

**Social, environmental, socio-environmental and environment
vulnerability: Concepts and conceptions**

Elton de Oliveira Gonçalves

Master in Geography, UERN, Brazil
eltongon@gmail.com

Alfredo Marcelo Grigio

Doctor teacher, UERN, Brazil
alfredogrigio1970@gmail.com

Luiz Tavernard de Souza Neto

Master teacher, UERN, Brazil
luiztavernard@uern.br

Marco Antonio Diodato

Doctor Teacher, Ufersa, Brazil
diodato@ufersa.edu.br

ABSTRACT

The growing demand for the operationalization of scientific concepts makes them to be proposed as an intervention design. In this context, the objective of this study is to know the concepts and conceptions that identify vulnerability, be it social, environmental or socio-environmental, as well as to distinguish the types of vulnerability; identify social, environmental and socio-environmental vulnerability factors; and, analyze the role of public policies in mitigating vulnerabilities. Therefore, a bibliographic research was carried out with a descriptive approach. It was found that people in general need to be aware of the risks and vulnerabilities that are permanently observed in cities. The rapid and intense alteration of natural landscapes into artificial landscapes generated, above all, by human constructions, and which characterize urban spaces, results in numerous problems for cities, requiring public policies to create defense mechanisms for risk factors. so that all together can overcome vulnerabilities, be they social, environmental or socio-environmental.

KEYWORDS: Fragility. Environment. Socio-environmental Problems.

INTRODUCTION

The advances that occurred with the Industrial Revolution are undeniable, since it produced innovations, sophisticated and boosted the rise of all sectors and transformed society's way of life, however, the results of this developmental model of growth at all costs resulted in the emergence of a "Risk Society" in the words of Beck (2011). Therefore, these current transformations were the result of the 1930s when the First Industrial Revolution took place.

Thus, in Beck's view (2011), the industrial society, marked by the production and distribution of goods, was replaced by the risk society, where the distribution of risks does not correspond to the social, economic and geographical differences typical of the first modernity, but to the scientific and technical development. As science and technique contradict each other, there is a return to seeking knowledge in everyday life and no longer in laboratories. In this way, the production of risks generated by human beings that are reflected in their own well-being is a phenomenon of reflexivity resulting from the technological industrial system, which is at the mercy of nature.

In recent years, there has been research focused on the study of environmental vulnerability and risk. The understanding became that the risks originate in the scientific and technological development itself, which, despite its positive advances, add certain uncertainties to these. Today it is recognized that through this perspective it is possible to address, in their complexity, issues involving risk and vulnerability (BARCELLOS; OLIVEIRA, 2010).

The intense urbanization that has been taking place in Brazil has been accompanied by a process of metropolization, that is, demographic concentration in large cities and the formation of metropolitan regions. This means that large cities, especially metropolises, have grown at a faster rate than small and medium-sized cities. With the accelerated growth of large cities, certain urban problems are potentiated and acquire a character of environmental vulnerability, prone to induced anthropogenic processes (BARCELLOS; OLIVEIRA, 2010).

Given the above, it appears that a set of environmental problems are present in society and are reflected in a predatory way of appropriation of nature. Environmental degradation

appears as a product of the relationships of social groups with each other and with the environment in which they live. In this way, social inequalities arise resulting from spatial inequalities, that is, from the transformations in the relationships between human beings and the environment, human beings and human beings. In this context, the question is: What is the level of knowledge of the population of a city in relation to vulnerabilities and existing policies to alleviate social, environmental and socio-environmental vulnerabilities?

The interest in studying this topic arose from the realization that, due to social inequalities, socio-environmental vulnerability manifests itself differently and with different intensities. Thus, came the curiosity to know all the concepts that revolve around vulnerability to, in a second moment, know how to recognize the level of vulnerability of a given city and thus understand its spatial division.

In this way, the relevance of studying the vulnerabilities existing in a city lies in the fact that by recognizing natural risks, actions can be taken to combat their effects and, also, reinforces the idea that nature and society must be articulated together. for good urban planning and management.

Thus, this study aims to know the concepts, factors and conceptions that define and identify vulnerability, be it social, environmental or socio-environmental. This is a bibliographic research for expressing ideas and appreciations of several authors. As Vergara (2004) says, bibliographic research is a study based on published material, such as books, newspapers, magazines and other materials that are easily accessible to the general public. As for the objectives, the research is descriptive, describing, explaining, classifying and clarifying the problem presented; and exploratory, as it seeks to improve ideas, seeking more information on the subject in focus.

