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Sustainability and transnational governance as a subsidy for disseminating new power matrices

Sustentabilidad y ordenanza transnacional como fundamentos para la difusión de nuevas matrices energéticas

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RESUMEN

La presente investigación tiene como objetivo indagar en la sustentabilidad como nuevo paradigma inductor de derecho en la posmodernidad, en las dimensiones social, económica y ambiental, contribuyendo a la resignificación de la matriz energética, a través de la presentación de alternativas viables para la diversificación de nuevas energías ecológicas. La relevancia académica y social de la presente investigación radica en el hecho de que el avance de la eficiencia energética, ya de por sí lento, enfrenta importantes retrocesos, como la disminución de las mejoras globales en eficiencia energética desde 2015, que inciden directamente en las metas globales para el clima y la sustentabilidad. Por lo tanto, se resalta el problema de la investigación: ¿Contará la sustentabilidad como nuevo paradigma jurídico con mejores condiciones para promover el socioambientalismo, la inclusión y la justicia social y una mejor calidad de vida? En cuanto a la metodología, tanto en la etapa de investigación como en la etapa de informe de los resultados, el método a utilizar será el inductivo.

Palabras clave: Derecho, gobernanza transnacional, matriz energética, sustentabilidad.



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ABSTRACT

This paper aims to investigate sustainability as a new paradigm inducing law in post-modernity, in the social, economic and environmental dimensions, while contributing to the re-signification of the energy matrix by presenting viable alternatives for the diversification of new ecological energies. The academic and social relevance of this research lies in the fact that the progress of energy efficiency, already slow, faces significant setbacks, such as the decrease in global improvements in energy efficiency since 2015, which directly affect the global goals for the climate and sustainability. Thus, the research problem is drawn: Therefore, the research problem is drawn: Will sustainability as a new legal paradigm have better conditions to promote socio-environmentalism, inclusion and social justice and better quality of life? As for the methodology, both in the investigation phase and in the phase of reporting the results, the method to be used will be the inductive one.

Keywords: Law; transnational governance, energy matrix, sustainability.

1. Introduction

In the course of the formation of the last generations of humans and the transmission of knowledge formed by these societies, it was observed that these are indebted to an effective advance of what could be called a more solidary and humanized world.

The society of modernity was based on the characteristic of individualism, and Sustainability therefore represents a turning point in the way of understanding and thinking about ecology, economy, and society. Based on sustainability, the dichotomy between the economic system and the environment is transmuted into a relationship of balance and harmony aiming at improving the social life of man and nature.

This paper aims to investigate sustainability as a new paradigm inducing law in post-modernity, in the social, economic and environmental dimensions, while contributing to the re-signification of the energy matrix by presenting viable alternatives for the diversification of new ecological energies.

The academic and social relevance of this research lies in the fact that the progress of energy efficiency, already slow, faces significant setbacks, such as the decrease in global improvements in energy efficiency since 2015, which directly affect the global goals for the climate and sustainability.

Therefore, the research problem is drawn: Will sustainability as a new legal paradigm have better conditions to promote socio-environmentalism, inclusion and social justice and better quality of life?

As for the methodology, both in the investigation phase and in the phase of reporting the results, the method to be used will be the inductive one.

2. Sustainability as a contemporary law inducer paradigm¹

¹ The reference to the concept of postmodernity in the analysis of contemporaneity raises ideas of rupture and the installation of a new order, due to the transformations that have taken place in our society. However, in the academic field there is no consensus as to whether we are living in a new historical period, with its own organizing principles and sufficiently different from those characteristic of Modernity. However, stimulated by this debate, the social and cultural analysis of contemporaneity has become more complex, and different theoretical

It is important to emphasize initially that sustainability has been provoking a reflection on the old models. This brings a differentiated vision in economic, social, and ecological relations. Allowing a process of transformation between human relationships with the environment.

It is inferred what Leff (2002) emphasizes that “the environmental crisis is the crisis of our time. *Ecological risk questions the weltanschauung.*” Thus, its basic proposal is consistent with what is sought here, namely: building a new paradigm, based on a collective consciousness of changing attitudes and effective actions that alter the current scenario.

Perhaps the identification of what unsustainability would be would further facilitate the understanding of what is attempted to translate as a more solidary and self-responsible society. In this regard, the overexploitation of natural resources, pollution, social inequality, among other factors, which accentuated environmental problems, generating the so-called environmental unsustainability that finally revealed the environmental crisis. This inflates the emergence of reflections on the preservation of natural resources at world levels (Brugger, 2004).

