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# ATLANTIC FOREST OF PERNAMBUCO: LEGAL ARGUMENTS FOR REDD IMPLEMENTATION

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## ABSTRACT

Climate change is the main environmental challenge to be face by most countries. In this sense, tropical forests play a prominent role, as well as providing diverse ecosystem services, contribute to the storage of CO<sub>2</sub>, thus minimizing the effects of the release into the atmosphere. However, this type of ecosystem undergoes constant anthropic pressures ranging from the expansion of the agricultural frontier to the urbanization process, such as the intensely reduced and fragmented Pernambuco Atlantic Forest. Aiming to reconcile the protection of native vegetation and minimization of actions that contribute to the greenhouse effect, the instrument called Reduction Deforestation and Forest Degradation (R. E. D. D) appears in the international scenario. Thus, the present study sought to characterize the legal aspects for implementation in the state of Pernambuco. For that, the research analyzed the legal diplomas and publications (official and non-official) related to the implementation of this model at the national/state level. The results demonstrate that it is possible to implement the

instrument in Pernambuco, provided that REDD is adapted to the socio-environmental context of the State, such as fragmentation of forest remnants, small territorial extensions of native forest, presence of rural settlements and democratic management with the populations of the recipient areas.

**Keywords:** Environmental Law; Reducing Deforestation and Forest Degradation; Climate changes; Economic instruments.

*MATA ATLÂNTICA PERNAMBUCANA: ARGUMENTOS JURÍDICOS  
PARA IMPLEMENTAÇÃO DA R. E. D. D*

**RESUMO**

*As mudanças climáticas assumem a principal desafio ambiental a ser enfrentado por grande parte dos países. Nesse sentido, as florestas tropicais possuem papel de destaque, pois além de proverem diversos serviços ecossistêmicos, contribuem para o armazenamento de CO<sub>2</sub>, minimizando com isso os efeitos do lançamento na atmosfera. Contudo, esse tipo de ecossistema sofre constantes pressões antrópicas que vão desde a expansão da fronteira agrícola até o processo de urbanização, como por exemplo a Mata Atlântica pernambucana, intensamente reduzida e fragmentada. Almejando conciliar a proteção das vegetações nativas e minimização das ações que contribuem para o efeito estufa, aflora no cenário internacional o instrumento denominado Redução do Desmatamento e da Degradação Florestal (R. E. D. D). Assim, o presente estudo buscou caracterizar os aspectos legais para a efetivação no estado de Pernambuco. Para tanto, analisou-se os diplomas legais e publicações (oficiais e extraoficiais) relativos à concretização desse modelo na esfera nacional/estadual. Os resultados demonstram que é possível a implantação do instrumento em Pernambuco, desde que a REDD seja adaptada ao contexto socioambiental do Estado, como a fragmentação dos remanescentes florestais, as pequenas extensões territoriais de mata nativa, a presença de assentamentos rurais e a gestão democrática com as populações das áreas receptoras.*

**Palavras-chave:** *Direito Ambiental; Redução do Desmatamento e da Degradação Florestal; Mudanças climáticas; Instrumentos econômicos.*

## INTRODUCTION

The presence of greenhouse gases (GHG) prevents part of the transmission of heat from the atmosphere to escape into outer space, making it impossible for the average temperature of the earth to be too low and the oceans to freeze. This natural control of the Earth's temperature is known as the greenhouse effect. Despite being a natural process, the greenhouse effect has been intensified by human intervention in biogeochemical cycles, resulting in climate changes (UNFCCC, 2007). Among the human interventions that can be highlighted are the burning of fossil fuels and the change in land uses (conversion of forest areas into other uses, such as pastures and agricultural areas) as major emitters of GHG.

With regard to changes in land use, it can be said that the loss of tropical forests is one of the greatest problems on the planet, as these areas hold a large part of the diversity of living organisms and, in addition, perform other important functions for humanity. Tropical forests cover about 15% of the world's land and contain about 25% of the carbon present in the terrestrial biosphere.

However, these green patches are rapidly being degraded and deforested, leading to the emission of carbon dioxide, which retains heat in the atmosphere. About 13 million hectares are converted each year to other land uses. This loss represents one-fifth of global carbon emissions, making land cover change the second largest contributor to global warming. Forests, therefore, play a vital role in any initiative to combat climate change. (PARKER, C. et al, 2009, p. 18).

In order to achieve the maintenance of these spaces, the instrument called Reducing Emissions from Deforestation and Forest Degradation (REDD) has been developed by the United Nations Framework Convention on Climate Change (UNFCCC), which aims to provide incentives through the market (carbon credits) in order to contain the increasing rates of reduction of the forest area, based on native forest areas remaining in the landscape (ANGELSEN, 2008). Such an instrument is based on the principle of the protector-receiver<sup>1</sup>, which complements that of the polluter pays<sup>2</sup>.

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<sup>1</sup> According to this principle of Environmental Law and International Environmental Law, the one that protects a particular natural good and that benefits part of the collective or all of it must receive a consideration in order to encourage the continuity of this practice.

