participative, interdisciplinary, credible, integrated, transparent and systematic.

According to the International Finance Corporation — IFC, the environmental impacts associated with the construction, operation and deactivation of wind power projects include impacts on the physical environment (such as visual impact) and biodiversity (affecting birds and bats, for example). Considering that many of the projects are installed in remote areas, the transport of equipment and materials during construction and possible decommissioning may present significant logistical challenges (e.g., the transport of long and

rigid structures such as blades and sections of heavy towers). The construction of access roads for the installation of wind farms in these remote locations can result in risks, including adverse impacts on biodiversity.

Specific environmental issues for the construction, operation and deactivation of wind energy projects include, for example, *(i)* landscape and visual impacts; *(ii)* noise generation; *(iii)* biodiversity change; *(iv)* shading; and *(v)* change in water quality and quantity.

Due to the nature of wind energy installations, the sector may be associated in particular with cumulative environmental and social impacts. Cumulative impact assessments are justified especially when many projects are located in sensitive areas, such as areas with high biodiversity value.

Impact cumulativity studies allow a strategic territorial planning approach and should be developed through public policies. Such studies are scarce in Brazil. Some state agencies require these studies from entrepreneurs, which is not an adequate way to prepare and maintain them.

Manuals of good international practices

The financing of major infrastructure projects in the world and the concept of sustainable development have guided various initiatives. With a view to standardizing and defining good practices and minimum criteria, especially for countries without strict environmental legislation, the International Finance Corporation (IFC), the project finance branch of the World Bank, and a Dutch bank (ABN Amro)) held a meeting in London, and in 2003, the IFC published the Equator Principles (EP) establishing criteria and policies for granting credit.

The EP became a reference in the international financial sector for the identification, evaluation and management of socio-environmental risks and impacts of projects in developing countries, presenting minimum criteria for granting loans in

the categories of project finance and project-related corporate loans. These criteria were structured in ten Equator Principles. In Figure 2, the principles of Ecuador that can be managed by the organization that receives the funding are highlighted in yellow. In blue are those of competence and evaluation of the signatory institutions of the Equator Principles (EPFI) before and during the granting of the credit.

Principle 1: Analysis and Categorization	**Principle 2: Social and Environmental Assessment**	**Principle 3: Applicable Socio-environmental Standards**	**Principle 4: Environmental and Social Management System and Plan of Action of the Equator Principles**	**Principle 5: Engagement of Stakeholders**
Principle 6: Complaint Mechanism	**Principle 7: Independent Review**	**Principle 8: Contractual Obligations**	**Principle 9: Independent Monitoring and Disclosure of Information**	**Principle 10: Information Disclosure and Transparency**

Figure 2: Equator Principles IFC EPIII - 2013.

The Equator Principles publish a list of countries with robust socio-environmental governance, legislative systems and institutional capacity designed to protect their people and the natural environment. Even with its restrictive and extensive legislation, Brazil is not included in this list. However, Equator Principle 3 — Applicable Socio-environmental Standards states that non-designated countries, including Brazil, are in compliance with the Standards of Performance defined by the IFC and the Environmental, Health and Safety Directives of the World Bank Group (EHS Guidelines, IFC, 2015).

In the international context for sustainable development, the International Finance Corporation (IFC) Environmental and Social Performance Standards, since their entry into force in 2006, have been widely praised. These performance

standards and their guides for good practices describe in detail the best practices and policies to be adopted by organizations to manage socio-environmental risk.

According to the IFC, its Sustainability Framework assists it in developing and describing commitments and defining roles and responsibilities. Furthermore, the IFC policy of access to information established its commitment to the transparency and good governance of its operations and described the disclosure obligations with respect to its investment and advisory services.

Performance standards provide guidance on how to identify risks and impacts. They also indicate measures that should be adopted to avoid, minimize and manage risks and impacts.

The mapping, engagement and management of the stakeholders is a structuring aspect of the defined standards, which include transparency in the dissemination of data and prior consultations with the population directly affected by the project.