In other words, it is necessary to develop a new way of life, with other values in terms of sustainability and the environment, with a vision focused on the preservation of the planet and a better use of available natural resources, with a less consumerist view and with a preservationist look, so that we can save what we can still use.

In the meantime, it is emphasized that sustainability has a multidimensional nature, that is, it contains several facets, according to Freitas (2011), in addition to the consecrated social, environmental and economic tripod, adopted by a significant portion of the doctrine, such as Professor Gabriel Real Ferrer (Pavan, 2015).

For Freitas (2011), there are five dimensions of sustainability, namely: social, ethical, environmental, economic, and legal-political.

The social dimension corresponds to the sense that an excluding model cannot be accepted, i.e., one that accepts the misery and survival of the few.

In addition to the ethical dimension, which is concerned with preserving the intersubjective and natural connection between all beings. This projects so values of solidarity and cooperation, which remove the 'thingification' of the human beings. “Honesty is an ingredient of any philosophy of sustainability” (Freitas, 2011).

Regarding the environmental dimension, in turn, it corresponds to the dignity of the environment, as well as the recognition of the right of current generations, without prejudice to future generations, to a clean and healthy environment.

As for the economic dimension of sustainability, it has to do with the balance between efficiency and equity, that is, in the choice and application of large and small sustainable economic policies and in the restructuring of consumption and production.

perspectives have emerged to understand the changes observed in the world scenario. For better understanding, it is recommended to read the text: Hennigen, Ines. (2007). Contemporaneity and new perspectives for the production of knowledge. *Cadernos de Educação.* (29) 191 – 208. <<https://periodicos.ufpel.edu.br/ojs2/index.php/caduc/article/viewFile/1788/1670>>.

Ultimately, there is the legal-political dimension, which translates into the sense that the pursuit of sustainability is a right and finding it is an inalienable and intangible constitutional duty to recognize the freedom of each citizen, in that status, in the process of intersubjective stipulation of the content of the fundamental rights and duties of society as a whole, whenever directly feasible (Freitas, 2011).

Thus, these five dimensions are mutually constituted, one influencing the other, in the so-called dialectic of sustainability.

However, it is clear that despite this conceptual evolution, the path is still long, and it is necessary to reflect on the consolidation of sustainability as the new paradigm for Law in post-modernity.

In the midst of this scenario, it was observed the crisis that the current model of energy matrix is undergoing, in which in the vast majority of cases, it is ecologically predatory in the use of natural resources. Factors concerning the development have been shown to be socially perverse in the face of increasing poverty and social inequalities, politically unfair due to the concentration and abuse of power, culturally alienated from their own values and ethically objectionable regarding human rights and those of other species (Sachs, 2000).

In this regard, it is necessary to establish a systemic view, through which the human/environment relationship needs to be analyzed, reflected and therefore developed. This takes into consideration all possible environmental variables (Morin and Kem, 2003), especially when the emergence of new forms of power generation.

The present and the future moment demand governance strategies for building a new global civility, based on cooperation for a sustainable environment.

When it comes to the environment, sustainability is remembered as something essential for the well-being of humanity, and the word sustainable comes from the Latin: *sus-tenere* which means to sustain, support, or maintain Freitas (2011), in turn, points out that sustainability translates into a fundamental duty, including in the long term, to experience and share clean and health-friendly development in every way, in every way, including the ethical components, in combination with the social, environmental, economic, and legal-political elements.

In this regard, it exposes that there is a fundamental right to multidimensional sustainability, which propagates effects for several areas of Law, and not just for Environmental Law, so that the legal system itself becomes the Law of Sustainability.

Thus, it conceptualizes sustainability as a constitutional principle that determines, regardless of legal regulation, with direct and immediate effectiveness, the responsibility of the State and society for the solidary accomplishment of material and immaterial development, socially inclusive, durable, equitable, environmentally clean, innovative, ethical and efficient, in order to ensure, preferably in a preventive and cautious way, in the present and in the future, the right to physical, psychic and spiritual well-being, in homeostatic consonance with the good of all. [...] In a sentence: sustainability, well assimilated, means ensuring physical, psychological and spiritual well-being today, without making future multidimensional well-being unfeasible (Freitas, 2011).