<sup>2</sup> According to Milaré (2013) this principle is governed by the idea that as the natural good is some-

The main difference between REDD and the other instruments developed until now that work on the theme of climate change is that in the first there is, in theory, the socioenvironmental inclusion of populations that are commonly marginalized in the discussions and decision-making about conservation of the biomes (GRAINGER; OBERSTEINER, 2011). In addition, it has as one of its cores the maintenance of the native vegetation, an aspect that directly brings to light the discussion about the value (economic and political) of the forest “on foot” (HAYES; PERSHA, 2010).

In this sense, the Brazilian Atlantic Forest, considered a *hotspot* (MMA, 2012) suffers, since colonial times, with its progressive deforestation (DEAN, 1996). This is even more worrying when it is verified that this biome presents a large number of endemic species and provides a large number of environmental services, such as the protection of the springs/rivers and the storage of carbon dioxide (MAY; GERBARA, 2011). All these attributes can still be detected today, however, due to the intense change in land use and the phenomenon of fragmentation, these ecosystem services are increasingly deficient.

A picture of the situation of the Atlantic Forest can be seen in the state of Pernambuco, where it occupies approximately 11.9% of its original coverage (SOS MATA ATLÂNTICA; INPE, 2015). In addition to this characteristic, forest remnants are extremely fragmented and do not have large areas, making it difficult to strengthen biological interactions. Although the picture is negative, Pernambuco is considered one of the main endemism centers of the biome and has several areas considered as priorities for conservation in its territory (MMA, 2008).

Aside from these biogeographic characteristics that are peculiar to the Pernambuco case, the State expressly has in its legal system the prediction of REDD due to the enactment of State Law No. 14,090/10, which created the State Policy to Combat Climate Change and respective Plan. Besides these, which directly work the theme, in the legal framework of the state, it is still possible to find grounds in other laws that make possible the implementation of the instrument, such as the State Forestry Policy (State Law No. 11.206/95).

On this subject, the research intends to answer if it is possible,

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thing public and that the whole community will bear the burden of their degradation, one that degrades should internalize this deterioration in its economic activity .

from the legal point of view, to implement REDD in the Atlantic Forest of Pernambuco. The discussion is based on fostering discussion about the urgency of implementing the economic instruments for the conservation of natural resources, always aiming at an interdisciplinary approach to Environmental Law with other sciences.

## 1 METHODOLOGICAL CONSIDERATIONS

To obtain the proposed objective, an analysis was made of the most varied legal instruments that can be used as a basis for the implementation of REDD in Pernambuco. In this sense, the main source of consultation was the regulations, both nationally and statewide. At the national level, the research sources were the official publications from the Ministry of the Environment (MMA) and the Ministry of Science, Technology, and Innovation of Brazil (MCTI). Under the national legislation, the laws that allow the implementation of REDD in Pernambuco were selected. In the follow-up, the art. 225 of the Federal Constitution of Brazil of 1988 and Law 12,187/09 (National Policy on Climate Change) were both analyzed in the federal scope.

At the state level, State Law No. 14,090/10 (State Policy to Combat Climate Change) was analyzed along with its plan and State Law No. 11. 206/95 (Forest Policy of the State of Pernambuco). In this way, we tried to emphasize, among the laws presented, the main aspects that favor, or at least make possible, the implementation of the instrument in the politico-legal aspect. It is a warning that it is not intended to exhaust the analysis of legislation in all its aspects, but only in what can be used as a rationale for the establishment of REDD.

Based on the verification, a schematic chart was drawn up that identifies, at the federal and state levels, the legal diplomas that give rise to the implementation of REDD in the state. The columns of the table are legislation, objective and relationship with REDD, the latter being defined as direct or indirect depending on the forecast expressed in the legislative body.

## 2 BRAZILIAN ATLANTIC FOREST: DEFINING THE ROAD OF NATIONAL HISTORY

The great fascination for the Brazilian Atlantic Forest did not start today. In the “Letter to King D. Manoel”, written in the late 15th century, the Portuguese Pero Vaz de Caminha, then responsible for the description of the expedition, details with mastery several aspects visualized by the Portuguese sailors upon their arrival at the coast. It describes the first look of the European man on the biome as follows: “[...] at the time of vespers, we see land! First a large mountain, very tall and round; then other lower hills, from the south to the mountain and, moreover, flat ground. With large groves” (BRAGA, 1981, p. 22). It is clear that the Portuguese were impressed by Forest’s opulence. Filgueiras and Peixoto (2002) affirmed that the letter is a true floristic survey of the time, being able to be found 118 mentions to plants or plant associations.

In addition to the colonial period, it is clear that the symbiosis between the history of Brazil and the Atlantic forest does not end. The main Brazilian economic cycles, with the exception of rubber, had a direct influence on the environmental emergency that the biome is in. In the sixteenth and seventeenth centuries, the country lived its peak with the monoculture of sugarcane in the territories where today the states of Pernambuco and São Paulo are located. Thousands of hectares of the forest were decimated to house the slave structure, which according to Gilberto Freyre could be translated into the binomial Casa Grande-Senzala. It is worth noting that, due to the success of the Portuguese enterprise in the Brazilian colony, in 1630, the Dutch invasion of Pernambuco took place, a fact that triggered a series of changes in the political situation of the sugar society of the time, given that thanks to the experience acquired in Brazilian grounds, after the expulsion, the Dutch developed their sugar industry in the Antilles, becoming in the eighteenth century the largest producer.

