BRAZILIAN CLIMATE-INDUCED MIGRATION AND DISPLACEMENT: REGULATION EFFECT OF CAATINGA TO AVOID DESERTIFICATION

MIGRAÇÃO E DESLOCAMENTO INDUZIDOS PELO CLIMA NO BRASIL: EFEITOS DA REGULAÇÃO DA CAATINGA PARA EVITAR A DESERTIFICAÇÃO

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Abstract: The severity of climate change predicted for the region was one of the factors that led researchers to carry out the study. This will be one of the areas most affected by climate change. In addition, the caatinga biome is very peculiar and characteristic of our country. In this context, the research work presented here aims to point out the degradation of the caatinga biome, to describe the vulnerability of the "people of the caatinga" and to analyse whether such issues delay the socio-economic development sought by the Brazilian Constitution. The research methodology is exploratory-descriptive and the databases searched to organize the theme were extracted from Scientific Journals.

Keywords: Environmental policies; Climate change; Migration.

Resumo: A gravidade das alterações climáticas previstas para a região foi um dos fatores que levaram os pesquisadores a realizar o estudo. Esta será uma das áreas mais afetadas pelas mudanças do clima. Além disso, o bioma da caatinga é muito peculiar e característico do nosso país. Neste contexto, o trabalho de pesquisa ora apresentado tem por objeto apontar a degradacção do bioma da caatinga, descrever a vulnerabilidade do "povo da caatinga" e

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analisar se tais questões atrasam o desenvolvimento socioconômico, buscado pela Constituição Brasileira. A metodologia da pesquisa é a exploratório-descritiva e as bases de dados pesquisadas para organizar a temática foram extraídas de Revistas Científicas.

Palavras-chaves: Politica pública de meio ambiente; mudanças climáticas; migrações internas.

Introduction

The Brazilian government withdrew the candidacy to host the Conference of the Parties of the United Nations (UN) Conference on Climate Change (COP-25).

Nevertheless, the national and state climate change forums are intended to mobilize society and promote dialogue and integration between institutions of various sectors, with the objective of adopting policies and programs in accordance with the United Nations Framework Convention on Climate Change (UNFCCC).

The aim research is to understand the economic, social, and legal impacts on the scope and complexity of migration and climate displacement of Brazilian Caatinga.

The northeastern region, and in particular the semiarid region, is known for its severe socioeconomic problems related to long periods of drought and dry season.

The production chain of smallholder farming holds fundamental economic importance in Brazil, and is responsible for about 15% of the gross domestic product (GDP) (GUIlHoto, 2017).

The Northeastern region, although the region contains 50% of all smallholder farming establishments, it only received 25% of PronaF's resources and a mere 1.5% of resources allocated for cooperatives during the 2016-2017 agricultural year (GUIlHoto, 2017).

1 Caatinga Bioma

The Caatinga is considered the most biodiverse semi-arid area in the world. Data from the Ministry of Environment (MMA) indicates that there is a great wealth of species in the biome, with 932 varieties of plants, 178 of mammals and 590 of birds.

Of the total, at least 318 are endemic, that is, they occur only in the

Caatinga. This bioma occupies about 11% of the Brazilian territory (844 thousand km2), where almost 28 million people live.

Despite its importance for Brazil and the world, this biome has not been a focus of concern for conservation and environmental sustainability policies in the country.

The Caatinga has been intensely degraded, due to the diverse pressures resulting from human activities, without adequate management (low-tech agriculture, extensive livestock and unsustainable extraction).

Currently, around 25% of the energy consumed by the industrial and commercial sectors in the Northeast is still derived from the Caatinga forest biomass, in the form of firewood, representing the second main energy source in the region.[2]

Climate change will increase the frequency and intensity of extreme weather events, such as droughts, due to rising temperatures on Earth. This is the scientific consensus of the experts gathered by the United Nations (UN), in the Intergovernmental Panel on Climate Change (IPCC).

The researchers' projections place the Caatinga as one of the geographic regions most affected by climate change in Brazil. The biome may suffer a reduction of up to 40% in its rainfall, directly impacting various social and productive sectors.

Caatinga Desertification

Source: MEIO AMBIENTE. Fragilidade da caatinga devido à desertificação. Published on 06/03/2016 Available at https://www.domtotal.com. Accessed on 08/01/2018.

2 - MISSIRIAN, Anouch; SCHLENKER, Wolfram. Asylum applications respond to temperature fluctuations. In: Science, 22 Dec 2017: Vol. 358, Issue 6370, pp. 1610-1614. DOI: 10.1126/science.aao0432. Available at https://science.sciencemag.org/content/358/6370/1610. Accessed on 02/06/2018.

As a consequence of natural and man-made factors, about 62% of the areas susceptible to desertification in Brazil are found in the Caatinga. On the other hand, only 1.5% of its territory is inserted in fully protected environmental conservation units.[3]

This situation intensifies during extreme droughts, when there is a shortage in food production and in the main local livelihoods, increasing the degradation of ecosystems, a scenario that is further aggravated by environmental changes.

The climate change process is already underway and its impacts will be felt across the planet in the coming decades, especially from the second half of the 21st century.

2 Caatinga Vulnerability

Extreme climatic events, such as droughts, produce widespread damage and socioeconomic impacts, taking on proportions of real natural disasters. This was the case of the historic "drought of the century", which occurred in the period 2010-2017.

Extreme droughts expose the population's vulnerability to ineffective public policies and the fragility of the infrastructure of the various sectors, in relation to environmental systems. In this way, it changes the functioning of the economy and social welfare.[4]

According to the Report of Material Damage and Damage Resulting from Natural Disasters in Brazil (1995-2014), the natural disasters reported most frequently by the Caatinga municipalities are related to droughts and droughts. In this post, we talk in more detail about the enormous cost of droughts for Brazil.