It is noted that the legal protection of the environment in Brazil has undergone many changes over the years. For a long time, the environment was totally unprotected legally, it has suffered forest damage, land was totally depleted and there was no concern for the ecological balance (Silva, 2010)².

Legal protection of the environment has been consolidated, through environmental movements, which sought to raise awareness of society, which came to understand how important it was to preserve the environment by protecting it legally. *Environmentalism, as a starting point for the study of the environmental issue, means the set of theoretical and practical actions that aim to avoid environmental degradation* (Barral and Ferreira, 2006).

Environmental constitutional law, with the current social, economic and ethical context, has an arduous, important and essential role, to make it come true at a time of transformation of paradigms of conduct, the implementation of a new model of order, “that take into account the risks, the levels of sustainability of exploration and use of natural resources, as well as the defense and protection not only of the quality of human life, of its present and future generations,” but of all the living beings that make up the environment (Padilha, 2010).

In some ways, sustainability is the materialization of the social survival instinct. According to Ferrer (2012), to achieve a sustainable society it is assumed that:

- a) The society is regarded as planetary, our destiny is common and there is no room for the partial sustainability of a national or regional community apart from what can happen in the rest of the planet. Building a global community of active citizens is essential for sustainability progress. This requirement requires, among other things, overcoming the “Western” – and Anglo-Saxon – view of the world.
- b) We reach an agreement with the land so that we are committed to the possibility of maintaining the essential ecosystems that make possible our subsistence as a species in an acceptable environmental condition. It is essential to drastically reduce our consumption demands on natural capital to reach reasonable replacement levels;
- c) We are able to feed and also offer a dignified life to all the inhabitants of the planet by putting an end to unjustifiable inequalities. For this, it will be necessary to reconsider and reformulate the modes of production and distribution of wealth. Hunger and poverty are not sustainable;
- d) We recompose the social architecture so that we can end the oppressive model that is basing the comfort and progress of just a few social “castes” (classes) on the systematic exclusion of legions of disadvantaged individuals, orphans of any opportunity. Reaching a minimum threshold of social justice is an inevitable condition for moving towards sustainability;

² Complementing the matter: Non-governmental organizations, in this regard, have adopted the *Earth Charter* as a defense of an ecocentrist view that can overcome anthropocentrism, established by Rio 92, and place a greater emphasis on the environmental issue in consideration of the rights of living beings and nature as one all. In the *Earth Charter*, there are values for a sustainable future, notably in its 1st principle, which advocates respect for the earth and life in all its diversity. Such a principle is at the core of ecological justice when it recognizes that all beings are interdependent and all forms of life have value irrespectively of human beings. The first principles, 1 to 4, deal with care for the community of life. Principles 5 to 8 are related to ecological integrity and describe interspecies justice, which has been lacking in the building of the sustainable development discourse. In principles 9 to 12, social and economic justice is addressed. Principles 13 to 16 refer to democracy, non-violence and peace. All of them focus on justice in the intragenerational and intergenerational perspectives.

- e) We build new governance models that ensure the prevalence of general interests over individuals, whether those of individuals, corporations or the State. It is about politicizing globalization, putting it at the service of people and extending government mechanisms based on new forms of democracy with an asymmetrical architecture and based on citizen responsibility;
- f) It will be necessary to put science and technology at the service of common goals. Not only must new knowledge help to correct past mistakes, or point out effective solutions to problems that arise in an energy dependent civilization, but technology must inevitably determine what social models we will develop.

Based on this idea of Cruz, Dantas and Oliviero (2021) report that this set of propositions make the challenges of our time even greater, above all, because sustainability emerges as a great postmodern axiological potential, and that it needs to live together with the paradigms of freedom (inducing modern law), fraternity and equality (inducing social relations), as well as promoting the exercise of citizenship as a feeling and acting in solidarity in the transnational dimension. For all these reasons, building and consolidating a new concept of global sustainability is necessary, as a paradigm of approximation between peoples and cultures, and in the participation of citizens in a conscious and reflexive way in political, economic and social management. Silva (2002), ao tratar do desenvolvimento econômico e meio ambiente, esclarece:

These are two apparently conflicting values that the 1988 Constitution houses and wants to be carried out in the interests of the well-being and good quality of life of Brazilians. Before it, Act no. 6,938, dated 8/31/1981 (arts. 1 and 4), had already tackled the issue, correctly putting as the main objective to be achieved by the National Environmental Policy the compatibility of economic and social development with the preservation of the quality of the environment and ecological balance. [...] It requires [sustainable development], as its essential requirement, economic growth that involves an equitable redistribution of the results of the productive process and the eradication of poverty, in order to reduce disparities in living standards and better serve the majority of the population. If development does not eliminate absolute poverty, does not provide a standard of living that meets the essential needs of the population in general, it cannot be qualified as sustainable.