SOCIAL, ENVIRONMENTAL AND ENVIRONMENT VULNERABILITY

Vulnerability: a multidimensional concept

From the 1980s onwards, the term vulnerability became a keyword in environmental studies. Even with its growing popularity, the word “vulnerability” is quite diffuse, giving rise to definitions in different disciplinary contexts, whether related to sustainability, natural and environmental risks, and even in social and economic areas (MALTA; COSTA; MAGRINI, 2017).

The complexity of the concept of vulnerability stands as a mediator, involving actions and mechanisms for coping with risks, guiding interventions based on the representation of scenarios of multiple relationships between elements of a different nature (SEVALHO, 2018).

On the other hand, this discussion has gained relevance in the first place, because the feeling of “being or feeling vulnerable” intensifies in the face of a growing “risk society”, and, secondly, because its multidimensionality allows its use by different scientific areas, most of the time with non-coinciding meanings. Although they do not present a greater consensus between the meanings in the different areas that are presented, they have common elements that allow establishing a more general definition of what can be considered as socio-environmental vulnerability (JATOBÁ, 2011).

According to Beck's proposal (2011), the main components of risk are: theoretical content; normative content; plurality of conflicting definitions; future component. Therefore, by

claiming control, mitigation and actions that prevent its realization, this undesirable future determines the action in the present of the risk society.

The concept of vulnerability refers to specific social groups that are in a given territory, exposed to a certain phenomenon and weakened in terms of their ability to understand and face these risks. This characteristic makes vulnerability a key concept for an integrated and contextualized analysis of risks, as it raises ethical, political, physical and technical issues (SANTOS, 2015).

Vulnerability is understood as a process that involves both the social dynamics in which the most affected populations are those with the least conditions to protect themselves from risk and environmental conditions. From this perspective, vulnerability can be linked to social, cultural and even natural disasters.

From a transdisciplinary perspective, the concept of vulnerability favors an integrative approach, expanding the dialogue between the different disciplinary fields and their paradigms. This integrative approach helps to understand the complex environmental problems facing the contemporary city, especially when referring to the notion of quality of urban life. Integrating concepts have the ability to provide analogies and metaphors that facilitate communication between the different paradigms, professional and non-specialist, involved in the discussions of the concept (GALLO, 2017).

Penna and Ferreira (2014) define vulnerability as a social risk, characterized by the lack of collective services and public investments in infrastructure, promoting the lack of social protection of the most needy communities. It is worth noting that vulnerability may or may not be associated with environmental risks.

The concept of vulnerability is correlated with a theoretical construction, prior to it, defined as social exclusion, which was taken as a reference point for the characterization of extreme social situations, of poverty or marginality, and for the consequent formulation of public policies aimed at addressing these issues (MAIOR; CÂNDIDO, 2014). In this sense, the fact that there are individuals in a vulnerable situation causes inequality in society.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), social vulnerability is a negative result of the relationship between the availability of material or symbolic resources of actors, whether individuals or groups, and access to the structure of opportunities. social, economic and cultural factors that come from the State, the market and society. Vulnerability includes situations of poverty, but is not limited to it (CANÇADO; SOUZA; CARDOSO, 2014).

Therefore, vulnerability is the potential for loss that includes both elements of risk exposure and propensity. Individuals are constantly subject to situations that imply a greater or lesser degree of vulnerability, and sometimes they put themselves in so many situations that leave them even more vulnerable. Thus, it can be said that vulnerability is as if it were an inherent condition of our human condition, but that everyone thinks they can escape it.

Social vulnerability

One of the consensuses on the concept of social vulnerability is that it has a multidimensional character. Its concept is linked both to the characteristics of individuals or

families, such as their assets and demographic characteristics, and to those related to the social environment in which they are inserted (CORREIA, 2016).

The definition of social vulnerability comprises three factors. The first is exposure to risk, which is associated with individuals, families and the community rather than places. The second is the opportunity structure that presents itself as a support for people to face risks. The third is the ability to answers to risks (COELHO; COSTA, 2017).

Social vulnerability is associated with exposure to risk caused by environmental and social conditions. Socio-environmental problems are related to disorderly human occupation in areas susceptible to flooding, pollution of water resources, atmospheric pollution, etc. In addition to these conditions associated with the lack of infrastructure, such as precarious housing, lack of sewage, garbage collection, slope containment works, among others, further increase exposure to risks. In addition, it is worth mentioning that social vulnerability is mainly present in urbanization processes (COELHO; COSTA, 2017).