There are eight established performance standards (PSS):

- PS 1: Assessment and Management of Environmental and Social Risks and Impacts
- PS 2: Labour and Working Conditions
- PS 3: Resource Efficiency and Pollution Prevention
- PS 4: Community Health, Safety and Security
- PS 5: Land Acquisition and Involuntary Resettlement
- PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- PS 7: Indigenous Peoples
- PS 8: Cultural Heritage

International standards are generally treated by various aspects of Brazilian law. However, the methods and the form of approach differ in some respects from those advocated by Brazilian law.

The IFC also provides industry-specific manuals. In 2015, it published the "Environmental, Health and Safety (EHS)

Guidelines for Wind Energy". These guidelines are technical reference documents with general and specific examples for the wind power industry. The EHS Guidelines for Wind Energy include relevant information on the environmental, health and safety aspects of wind power installations.

Considering that the challenge of following these guidelines is associated with the development timeline for a project, the IFC advocates that the guidelines should be applied after the first feasibility assessments, throughout the development of the environmental impact assessment, and during the construction and operation phases.

Main challenges

Legal, regulatory and international good practices face challenges related to risk management. The need for extremely descriptive environmental studies and deficiencies in the management of information databases do not necessarily corroborate the implementation of good international practices. The challenge is to incorporate risk management and the implementation of good practices into the business design.

In Brazil, the main socio-environmental challenges associated specifically with wind projects are the need to deepen the knowledge of fauna, especially birds and bats. The lack of basic information, especially on bats, makes it difficult to establish effective measures. The adoption of new models of monitoring and adaptation technology is necessary.

When multiple wind farms are located in the same geographical area and are close to areas of high biodiversity value, developers of wind projects are encouraged to implement monitoring procedures so that the results can be evaluated cumulatively. As mentioned, there is a challenge related to the elaboration of cumulative evaluations between wind projects in the regions with the highest concentrations of projects. In these regions, in addition to impacts associated

with biodiversity, the relationship with resident populations can be a source of conflict.

The best wind areas in Brazil are territories with a low-income population that experiences socioeconomic disparities, such as income inequality. This scenario makes the socio-environmental management of wind projects more delicate and requires that the entrepreneurs invest in structural social projects in parallel with wind projects. Communication with the population, in particular the most vulnerable, is essential. Social projects must be managed through adequate articulation and governance.

Sustainability, legal compliance, and compliance with performance standards converge across all sectors of the economy. Where government regulation is weaker or less consistent, it is expected that organizations will increasingly position themselves as managers and leaders, especially on issues related to climate change, transparency and human rights.

Companies have been adapting to international ethical standards and have required similar attitudes from suppliers, regardless of regulatory and legal requirements. The promotion of artificial intelligence technologies, transparency and the increasing speed of information has strongly impacted corporate decisions and their relationship of trust with stakeholders. This overexposure sets sustainability as a powerful tool to be incorporated into business design.

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3.

THE SUSTAINABILITY OF BRAZILIAN AGRIBUSINESS IN THE ASPECT OF FOREST PRESERVATION

A COMPARISON OF FOREST DATA FROM BRAZIL AND PORTUGAL

SORAYA SAAB

Abstract: It is a paper presenting technical data about the differences between the forest areas effectively preserved in Brazil and Portugal, as well as the marketing mechanisms implemented in Brazil along the entire production chain and aimed at ensuring sustainability and regularity to the large agricultural commodities it produces.

Keywords: sustainability; agriculture; livestock breeding; forests; deforestation; use and occupation of soil

The Differences in Agricultural and Forestry Soil Use between Portugal and Brazil