Therefore, the concept of sustainability, used here, aims at balanced economic, political, social, cultural and environmental models, which correspond to the needs of current generations, without compromising the ability of future generations to meet their own needs.

The authors of this text have spread the idea that the dimensions of sustainability should focus on the environmental, social and economic tripod, and this view is adopted in the present research. As one teaches, these dimensions are translated into (Souza, 2021).

Thus, the environmental dimension comprises guaranteeing the protection of the terrestrial macro biome, with the objective of maintaining the conditions that make life on Earth possible. To this end, it is necessary to develop proposals for transnational standards with a minimum of material applicability capacity, aiming at making this dimension effective.

However, this environmental dimension can be treated more broadly, and can be interpreted as the conditions of different environments that involve people (family, business, associative, recreational), or the senses (visual, olfactory, auditory), that grant well-being in interpersonal relationships.

In the economic dimension, there is also full awareness of the importance of sustainability, as the basis of production necessarily depends on the natural system, that is, on what is generated by nature and, in particular, energy. This perspective of sustainability essentially consists of solving the challenge of increasing the generation of wealth in an environmentally sustainable way and finding mechanisms for a more equitable distribution. A good example is what is conventionally called the Circular Economy, which has been shaping most discussions regarding the economic dimension of sustainability (Weetman, 2019).

It is explained introductory that the circular economy is the concept of a truly sustainable economy, which works without waste, saves resources and acts in synergy with the biosphere. Instead of looking at emissions, by-products and damaged or unwanted goods such as waste or garbage, these items, in the circular economy, become raw materials and inputs for a new production cycle (Weetman, 2019).

Additionally, the social dimension works from the protection of cultural diversity to the real guarantee of the exercise of human rights, to combat any type of discrimination, lack of access to goods and services essential to the dignity of the human person. From a social perspective, the aim is to achieve a less heterogeneous society and better distributed wealth, with access mainly to health and education, together with inclusive social policies. Human rights are presented as an instrument for achieving this dimension of sustainability. In the current debate, new governance models and the creation of a global citizenship statute are proposed to optimize the effectiveness of the implementation of social policies.

It is important to emphasize that there are authors, such as Sachs (1993)³, who advocate the compatibility between sustainability and sustainable development, emphasizing that when planning the development of a society aiming at sustainability. For the author, there are five specific dimensions to sustainability: social, economic, ecological, spatial, and cultural. However, for the scope of this paper, the authors consider the three traditional dimensions of sustainability.

In this way, it is possible to make conjectures that sustainability is, therefore, a systemic and dynamic concept, which means that its elements are in constant adaptation. However, in the search for the sustainability concept to be perpetuated, it is known that the need to broaden the

³ Translating the social bias: as the consolidation of a development process based on another type of growth and guided by another vision of what a “good” society is. In addition, the economic bias: involves enabling a more efficient allocation and management of resources and a regular flow of public and private investments.

Being the ecological bias: intensify the use of the potential resources of the various ecosystems (with minimal damage to them) for socially valid purposes, limit the consumption of fossil fuels and other easily depleted or environmentally harmful products, reduce the volume of waste and pollution, recycling and conservation, limiting material consumption, investing in research into clean technologies, defining and ensuring compliance with rules for adequate environmental protection.

Regarding the spatial bias: turning to a more balanced rural-urban configuration and a better territorial distribution of human settlements and economic activities. As a conclusion, the cultural dimension is added: respecting the specificities of each ecosystem, each culture and each location.

concepts and characterizations of its dimensions, discussing the transversal character of some categories, for example, cultural, religion, ethics, morals, among others⁴.