In Brazil, this mode of production that had as its basic characteristics latifundium and slave labor (black) left traces still in the Zona da Mata of Pernambuco, since this region still presents a great concentration of land (large latifundium) and one of the main economic activities is the extraction of cane for the production of sugar/ethanol. According to SOS MATA ATLÂNTICA and INPE (2015), currently, the country presents 12.5% of its territory covered with remnants of Atlantic

forest. According to the study, the biome, in its original formation, was present in about 38% of the national territory. It should be noted that the document was produced based on the spatial limits defined by Federal Law No. 11. 428/06.

Brazil is considered one of the twelve countries with the so-called megadiversity and is a signatory of the Biodiversity Convention, signed in RIO92. Within this context, the Atlantic Forest is considered one of the largest wildlife repositories. The biome is one of the most biologically diverse localities on the planet and holds the record of woody plants (angiosperms) per hectare (450 species in the south of Bahia), and about 20 thousand species of plants, eight thousand of them endemic, besides records of quantity of species and endemism in several other groups of plants (VARJABEDIAN, 2010).

As far as fauna is concerned, MMA has stated that up to now, the biome is home to about 250 mammal species (55 of them endemic), 340 of amphibians (87 endemics), 197 reptiles (60 endemics), 1,023 birds (188 endemics), in addition to approximately 350 species of fish (133 endemics). Tabarelli et al. (2012) stated that the biome presents a high number of endemic species that reaches approximately 40% of the total. However, endemic species do not have a uniform distribution throughout the Atlantic forest. These species occur grouped in particular regions: biogeographic units denominated centers of endemism.

According to Varjabedian (2010), the vegetation undergoes an intense process of fragmentation that is caused predominantly by the growth of the human populations and the consequent expansion of their activities. The most populated regions of the Brazilian territory are located precisely in the areas that were originally occupied by the Atlantic Forest. About 70% of the national population lives in its domain, and even with its fragile situation, it still enjoys its environmental services such as regulation of flow of water sources, soil fertility, climate control and protection of escarpments and hillsides, as well as preserving an incalculable natural and cultural heritage (VARJABEDIAN, 2010).

Tabarelli et al. (2012) pointed out that this phenomenon of fragmentation generates the so-called “forest islands” or forest fragments that tend to be surrounded by anthropic landscapes (agriculture, pastures or even urban environments). This situation creates adverse effects on biodiversity since small fragments and forest edges may have limited

capacity to retain species and provide essential environmental services to human populations such as carbon sequestration. Ribeiro *et al* (2009) stated that of the remaining forest fragments only 20% are larger than 50 ha. In addition, more than 90% of the forest fragments occur in particular areas (Tabarelli *et al*, 2005).

## 2. 1 ATLANTIC FOREST OF PERNAMBUCO

Discussing the theme of the biome in the state of Pernambuco requires a deepening of the historical process of exploration and devastation of this ecosystem. As discussed earlier, its history is confused with the country's own discovery and the process of colonization. According to Lima (1998), although there is no exact data from the time of discovery, since that period the process of devastation in the Atlantic forest of Pernambuco has already decimated thousands of hectares, with the land occupation process as one of the main responsible for such situation.

Coimbra Filho and Câmara (1995) have reached the conclusion that in the state can be highlighted as the main processes of devastation of the Atlantic forest from the colonial period to the present day: (1) destruction of the forest to defend against the indigenous people; (2) forest burnings for the capture of silvicultural species; (3) burning of forests for the expulsion of European invaders, used as a military strategy; (4) extraction of Brazilwood; (5) development of extensive cattle ranching; (6) overcrowding for agricultural plantations, mainly sugarcane, and finally, more recently (7) the program of the federal government PROÁLCOOL in 1974. Based on this heterogeneity of causes, Lima (1998) argued that the destruction of the biome in the state was and is of a multiform and continuous process of anthropic origin, with undisputed feedback that mischaracterized the original landscape of the region.

Data on forest remnants differ depending on the methodology and sources used. Lima (1998), based on a study by Braga, Costa Júnior and Uchoa (1993) *apud* Lima (1998), stated that the State presented only 4. 6% of the biome in relation to the original area and only 1. 5% total area of the State. In the last survey carried out by SOS Mata Atlântica and INPE (2015), the state presented 11. 9% of forest remnants. It should be noted that the methodology used by the government agency is based on the area defined by Federal Law No. 11. 428/06 and Federal Decree No. 6. 660/08,



in addition, the forest fragments were mapped from 3ha. Therefore, in analyzing the data, one must take into account the particularities of each study. Nevertheless, due to the main objective of this research, which is to serve as a subsidy for the development of REDD as a tool for management and conservation of the Atlantic forest, mainly as a program implemented by the state government of Pernambuco, the present study will take as a basis for the results obtained by SOS Mata Atlântica and INPE (2015) due to the compliance with current legal regulations and the updating of the data in comparison with Braga, Costa Júnior and Uchoa (1993) *apud* Lima (1998).