The Brazilian Yearbook of Natural Disasters contains 3,096 records of the occurrence of drought and drought events, only in 2013, in municipalities in the Semiarid Region. This total represents 70% of the natural disasters that occurred in Brazil that year.[5]

Developing mechanisms to adapt to extreme droughts today is a

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4 - BURITI, Catarina de Oliveira; BARBOSA Humberto Alves. Um Século De Secas: Por que as Políticas Hídricas não tansformaram o Semiárido Brasileiro? 1ª ed. (E-book) Editora: Chiado Portugal (Letras Ambientais).

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fundamental step to promote the resilience of ecosystems and the human population to the impacts of climate change projected for the near future.[6]

In the face of climate change, and its relationship with the increasing occurrence of natural disasters, the increase in the frequency and intensity of droughts demands from governments and society urgency in the implementation of structural and non-structural actions, with a focus on integrated disaster risk management.[7]

Drought is considered a chronic-silent natural disaster, whose negative environmental and economic impacts affect thousands of people and are often relegated by public policy makers.[8]

The recurrent extent and frequency of drought cause damage to various economic activities, in the sectors of agriculture, livestock, industry, services and the community in general.[9]

The Brazilian semiarid is the region of the country most affected by the process of climate change. In the book "A century of droughts", the coordinator of the new IPCC report on climate change and land use, researcher Humberto Barbosa, shows the impacts of the expected climate change process for the region.[10]

Desertification, the guarantee of local livelihoods by the most vulnerable communities, the availability of drinking water, in a scenario of climate change and intensification of drought, are among the greatest challenges pointed out by the researcher for the semiarid region of Brazil.[11]

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6 - NUNES, Claudia Ribeiro Pereira. Alimentação adequada no Brasil: Ativo econômico ou direito fundamental social? (Adequate food in Brazil: Economic asset or fundamental social right?) In: Espaço Jurídico: Journal of Law, v. 17, n. 1, p. 167-186, Joaçaba: Editora Unoesc, jan./abr. 2016. DOI: 10.18593/ejjl.v17i1.4584.

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Caatinga vulnerable communities

Source: MEIO AMBIENTE. Fragilidade da caatinga devido à desertificação
Published on 06/03/2016 Available at https://www.domtotal.com. Accessed on 08/01/2018.

The vegetation of the caatinga, although xerophilous and highly adapted to droughts, may be affected by climate change. The process of environmental changes will require a high level of adaptation of species of native flora to the new environmental conditions.

Researchers claim that extreme weather events, such as the 2012 drought, cause plants in the Caatinga to operate at their physiological limits.[12]

With the reduction in rainfall, caused by climate change, the Caatinga ecosystems may reach a critical point of irreversibility, causing an impoverished flora and fauna.

The process of land and vegetation degradation causes desertification in some areas of the biome, making the caatinga extremely vulnerable to extreme weather events and future climate changes.

Thus, the two main strategies for conserving biodiversity and restoring the ecological function of the Caatinga are the creation of conservation units and the restoration of degraded areas. Currently, only 1% of the Caatinga is contained in federal protected areas of integral protection.[13]

12 - BURITI, Catarina de Oliveira; BARBOSA Humberto Alves. Um Século De Secas: Por que as Políticas Hídricas não tansformaram o Semiárido Brasileiro? 1ª ed. (E-book) Editora: Chiado Portugal (Letras Ambientais).

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It is also essential, from a scientific and political point of view, to identify areas of the Caatinga that are currently vulnerable to the effects of climate change.[14] This is the case for areas ecologically vulnerable to drought.

3 Slowing economic growth

Economic growth in different countries will also be limited by climate change. In the period 1995-2014, in the Northeast of Brazil, the value of damages and losses, public and private, caused by natural disasters of climatological origin, corresponded to R$ 47 billion. Of this total, the majority, about 75%, is directly related to the environmental conditions of droughts and droughts.[15]

United Nations University studies on desertification indicate that in the next ten years, more than 50 million people on the planet will have to migrate from their regions, as a result of dry ecosystems, caused by the loss of natural vegetation cover, soil erosion and by the deterioration of the waters.

According to estimates by the United Nations Convention to Combat Desertification (UNCCD), an estimated 135 million people are at risk of being displaced by desertification by 2045 as a result of the ongoing process of land degradation.[16]

Certainly, climate change will be one of the major vectors of the process of land degradation, deforestation and the consequent migration of the population, in search of other alternatives for subsistence and better living conditions.

Conclusions

In the 21st century, discussions about the environment theme are increasing every day and involve most members of the most diverse societies and cultures. Directly affecting the environment, one of the great challenges is the increased demand for food, water and energy, in view of the growth of the world population and the increasing need for these resources for survival.

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Countries have faced difficulties in reducing emissions of greenhouse gases into the atmosphere. However, this decrease is essential to counter the impacts of climate change. The increase in the planet's temperature will influence dry and vulnerable ecosystems to climate change, as is the case of the semiarid region of Brazil.

Thus, given the risks caused by climate change and the increase in the occurrence of natural disasters, it is essential for governments and civil society to implement actions to adapt to the impacts of extreme weather events.

To develop mechanisms and policies for monitoring and environmental conservation of the Caatinga, adapting populations and economic sectors to droughts and strengthening water resource management systems.

Another way to avoid increasing the temperature in the atmosphere is to reduce the destruction and devastation of ecosystems, such as the caatinga, as well as diminishing waste and water pollution.

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