Regarding this compatibility, the approach of researchers Bodnar, Cruz and Staffen (2011) is interesting:

Se necesita la construcción y consolidación de una nueva concepción de sostenibilidad global, como paradigma de acercamiento entre pueblos y culturas, y la exigencia de participación ciudadana, de forma consciente y reflexiva en la gestión política, económica y social. La sostenibilidad debe ser construida a partir de múltiples dimensiones, que incluyan, más allá de lo legal, variables de aspecto ecológico, social, tecnológico y económico, teniendo como fuerte base el medioambiente. Para el derecho como objeto de la ciencia jurídica, todas estas perspectivas presentan una identificación con base en los valores fundamentales, incluidos el medio ambiente, el desarrollo sostenible, la cuota de los derechos sociales, entre otros, cada uno con sus propias peculiaridades y riesgos. Por la importancia y centralidad en el orden político actual, es posible afirmar que la sostenibilidad puede ser comprendida como impulsora de un proceso de consolidación de una nueva base y objetivo axiológico del derecho.

All these researches agree to conclude that sustainability is intrinsic to the idea of circular economy, that is, it is necessary that for its full development, it must have sustainability as a guideline.

3.Role of transnational governance

There is a theoretical movement around the concepts and applicability of transnationality, mainly in legal terms, and environmental governance in this context of the search for so-called clean sources of energy.

Linked to this lies the need to establish transnational governance with a view to sustainability in socio-economic-environmental matters. This Transnational Governance is a means of establishing sustainability to human needs, ensuring global equity for present and future generations, through the redistribution of resources to the poorest nations and through environmental conversation.

Authors such as Zsögön (2008), assert it is necessary to have new geopolitical parameters that can promote the governance of natural resources, based on cooperation and information sharing between States or, better said, transnationally.

The current political-legal organization is not enough to limit the new transnational powers, created mainly from what is called the complex information society. These new transnational demands, which require a new structure – it would be better to speak of the transnationalization of the State – re-defining the concept of sovereignty as already widely discussed, which demonstrate the need for networks of data sharing and interaction with transnational public organizations, both governmental and non-governmental. In this context, the creation of intermediary institutions, with the objective of providing greater transparency and legitimacy to the Transnational Governance process, may be essential, as they may create conditions for developing cross-border dialogues, based on common principles of cooperation.

⁴It is, in its due proportion, the need for “secularization” of the concept of sustainability.

In this theoretical context, renewable energy generation models, made possible by new technologies and new areas of use, such as artificial intelligence, can effectively contribute to a healthy and balanced environment, as well as to make Transnational Governance viable, associating not only States and transnational organizations, but also the citizen, insofar as they make their practical contributions possible through access to a significant volume of accurate information and discussion/decision forums. These reflections are part of the broader scope of discussions on something like the “republicanization of globalization” that touch on new forms of social resolution, such as the transition from representative democracy to participatory democracy (which is not limited to voting, nor to isolated procedures to solve problems. conflicts), or, in Rifkin's (2007) conception, in an asymmetrical democracy, which is characterized by the commitment to the collectivity.

The discussion on the replacement of unsustainable energy matrices permeates the perception of a set of proposals for the application of legal norms – some of them probably of a transnational character – capable of guaranteeing the aforementioned “republicanization of globalization”.

The same reasoning can be used for a fundamental aspect when it comes to sustainability and its reception in transnational orders. The republican principle can be used extensively in all matters involving the determination of the general interest or the interest of the majority. This theoretical platform, by itself, ends up validating the use of other principled corollaries that have come to be present due to the networked society and that are more specific for building transnational legal systems that will aim to limit powers that are not bound to the general value of the interest of humanity. Without the debate on the general interest and submission to this interest – or interests – of the means of production, the conditions of life in society and the natural and cultural environment, we will certainly have increased the risk, as Beck suggests, of the emergence of several problems for civilization.

The term governance has already been used in the liberal context of the Minimum State, as a way of redefining state intervention, as corporate governance, that is, the way corporations are controlled, in the context of New Public Management, to bring to the public sector methods of private administration and as a mechanism to regulate and control private actors in the delivery of public services to citizen-clients; as well as good governance, by the World Bank's agenda to promote transparency and accountability among third world countries as mechanisms for strengthening civil society (Kooiman, 1999).

The interactions between different sectors of society (state, market and third sector) for the promotion of policies were also called socio-cybernetic system; also known as self-organizing networks. Furthermore, in the British neoliberal context, the idea of urban governance emerges as an alternative to local government and the complex system of relationships between private and public actors for the delivery of services to the English population (Kooiman, 1999).