The State is in a situation similar to most of the national territory. The forest islands are the main representatives in the formation of the remaining areas. Fragmentation is one of the main problems faced in biome conservation strategies. Unlike in some regions of southern and southeastern Brazil, there are almost no large forest extensions (UCHOA NETO; TABARELLI, 2002). Moreover, it should be noted that Pernambuco, since 1993, is part of the UNESCO Biosphere Reserve Program, which consists of an international program for the management of tropical areas (LIMA, 1998).

Uchoa Neto and Tabarelli (2002) stated that much of the remaining forest is within private properties, more specifically in the power of sugar/ alcohol producing plants. The authors, *in verb is*, found:

[...] In the state of Pernambuco there are 25 mills, including the Trapiche Plant (6,000 hectares of forest), the Colônia Plant (1,500 hectares), the São José Plant and the Petribú Plant, which have the largest remnants and largest absolute Atlantic forest area to the north of São Francisco [...] (UCHOA NETO; TABARELLI, 2002, p. 8).

Despite its clear degradation, the state of Pernambuco is considered one of the great centers of endemism of the biome. A fact that endorses such an argument is the diagnosis made by MMA, between 1998 and 2000, called “Evaluation and Identification of Areas and Priority Actions for the Conservation of Brazilian Biomes”. At the end of the process, 900 areas were defined in the states, established by Decree No. 5. 092/04 and established by MMA Ordinance No. 126/04. The ordinance determines that these areas should be reviewed periodically, in a term not exceeding ten years. In 2007, these areas were updated (MMA Ordinance

No. 9/2007) and sixteen (16) priority areas for conservation (APC) were identified in the Pernambuco Atlantic Forest region, of which eight (8) were considered of “extremely high” biological importance and requiring an equally “extremely high” priority of action (MMA, 2007).

It is verified, therefore, that the Atlantic forest of Pernambuco needs instruments (or at least new alternatives) that allow the realization of its real protection, considering its singularity and biological importance. It presents a new model of an instrument that aims to reconcile the maintenance of the native forest “standing” with the respective benefits linked to the international climate regime, that is, REDD.

### **3 LEGAL ASPECTS FOR REDD IMPLEMENTATION**

#### **3.1 Environment and the Brazilian Constitution of 1988: central pillar of the protection of forests**

Because of its relevance/indispensability for man as an individual being and for society, art. 225 is considered to be materially constitutional and is even upheld by much of the doctrine as a fundamental right of the third generation (MILARÉ, 2013; ANTUNES, 2011; CANOTILHO; LEITE, 2012). Due to its positivization in the Magna Carta, the environmental theme gained special protection, in addition to opening possibilities for the control of constitutionality based on its scope. Several decisions of the Superior Court of Justice (STJ) and the Federal Supreme Court (STF) have used as a paradigm the interpretation of the constitutional environmental law.

It is emphasized that depending on the concept of the term “environment”, other articles of the constitution can be considered environmental. For example, Fiorillo (2013) understood that the environment (*latu sensu*) comprises the natural environment, urban environment, cultural environment and work environment. Milaré (2013) understood that only the first three, as well as Antunes (2011) and Machado (2014). Depending on the classification adopted, the role of environmental norms can be increased, such as the inclusion of art. 7th, XXII, art. 129, III, art. 182, art. 215 among others (BRASIL, 1988). Benjamin (2005) discussed constitutional protection:

A constitution that, in the social order (the territory of environmental protection), aims to ensure “welfare and social justice” could not fail to accept the protection of the environment, recognizing it in the form of a system, and not as a fragmentary set of elements - a system which, we have already pointed out, is organized as a constitutional public order. (BENJAMIN, 2005, p. 366-367).

The observation shows that, although it presents a specific chapter (and article) for environmental protection, it is not because of this that there is a “miserable ecological constitution”, quite the opposite. In the analysis carried out by the STJ Minister, Brazil has advanced in relation to its previous liberal Constitutions in environmental matters. According to Benjamin (2005), there is currently a “constitutional ecological opulence”, since art. 225 is only the apex or *climax* of a constitutional regime that at different times engages, directly or indirectly, in the management of natural resources.

Benjamin (2012) argued that with the current model of the Constitution, it is clear the answer to the currents that propose the predatory exploitation of natural resources, shielded in the obscurantist argument, according to which the concerns with the defense of the environment involve proposal of “return to barbarism “. In this sense, we return to the dichotomous discussion between growth and development (VEIGA, 2008). Clearly, the foundation of the first is the economic strength with little or no concern for the quality of life of the population and the maintenance of natural resources. Within the development paradigm, we seek to reconcile economic growth together with the sustainable use of natural resources so that such a relationship can lead to an increase in the quality of life of the population. Another argument corroborating this differentiation is the association of the indicators with each model. While GDP is the growth (Gross Domestic Product), the development has the HDI (Human Development Index).

However, due to its peculiarity, the concept of concentrated environmental constitutional protection proposed by Machado (2014) is considered for the present study, according to which it would be that device that more fully expresses the design of the middle bulkhead environment. It is pointed out that the present choice is justified by the central theme of the work, being aware that the analysis of environmental constitutionalism in the Major Law goes much beyond art. 225.