Both biological, existential and social vulnerability are presented as a constellation of events that threaten to lead to a catastrophic precipitation, which appears in two ways: as the originary situation of a vital normative limitation or as the impossibility of affirming and exercising freedom. and relative autonomy. If we believe that these dimensions are inextricable, then vulnerability is multidimensional and unspecific, because its effects and outcomes disturb the individual as a whole (OVIEDO; CZERESNIA, 2015).

Social vulnerability reflects the population's propensity for the negative impacts of hazards and disasters and identifies the characteristics of the population that increase or decrease their ability to prepare for response and recovery from a dangerous event or disaster. In addition, it helps to understand the distribution of risks and potential losses, that is, the relationship between vulnerable populations and vulnerable natural environments (CUTTER, 2011).

The assessments of social vulnerability, for the most part, are based on the understanding of the socioeconomic reality in a given territory. Thus, two variables are important for an adequate understanding of this reality, which are the economic and social history, and the current use and exploitation of soil and environmental resources. Even though these two variables are important indicators of the socioeconomic and cultural reality of a given territory, they are not isolated, since within the same category of use there may be differences that define specific conditions (SANTOS, 2015).

Given the above, it can be said that social vulnerability characterizes the condition of groups of individuals who are on the margins of society, that is, people or families who are in the process of social exclusion, especially in relation to socioeconomic factors.

Environmental Vulnerability

The concern with the population-environment relationship is present in the work of geographers since they woke up to the impacts of human action on the environment. Thus, even before individuals became aware of the finitude of the planet, geographers were among those who were already concerned about the limits of natural resources due to the growing demands of the population contingent (MARANDOLA JUNIOR.; HOGAN, 2004).

Environmental vulnerability refers to the integrated set of environmental factors that, in the face of human activities, occurring or that may manifest, may undergo changes affecting, in whole or in part, the ecological stability of a place. It can be understood from the analysis of the ecodynamic characteristics of environmental systems, also relating to the ability of the physical environment to respond to the adverse effects caused by anthropogenic actions (MEDEIROS; SOUZA, 2016).

Vulnerability definitions usually link one or more of the following factors: exposure, sensitivity, and the system's adaptive or responsive capacity. The study of these factors allows the assessment of the greater or lesser vulnerability of a system to certain environmental issues. Exposure means the degree, duration or extent to which the system is in contact with disturbances. Sensitivity is related to the extent or degree to which a system can absorb pressures without changing over the long term. Adaptive capacity is the ability of the system to adjust to damage that has occurred, to make use of resources or opportunities, or to respond to environmental changes that may occur. In this context, a system is more vulnerable the greater the pressures, the greater the sensitivity of the environment and the lower its adaptive capacity (MILANEZI; PEREIRA, 2016).

The idea of environmental vulnerability follows the tradition in the field of Brazilian geography that relates it to the extent of the spatial manifestation of risks and situations of environmental degradation in a given area.

Social and Environmental Vulnerability

The concept of vulnerability is used to represent a property specific to the locality, but with different effects according to the sociodemographic and economic characteristics of the population in the region, as well as their capacity to respond. In this way, the notion of vulnerability can be understood as a susceptibility to certain risks. Therefore, socio-environmental vulnerability is a process that involves both social dynamics and environmental conditions (HOGAN et al., 2001).

For Deschamps (2004), socio-environmental vulnerability can be defined as an area where environmental risks and populations in situations of social vulnerability coexist. Thus, it can be said that most areas of high social vulnerability coexist with those of greater environmental fragility, these being represented by areas subject to floods, landslides and burials. The population that settles there, due to their social conditions, cannot face the adversities of those environments, further expanding the socio-environmental problems.

Unequal and concentrated development causes deterioration in the population's living conditions, particularly with regard to location in the territory and, as a result, housing conditions and access to services and equipment for collective consumption. Urban fragmentation in cities is expressed in increasing levels of residential segregation. This constitutes one of the determinants of the process of maintenance and reproduction of poverty and social inequality and, thus, generating socio-environmental vulnerability (COSTA; DANTAS, 2009).