This paper brings a specific approach to governance, based on the concept of transnational governance, while the notion of global governance is used mainly in the field of international – or transnational – relations to analyze the rules that guide the development of globalization, especially the organisms multilateral (Richard and Rieu, 2009). The concept of transnational governance focuses on the forms of regulation that emerge and are not operated exclusively by the State (Cashore, 2002).

The term “transnational governance” arises from contemporary capitalism and the transnational relationships that emerge from it, such as global production and value chains, the flow of information and capital between countries and the financialization of everyday relationships (i.e., greater dependence on the sector financing for the realization of present and future consumption, such as the private pension fund and other forms of investments, credit cards and mortgages) (Djelic, 2006).

The consequence of these events in 21st century capitalism translates into a decrease in the importance of national borders for the regulation of economic and social activity (Djelick and Sahlin-Andersson, 2006). It is still possible to highlight that nation-states, as well as their borders, have not disappeared or become passive. They remain relevant, but for some authors, the State is now one more actor among others that exercise some form of regulation (Bartley, 2014). Since transnational governance is the result of a specific historical moment, being contemporary capitalism, it is necessary to develop studies that allow the criticism of the development of these regulatory mechanisms that legitimize the action of private actors on issues of public interest, as is the closely studied case of the circular economy.

Therefore, it is important to note that reality already shows that transnational actors, such as large multinational corporations, supra-governmental entities, NGOs, among other social figures, have already created new regulatory mechanisms, that is, organizational norms aimed at protecting markets that aim to exercise governance, with political influence in the formation of transnational governance systems (Staffen, 2021).

In this field, the recent and growing discussion about the replacement of the modern petroleum-based energy matrix occupies a prominent position

4. Brazil and the new energy matrices

New energy matrices mean the set of energy sources offered in the country for capturing, distributing and using energy to all sectors of society. The energy matrix is represented by the form - or forms - that the country adopts as the majority for energy generation, which can be renewable or non-renewable sources (Brasil, 2018).

Here, it is important to note the need to focus on new energy matrices, preferably linked to renewable sources, since the Brazilian energy matrix is based on the consumption of petroleum derivatives and hydroelectric plants (and subsidiarily, but with a relevant role, in terms of electric power), which are intensely impacting the environment. There are more than a thousand hydroelectric plants in the country, which accounts for about half of Brazilian production and consumption. Hydroelectric energy is considered a renewable energy source, that is, it comes from resources capable of being rebuilt in a short term. Despite hydroelectric plants being classified as renewable energy, they cause environmental, social – including cultural – and economic damage in the region. However, with the recent climatic phenomena, generated by the environmental imbalance, the scarcity of rain and climate change is a reality. In this way, there is therefore a need to rethink this type of energy production, because together with those derived from oil, they make up the Brazilian energy matrix with undeniable serious impacts as previously recorded.

With approximately 43% of energy produced from renewable sources, such as hydro, biomass, ethanol, wind and solar, Brazil is the country that emits the least greenhouse gases per inhabitant among industrialized countries (Oliveira, 2019). Despite this, as highlighted above, Brazil still

depends heavily on non-renewable energy sources such as fossil fuels (oil, natural gas and coal) for energy generation. Among the disadvantages of using non-renewable sources like these, it is possible to highlight the increase in global warming and climate change.

A large part of the energy generation efforts are directed towards the production of electric energy. In Brazil, energy derived from petroleum, one of the main components of the national energy matrix, began at the end of the 19th century and its use followed the growth and development of the country, especially during industrialization that began in the first half of the 20th century. Its use is mainly due to the transport, agriculture and industry sectors. Natural gas, for example, became part of the Brazilian energy matrix in the 1980s, when the exploration of deposits discovered in Brazilian territory began. Its use has increased considerably since the late 1990s, when the Treaty of La Paz was signed and the Bolivia-Brazil Gas Pipeline began to operate. (Brazil, 2007) Despite being a type of fossil fuel, its ability to impact the environment is much smaller than that of oil.

The Brazilian nuclear energy program, which began in the 1970s, with the oil crisis. At the time, the Brazilian government, in association with Germany, had access to nuclear technology for the construction of three plants: Angra 1, Angra 2 and Angra 3 (still under construction with completion scheduled for the end of 2021) (Brazil Agency, 2021). Currently, after a period of much contestation due to its contamination capacity, nuclear energy gradually gains new spaces due to the technological advance in the storage of its residues, its great problem.