In order to understand and interpret the constitutional text, it is necessary to request the assistance of foreign legislation, following the concept of Dantas (2010), which differentiates it from the analysis based on the Comparative Law. In the view of Dantas (2010), in the first the researcher must stick to the study of the law (the legal text itself), pledging its force in this study. In Comparative Law, the scientist needs to highlight beyond the law, the doctrine and jurisprudence of the subject investigated.

Although innovative in its approach, art. 225 benefited from the international trend towards the constitutionalization of the environment and operated the regulatory map developed by the foreign Constitutions that preceded it, with slight occasional modifications in its text, aiming at the adequacy in the national environmental context. Undoubtedly, the Portuguese Constitution of 1976<sup>3</sup> and the Spanish Constitution of 1978<sup>4</sup> were great inspirational sources for the Brazilian constituent. In spite of such a position, the Stockholm Declaration of 1972, a common source of environmental standards, can also be clearly perceived.

If on the other hand, the environmental constitutional text ends in the *caput*, the protection of the Atlantic Forest could be considered contemplated, since its importance for the quality of life of the population due to its environmental services is now recognized (NUSDEO, 2009). However, such an inquiry could be contested by some sectors of society that do not see with good will the conservation of the coastal biome because

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<sup>3</sup> Art. 66

1. Everyone has the right to a humane, healthy and ecologically balanced environment of life and the duty to defend it.
2. It is incumbent upon the State, through its own organizations and by appeal to popular initiatives:
  - a. Prevent and control pollution and its effects and harmful forms of erosion;
  - b. To order the territorial space in order to construct biologically balanced landscapes;
  - c. To create and develop natural and recreational reserves and parks, and to classify and protect landscapes and sites, in order to guarantee the conservation of nature and the preservation of cultural values of historical or artistic interest;
  - d. Promote the rational use of natural resources, safeguarding their capacity for renewal and ecological stability.
3. The citizen threatened or harmed in the right provided for in paragraph 1 may, under the terms of the law, request the cessation of the causes of violation and the respective compensation.
4. The State should promote the progressive and accelerated improvement of the quality of life of all Portuguese.

<sup>4</sup> Art 45:

- 1) Todos tienen el derecho a disfrutar de um médio ambiente adecuado para el desarrollo de la persona, así como el deber de conservarlo.
- 2) Los Poderes Públicos velarán por la utilización racional de todos los recursos naturales, con el fin de proteger y mejorar la calidad de vida y defender y restaurar el medio ambiente, apoyandose em la inexcusable solidaridad colectiva.
- 3) Para quienes violen lo dispuesto em el apartado anterior, em los términos que la ley fije se estableceran sanciones penales o, em su caso, administrativas así como la obligación de reparar el daño causado.

of their economic/political interests, opening a breach to the conservation of the same.

The second moment in which the interpreter can deduce the desire of the constitutional legislator in maintaining the national vegetation is in section I. In this passage, it is defined as a priority the restoration and preservation of ecological processes. Fiorillo (2013) highlighted the good intention of the legislator, however, this was unfortunate in the use of technical language. The term “preservation”, in its exordium in the biological sciences, is linked to the idea of “natural virginity”, that is, to maintain nature in its original state, not allowing any kind of alteration. In addition to this, the word “restoration” proposing the re-establishment of the (original) *status quo* was also used inappropriately.

From this perspective, it is evident that the constitutional text does not have as its objective the “preservationist” character since such a conception would enter into a direct confrontation with the *caput* of art. 225, with all the environmental legal order foreseen during the CF/88 and with the text of the item itself, since the word “management” is strongly associated with the concept of conservation and not of preservation. Undoubtedly, in some situations, such as in the case of Conservation Areas of Integral Protection (BRASIL, 2000) such a paradigm must be followed, although this is not the rule.

Dean (1996) argued that, given the increasing population pressure and the intense deforestation/degradation process, it would be chimerical to think of preservation or restoration of the Brazilian Atlantic Forest, since this would imply a real Herculean effort throughout the country, implying in large displacements of human contingents and incalculable expenses with forest management.

Even if there is no adequate legislative technique and adopting extensive interpretation, typical of the protection of the environment (MILARÉ, 2013), it is fully possible to verify that ontologically the paragraph seeks the conservation, as a rule, of ecosystems. In this sense, the use of this subsection as a basis for the conservation and recovery of the Atlantic Forest is also fully applicable. Therefore, it is a precedent for the use of Policies/Programs that seek to end the perpetuity of this ecosystem, such as REDD.

Finally, in the third point, there is the consecration of the

Coastal Biome in CF/88. In art. 225, §4º (BRAZIL, 1988), the Atlantic Forest is elevated to the level of national patrimony and is the duty of the Public Power and the community to conserve it and preserve it. If before, by reading the previous paragraphs, there was some doubt about the constitutional protection of the biome, now expressly foreseen, this doubt is over. It should be noted that thanks to this 4th paragraph, along with the item I of art. 225, was that in 2006 was enacted Federal Law No. 11. 428/06 (Atlantic Forest Law) and its regulatory decree (Federal Decree No. 6. 660/08), both having as scope the use and protection of the vegetation of the Atlantic Forest Biome.