In turn, socio-environmental vulnerability simultaneously brings together environmental and social vulnerability, materializing in a certain territory in a given space of

time. For Santos (2011), socio-environmental vulnerability involves knowledge of the morphodynamic conditions of environmental systems, giving rise to environmental vulnerability. Socio-environmental risks, however, cannot be defined solely based on natural aspects, they constitute the association of these phenomena with the ability to protect social groups, that is, social vulnerability.

In this sense, socio-environmental vulnerability corresponds to a place where environments and populations at risk coexist, exposing individuals to adversities arising from natural and social phenomena, such as floods or floods, landslides, burials, marine erosion, recurrent droughts, illness, job losses, economic recession, among others (MEDEIROS; SOUZA, 2016).

Understanding vulnerabilities and measuring them is the first step in relating the different aspects of a complex reality. Thus, in the quest to understand the interactions between the environment and cities, the concept of vulnerability would allow the incorporation of both the geophysical dimensions and the social processes that interfere in people's ability to face such problems. In a way, vulnerability should not be understood as a single measure, but as a relational one, where similar natural dynamics can be more or less impactful, depending on the interactions or combinations of social characteristics existing in this context (OJIMA, 2012).

Vulnerability is multidimensional as it affects individuals, groups and communities at different levels of their well-being, in different ways and intensity. The social vulnerability of individuals, families or communities is understood as a combination of factors that can produce a deterioration in their level of well-being, as a result of their exposure to certain types of risks. Among these factors are: the fragility or lack of protection in the face of changes originated in their surroundings, the institutional helplessness of citizens by the State; the internal weakness of individuals or families to carry out the necessary changes in order to take advantage of the set of opportunities that present themselves; permanent insecurity that paralyzes, disables and demotivates people to think about strategies and carry out actions with the aim of achieving better living conditions (COSTA, 2009).

Therefore, socio-environmental vulnerability can be defined as a space where environments and populations at risk coexist, exposing individuals and social groups to adversities resulting from severe natural phenomena (ZANELLA et al., 2013).

Environmental Risk

Currently, risks occupy a prominent place in contemporary society, due to the increase in disasters, the outbreak of the environmental crisis and improvements in the quality of life, contributing to the deconstruction of the belief that technical-scientific development would enable the construction of a safe society, immune to risks. The elimination of this belief awakened the perception that the uncertainties and adversities inherent to risks, derived from natural phenomena or produced by human activities (SANTOS, 2015).

The Houaiss dictionary (2001) defines risk as the probability of danger, usually with a physical threat to humans and/or the environment. Thus, generically and considering the lexicographical, risk is seen as a situation of danger or possibility of a threat that, known or not,

can happen on an individual or collective scale, presents itself permanently or momentarily, with the existence of two agents: the threatening and the receiver of the threat (ESTEVEZ, 2011).

Risks are inherent to human activities and are present in our daily lives, so we must be aware of a good part of the risks, however, most of them are beyond the possibilities of selection and control by the human being. Precisely because it constitutes a theme so present in society, it is necessary to clarify what they are, how they are perceived and how they manifest themselves (SANTOS, 2015).

Commonly the notion of risk is associated with an immediate danger, however risk does not necessarily mean a dangerous situation. It is worth mentioning that the notion of risk, notably environmental risk, is commonly confused with that of environmental impact. Although these two events are closely related, there is a significant difference between them. Impact corresponds to an interference in an environment, which can be positive or negative. On the other hand, risk always assumes a negative effect (SANTOS, 2015).

A relevant landmark in the debate on risk is Ulrich Beck's book "Risk Society" when he points out that the industrial society, marked by the production and distribution of goods, was replaced by the risk society. In this society, the distribution of risks does not correspond to the social, economic and geographical differences typical of the first modernity. Scientific and technical development could no longer account for the prognosis and control of the risks created by this same development, whose consequences, environmental and for human health, are not known in the long term and which, when discovered, may be irreversible. (2011).

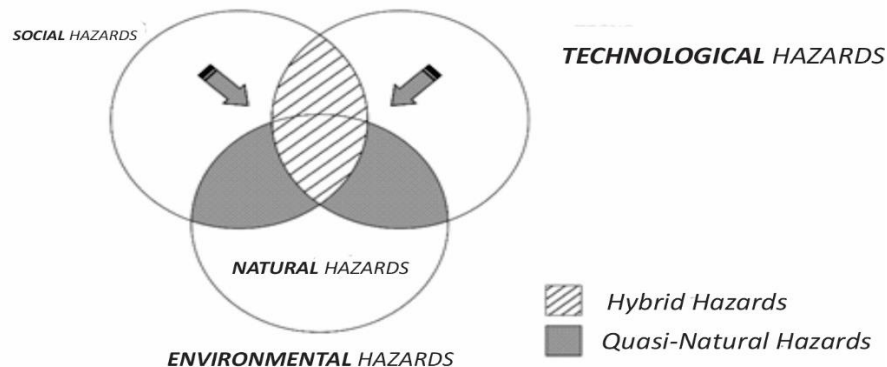
In recent years, as organizations have come under increasing pressure to reduce these uncertainties, the need to manage risks, including those of an environmental nature, has come to be recognized as an essential element for good corporate governance practice (BISSACOT; OLIVEIRA, 2016).