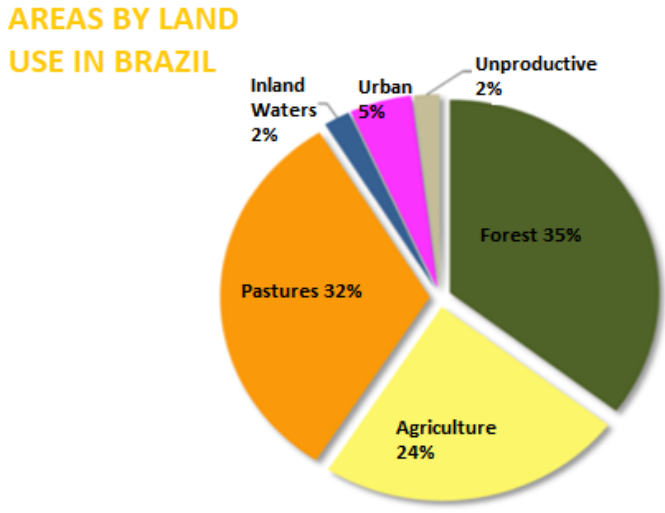
Agriculture is one of the oldest activities developed by humankind. It enabled humans to stop being nomadic and to become sedentary and is therefore directly connected to the emergence of human communities and development of the first great civilizations. Similar to the beginnings of human civilization, agriculture is directly connected to the formation and development of Brazil and Portugal and in the present day is still of great and vital relevance for the construction of the gross domestic product (GDP) of both nations as well as for global trade.

In Portugal in 2018, agriculture was responsible for 1.9% of GDP, employing approximately 6.6% of the economically active population in the country[1], with cereals, fruits, vegetables as the main products. Portugal was also one of the 10 largest world exporters of wine and the largest world exporter of cork.

According to data obtained in the 6th National Forest Inventory of Portugal from 2010, published in February 2013[2], which is the most current study that contains government statistics, agricultural areas constitute 24% of the total Portuguese territory, with bushes and pastures corresponding to 32% and forests 35%, as shown in the chart below for the distribution of soil use in continental Portugal for 2010:

[1] <https://pt.portal.santandertrade.com/analise-os-mercados/portugal/economia>.

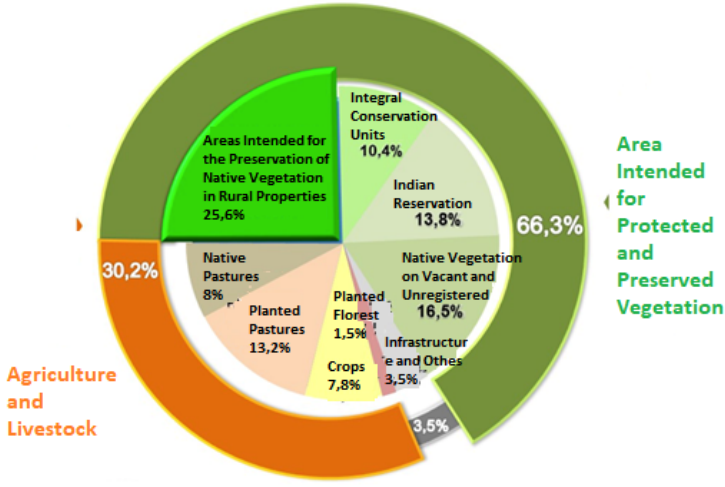
[2] <http://www2.icnf.pt/portal/florestas/ifn/resource/doc/ifn/ifn6-res-prelimv1-1>.



In Brazil, the situation is slightly different. The Brazilian Ministry of Agriculture[3] estimates that in 2017, agribusiness alone represented 21.6% of national GDP and was responsible for one in three jobs in the country. Crops cover approximately 7.8% of the national territory, pastures correspond to 21.2%, native forests 66.3% and planted forests 1.2%, as shown in the chart below produced by *Empresa Brasileira de Pesquisa Agropecuária* [Brazilian Agricultural Research Company] (EMBRAPA)[4]. These data have been confirmed by the National Aeronautics and Space Administration (NASA) through satellite analysis.

[3] <http://www.agricultura.gov.br/assuntos/politica-agricola/agropecuaria-brasileira-em-numeros>.

[4] <https://www.embrapa.br/busca-de-noticias/-/noticia/35967323/area-rural-dedicada-a-vegetacao-nativa-atinge-218-milhoes-de-hectares>.



Brazil is solely responsible for most of the agricultural products marketed in the world and was the largest world exporter of orange juice, sugar, coffee, beef, chicken and soy beans in 2017, according to data from the Ministry of Agriculture.

Brazil's Position in The Word Market		
Main Products	Brazil - Word Ranking	
	Production	Export
Sugar	1º	1º
Coffee	1º	1º
Orange Juice	1º	1º
Beef	2º	1º
Chicken Meat	2º	1º