In addition to the legislative effect highlighted, the constitutionalization of the Atlantic Forest also gave rise to the pronouncement of the STF on the subject. Under the judgment of Special Appeal, Minister Celso de Melo gave his vote in favor of the sustainable use of the biome. Such positioning can be seen in the following excerpt from RE's article: 134297 SP:

EXTRAORDINARY RESOURCE - ECOLOGICAL STATION - FOREST RESERVE IN SERRA DO MAR - NATIONAL HERITAGE (CF, ART. 225, PAR. 4.)  
- ADMINISTRATIVE LIMITATION AFFECTING THE ECONOMIC CONTENT OF PROPERTY LAW - OWNER'S RIGHT TO INDEMNIFICATION - STATE DUTY TO RESTART THE DAMAGES OF PATRIMONIAL ORDER SUFFERED BY THE PARTICULAR - NON-KNOWN RE. -

[...]

The precept embodied in ART. 225, PAR. 4., of the Charter of the Republic, in addition to not having converted to public goods the particular properties situated in the forests and groves mentioned therein (Atlantic Forest, Serra do Mar, Brazilian Amazonian Forest) does not deny the use, by the individuals themselves, of the natural resources existing in those areas that are subject to the private domain, provided that the legal requirements are observed and the conditions necessary for environmental preservation are respected

[...]

- Ecologically balanced environmental right: the constitutional consecration of a typical third generation right (CF, art 225, caput).

(STF - RE: 134297 SP, Rapporteur: CELSO DE MELLO, Judgment Date: 13/06/1995, First Class, Publication Date: DJ 22-09-1995 PP-30597 EMENT VOL-01801-04 PP-00670) (BRAZIL, 1995).

Note that the mere mention in the constitutional text carries with it a series of effects. Prieur (2004) argued that in addition to a moral and political impact, the constitutionalization of the environment, and in this case the Atlantic Forest, brings with it a range of benefits of diverse orders, concrete and providing a factual impact on (re)organization of society and government with the biome.

Milaré (2013) considered that the mere mention in normative texts has a prominent importance since it shows the value of the environment and signs a commitment of accomplishment. Notably, in the National Major Law, the environment is not just a simple expression with figurative value, although there is still an exaggeratedly critical view of textual formulations that minimize their importance until they correspond to reality. It would be utopian to think that only with the coat of the constitution the environment would be protected, since at various moments, whether by political decision or material conditions, the protection of the environmental good is left in the background.

In the wake of Prieur (2004), Benjamin (2012) listed the following benefits for the constitutional effect of the environmental theme and that can be fully applied in the context of the studied biome: (a) establishment of a generic constitutional duty not to degrade, (c) environmental protection as a fundamental right (d) constitutional legitimation of the state regulatory function, (e) reduction of administrative discretion and (f) expansion of public participation.

Therefore, it is observed that, with the constitutional coating, the Atlantic Forest has a series of prerogatives that justify its protection. However, in spite of its direct effectiveness in relation to the environmental content, it is not for the Constitution, because of its final objective, to dispose of policies, programs, and instruments for the conservation of the biome. The CF/88 guarded satisfactorily the environmental sphere (MILARÉ, 2013; CANOTILHO; LEITE, 2012; KISHI; SILVA; SOARES 2005), being up to the infra-constitutional legislation descend to the details of the Brazilian environmental policy and consequently to the theme of the study: Atlantic Forest and REDD.

### **3. 2 Forest policy in the state of Pernambuco (State Law 11. 206/95)**

Unlike most states in the federation, Pernambuco has its own forest management policy. This fact demonstrates, at least from the legal point of view, that within the framework of forest management, the state has some degree of planning in forest policy. In this sense, the first point observed in art. 3 of the law is the option for the environmental conservation paradigm, aiming, therefore, the sustainable use of natural resources.

The form of management proposed by the Policy opens the possibility for the sharing between State, business sector, and civil society. This statement is expressly made in state law 11. 206/95:

Art. 3 [...]

VI - the management of forests and other forms of vegetation will be directed towards the integration between the State and the federal and municipal governments, and the partnership with the business community and the organized segments of society, focused on the valorization of natural resources (PERNAMBUCO, 1995).

This position, on the part of Pernambuco, demonstrates the state's openness to establish partnerships with the private sector aiming at the conservation of natural resources. In a certain way, based on this proposition, we come to the understanding that since the 1990s, the legislator predicted the need for actions together with other sectors of society, given the deficiency of command and control instruments that are concentrated in the hands of the government.

Another article that offers an opportunity for the institution of REDD is art. 6º that defines the tools of achievement of the objectives presented by the policy. In section V, once again the legal diploma demonstrates its characteristic aimed at the economic use of forest resources, since "criteria, standards, and norms regarding the use and management of natural resources and economic exploitation of forests and other forms of vegetation" must be established (PERNAMBUCO, 1995).