Recent studies present viable energy alternatives aiming at sustainability. It is important to highlight that the generation of energy with biomass has been gaining more and more space in the Brazilian energy matrix. Among the most used sources of biomass are sugarcane bagasse, lye, firewood, charcoal and alcohol (Oliveira, 2019).

The use of biomass energy is fundamental in the development of new energy alternatives. Its raw material is used in the manufacture of various biofuels, such as bio-oil, BTL, biodiesel, biogas, etc. (Brazil, 2018) In addition to being a renewable energy source, biomass has other advantages such as the possibility of reusing waste and for being less polluting than other forms of energy, such as those obtained from fossil fuels.

In recent decades, the production of wind and solar energy has gained momentum, which arise from the need to diversify the Brazilian electrical matrix, which is dependent on energy derived from oil and energy from hydroelectric plants and, to a lesser extent, , of thermoelectric plants (Oliveira, 2019).

In 2002, the Brazilian government created the Incentive Program for Alternative Sources of Electric Energy (PROINFA), with the objective of expanding the matrices that generate less environmental impacts, from which, the expansion of wind energy in Brazil occurred at high rates (Aneel, 2015). Added to this alternative, considering that Brazil is the country with the highest rate of solar irradiation in the world, due to its geographic location and large territorial extension, receiving an insolation (number of hours of sunshine) of more than 3000 hours per annum. In addition, in the Northeast region, there is an average daily incidence between 4.5 and 6 kWh (Oliveira, 2019). The installed power in Brazil in 2018 was slightly greater than 1 GW and represents less than 1% of the energy matrix, however, ABSOLAR (Brazilian Photovoltaic Solar Energy Association) estimates that the country has the potential to exceed 100 GW in the coming decades (Brasil, 2018).

Energy generation is carried out in two distinct segments: decentralized generation, in which generation is carried out in residential systems and used for own consumption, and centralized generation, in which generation is carried out in solar plants. The same reasoning can be applied to wind energy. In addition to these alternatives that have already proved to be viable, in Brazil there is the possibility of producing tidal energy, also called tidal energy, which is energy derived from the movement of the tides (Azevedo, n.d.). Two types of tidal energy can be obtained: kinetic energy from sea currents and potential energy from the difference in height between high and low tides.

The 2030 agenda, in its objective 7, highlights international cooperation in order to facilitate access to research and clean energy technologies, including renewable energy, energy efficiency and advanced and cleaner fossil fuel technologies, and promoting investment in energy infrastructure. energy and clean energy technologies.

5. Conclusions

The text developed sought to demonstrate the connection between instruments of transnational governance and the progressive connection with the necessary replacement of the current energy matrix in Brazil.

It seeks to highlight that this movement towards sustainability depends on the ability of legal science to adapt to transnational environments for the production of legal norms capable of limiting powers around unsustainable energy sources and encouraging alternative energy sources that can help recover and protect the terrestrial macro biome.

It is reinforced that the legal discussion on the replacement of non-sustainable energy matrices for sustainable ones permeates the perception of a set of proposals for the application of legal norms - some of them probably of a transnational character - capable of guaranteeing the aforementioned “republicanization of globalization”.

Legal science should interact with other areas of knowledge in order to guide normative production from the new paradigm of “post modernity” that all indications indicate will be sustainability in its triple dimension.

It is necessary to understand this social construction, refine theoretical and evaluative models that clarify the growing dissemination of regulations created and implemented by different actors. Corroborating the need for further studies, it is necessary to analyze how the State and its organizations have been acting in the constructive process of transnational governance.

It was also noted that Transnational Governance can contribute to the achievement of Sustainability. This awakens effective scientific studies and documents providing alternatives for the development of energy matrices based on renewable sources. It is imperative to recognize that society must be formed by a global community of active citizens, indispensable for consolidating sustainability. It is imperative to drastically reduce our consumption demands on natural capital to reach reasonable replacement levels. Offering a dignified life to the planet's inhabitants by drastically reducing inequalities. To this end, it is necessary to reformulate the modes of production and distribution of wealth and legal guidelines.

Poverty is unsustainable. Rethink new governance models that ensure the prevalence of collective interests over individual ones. Science and technology must be at the service of common goals by bringing effective solutions to the problems that arise in a complex society.

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