In general terms, the Policy is a true Pernambuco Forest Code in which criteria for suppression are established; a permanent preservation area and a legal reserve are defined, and the modalities of administrative infractions are defined, in addition to establishing the competence of environmental enforcement agencies. The great asset presented by the diploma is the possibility of sustainable economic exploitation of native vegetation and, in this context, from the perspective of the use of carbon



stored in the Atlantic forest, REDD presents itself as a possibility.

### **3.3 State policy to combat climate change and its respective plan (State Law No. 14.090/2010)**

The State Policy for Combating Climate Change in Pernambuco (PEEMCPE) proves to be the main instrument of the State Government to combat climate change. Such action can be understood as a response to the fragility that the state has in the face of the changes, given the consequences that are felt in several regions (MMA, 2012).

The data are alarming: the Atlantic Forest in Pernambuco has only 11.9% of the original cover, including the mangue and the *restinga* (SOS MATA ATLÂNTICA, INPE 2015). Therefore, steps need to be taken to minimize (or even cope with) these modifications. In this context, the practice of REDD emerges with an alternative instrument for the conservation of the Atlantic Forest that undergoes a series of anthropic pressures such as sugar cane monoculture, urbanization and the use of wood for domestic use (cooking and heating, for example). The general objective of the Policy is analyzed, which is:

[...] promote the necessary efforts to increase the resilience of the population of Pernambuco to the variability and the current climate changes; as well as contributing to the reduction of concentrations of greenhouse gases in the atmosphere at levels not harmful to populations and ecosystems, ensuring sustainable development. (PERNAMBUCO, 2010).

In this scenario, REDD adapts perfectly to the general objective, since, in addition to facilitating the reduction of CO<sub>2</sub> emission, it favors the popular participation in the involvement with the environmental problem.

Continuing the study of State Law n. 14.090/2010 with the proposed approach, it is observed that art. 3, item IV, has as one of its specific objectives the incentive to projects that favor the mitigation of greenhouse gas emissions and adaptation to climate change, thus corroborating the development of projects such as REDD. Although in this aspect it is not clear how this incentive will happen (financial, partnerships, reduction of taxes).

We go a little further on, in section VI that deals with the

“Biodiversity and Forests” where this project is more applicable since it is its field of activity. In the strategies envisaged, section IX prescribes the following form “to implement actions and measures with a view to the conservation and recovery of natural areas” (PERNAMBUCO, 2010). In the mentioned aspect, REDD also fits. The positivization of REDD comes in a clear and crystalline way, expressed in item XIII, *in verbis*:

[...] to promote Projects for Reducing Emissions from Deforestation and Forest Degradation (REDD), as mechanisms to compensate for the maintenance of forests, with the objective of reducing global greenhouse gas emissions, and encouraging the conservation of biodiversity and benefit traditional, indigenous and rural populations, among other groups. (PERNAMBUCO, 2010).

With the consolidation of the instrument in the Policy, in theory, its applicability and acceptance become more plausible. However, it is known that one of the great difficulties for the practical realization of such instrument is the certification/monitoring that often comes up against the question of financial contribution. Something that stands out to the eyes is that Politics does not propose any facilitating form to obtain this credit to finance such projects. Only something very abstract is put, needing a more specific regulation regarding the investment.

Also in the same article, we have the section XV, in which the position of the state government in relation to the conservation of priority areas for the conservation of the biodiversity is observed. Considered as a global *hotspot* (MMA, 2012), Atlantic forest fits perfectly into the proposed paradigm of “priority areas for biodiversity conservation” because in this region there is an endemic character of species of fauna and flora besides being an important regulator of the region.

State Law No. 14. 090/10 is perfectly in line with the REDD proposal, or rather, it goes beyond the pretensions established by the document, since, in addition to providing conservation and recovery of areas that are suffering from anthropogenic actions in a wide range of ways, brings also the inclusion of traditional communities in the participation of facing the changes.

The State Plan for Climate Change has three basic lines of goals to be achieved in the course of six years from its promulgation: mandatory targets, general goals, and sector goals. The mandatory targets are set forth

in art. 23 of the PEEMCPE. They have this name because they base and guide the implementation of the policy, they are the basic structures that have as scope founding the basic substrate of the legal diploma. They are considered the minimum content to be implemented, the true existential minimum of the concretization of the policy (PERNAMBUCO, 2011).

Among the nine mandatory targets, three are worth highlighting: the diagnosis of the current situation of climate change in the State, containing the mapping of vulnerabilities and susceptibilities to the expected impacts; inventory of the contribution of the State to the Brazilian emission of greenhouse gases; and the establishment of guidelines and criteria for Reducing Emissions from Deforestation and Forest Degradation Projects (REDD).

It is noteworthy that REDD structuring has been elevated as one of the main points of the PEEMCPE, considering that it is present in its mandatory targets of effectiveness, thus raising the instrument to a level of importance. However, to date, the State has not developed any policy/program that is directly linked to the implementation/concretization of REDD. This observation, besides revealing the need/urgency in the development of initiatives with the instrument, also shows the complexity of setting it in operation.

Within the general goals, these were conceived through the definition of its components, thematic axes and areas of action, seeking to determine actions for the implementation of PEEMC in a way connected with the other public environmental policies of Pernambuco. In relation to the components, they are divided in two: adaptation and mitigation. According to PEEMC, in its article 1, I consider adaptation “a set of initiatives and strategies that allow the adaptation, in natural or man-made systems, to a new environment in response to the current or expected climate change” (PERNAMBUCO, 2010). Mitigation, for the purposes of the state policy, in article 1, item X, considers the “human action to reduce emissions by sources or to increase the sinks of greenhouse gases” (PERNAMBUCO, 2010).

The proposed thematic axes are divided into 3: combating desertification; coastal management and urban management. Finally, in relation to the area of action, which can be understood as the means by which it is intended to instrumentalize the proposed objectives, they are systematized into three groups: environmental monitoring/control;

education, research and environmental technology; and economic instruments/environmental management.

Sectorial goals are nothing more than a listing of what is intended to be implemented in various sectors of society, such as energy sector, transport sector, biodiversity sector, and forests, among others. In addition, the plan generally establishes very abstract concepts and basically a schedule of activities related to state policy. He does not care for a facticity. When outlined, the goals do not reveal how they will be achieved. In spite of such situations that hinder the implementation of the plan, it fulfills its main objective, which is to demonstrate when each stage of the State Policy will be made.

Both documents are considered good instruments since they provide a series of situations and scenarios arising from climate change. However, there are some flaws in the way of concreteness. In reference to REDD, the policy establishes a strategy for tackling climate change, but this is not done in an instrumental way, at the risk of making such a device a “dead letter” in the planning. Finally, the main legal information related to REDD can be systematized in Table 1.

Table 1- Major legal documents that allow the implementation of REDD in Pernambuco.

LEGISLAÇÃO	OBJETIVO	RELAÇÃO COM O REDD (DIRETA/INDIRETA)
<b>ÂMBITO FEDERAL</b>		
Constituição Federal de 1988	Garantir a conservação do bioma	<i>Indireta</i> : resguardar a fauna e a flora do bioma Mata Atlântica. Preservação da vegetação nativa
Lei nº 12.187/09	Institui a Política Nacional sobre Mudança do Clima	<i>Indireta</i> : Estabelece redução do desmatamento como um dos objetivos norteadores
Lei 12.651	Dispõe sobre o uso da vegetação nativa	<i>Indireta</i> : Ordenamento da conversão das florestas
Lei nº 9.985/00	Institui o Sistema Nacional de Unidades de Conservação	<i>Indireta</i> : sistematiza a gestão das unidades de conservação e abre a possibilidade para PSAs
Lei nº 11.428/06	Dispõe sobre a utilização e proteção da vegetação nativa do Bioma Mata Atlântica	<i>Indireta</i> : Conservação e uso do bioma Mata Atlântica
<b>ÂMBITO ESTADUAL</b>		
Constituição do Estado de Pernambuco	Conservação dos Ecossistemas	<i>Indireta</i> : uso sustentável e recuperação dos ecossistemas degradados
Lei 14.090/2010	Institui a Política Estadual de Enfretamento às Mudanças climáticas	<i>Direta</i> : Previsão expressa do REDD como meta obrigatória
Lei 11.206/95	Institui a Política Florestal do Estado de Pernambuco	<i>Indireta</i> : Regulamento o uso das florestas no REDD e prevê a possibilidade de uso dos instrumentos econômicos

Source: Prepared by the author.

It should be noted that the National System of Conservation Units (Federal Law No. 9985/00), the National Policy on Climate Change (Federal Law No. 12. 187/09) and the Forest Code (Federal Law No. 12. 651/12) do not expressly REDD, however, based on teleological and systemic hermeneutics, these laws favor the implementation of the instrument.

## CONCLUSION

REDD, despite being relatively new in the environmental scenario, appears as an alternative that goes beyond the barriers of mere speculation and expectation, at which point many environmental instruments collide. In order to corroborate such an inquiry, such as the recognition of carbon credit generation (even in the voluntary market), public investment in this area, the production of legal frameworks (treaties, conventions, laws, among others), the organized civil society movement incorporate this realization.

The establishment of REDD in the Atlantic forest of Pernambuco is not impracticable, however, it is important to have a differentiated functioning regarding the traditional model of implementation of the instrument, considering the peculiarities inherent in the socioenvironmental context of Pernambuco. Moreover, thinking about a managerial model of REDD undoubtedly passes through the internal articulation of the public sector with its innumerable ramifications and, under the external perspective of the governmental apparatus, the beneficiary populations, so that a simple imposition of “up and down” of governmental needs in the face of international pressures for changes in its environmental/climate policy does not occur.

Thus, the proposed guidelines for the implementation of REDD in the Atlantic Forest of Pernambuco are: compliance with the state’s environmental laws; environmental safeguards in relation to the populations of the recipient areas; presence of traditional populations that can be directly benefited, in the case of the Atlantic forest rural settlements, and management model in which there is the possibility of consortia between the areas, given the scarcity of large extensions of available spaces. In order to establish such directives, REDD will certainly become an extremely advantageous alternative for developing countries, Brazil and

especially Pernambuco, which may be at the forefront of climate-related environmental initiatives in the Northeast region.

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