Risk cannot be considered only as a contingency, since it is part of a process of social construction, as these were produced from the action of society and it is on it that it manifests itself. These are felt by individuals and, when manifested, can cause damage to people, goods, structures and the organization of the territory. The perception, knowledge and consideration of risk may vary depending on the culture, the level of economic development and even the social group involved (SANTOS, 2015).

The study of hazards has been a tradition in geography since the 1920s, with approaches to natural hazards. Initially, a physical-naturalist view prevailed, which gradually became clearer the interrelation of natural events that result in physical and material damage, with the organization of society in space and the risks that the types of human occupation sometimes cause. In this context, was relevant the contribution of the international network on natural hazards, created in the 1970s led by Gilbert F. White, in the Commission on Man and the Environment of the International Geographical Union (UGI) (ESTEVEZ, 2011).

The considerations of the UGI Commission on Man and the Environment also comment on the nature-society and technology interactions and the different levels of vulnerability to hazards in this relationship. From the 1980s onwards, social and technological factors were more systematically focused alongside natural elements, with the growing importance of the technology factor. Jones (1993) divides hazards into three categories, as shown in figure 1 below.

Figure 1 - The hazard spectrum



The increase in human influence, associated with technological development, has resulted in the progressive attenuation of the distinction between natural, social and technological hazards, resulting in the growth of variety and meaning, such as hybrid and quasi-natural hazards.

Source: Adapted by the authors, 2018.

The Figure 1 shows that although the geographical tradition of studies on “natural hazards” already had a long sequence of studies, it is now systematized in Brazil, through “synthesis” indicators of hazards and vulnerabilities. The compromise of quality of life and sustainability cannot be measured by a simple sum of the dangers of flooding, landslides, exposure to chemical products, etc. (OJIMA, 2012).

There are several approaches, based on theoretical assumptions that emphasize aspects of risks, in unique social and geographic contexts. The approaches range from an objective, realistic or materialist view, where risk tends to be evaluated in probabilistic terms, to a subjectivist, nominalist or relativist perspective, where risk is conceived as the result of social interactions.

In order to analyze the risks, physical-environmental studies must be carried out, considering the components of nature and the different uses and occupation, which are the spatial materialization of society's relations in the territory, defining the fragility of the environment in the face of activities human. The contradictions of a society divided into classes, in a way, can be represented through an index of social vulnerability. Thus, the association of these two perspectives makes it possible to identify areas of greater susceptibility to risks (SANTOS, 2015).

It should be noted that, although there are standards and standardized methodologies for different types of risk analysis within an organization, the available management mechanisms and/or instruments are subject to subjectivity, they are not automated. Therefore, they do not establish technical criteria related to the management of environmental risks, do not value the potential impacts associated with the mapped risks and, in general, do not present prioritization criteria for decision making (BISSACOT; OLIVEIRA, 2016).

Exposure to environmental risks in cities makes parts of the population vulnerable to possible disasters that may occur. In this case, vulnerability can be understood as the probability

of an individual or group being negatively affected by a natural, environmental or contaminated event via an element of nature. In this way, vulnerability is understood as the susceptibility, on the part of the human being, to a danger or damage, involving a set of factors that can decrease or increase the risk(s) in which the human being, individually or in group, is exposed in the different situations of his life.

The use of vulnerability as an indicator of public policies

Derived from the Latin expression *sine cura* (without care), *guaranteed*, which originated *securitas/seguritate* (security), the word *seguridade* designates, in Brazil, a social protection system composed of actions by public authorities, society and the legal-normative apparatus. that aim to ensure citizenship rights to individuals. In addition to inaugurating an innovative process to implement the social policies that make up its tripod, the social security system also works to maintain the capitalist mode of production through the bases for the reproduction of the workforce (DO CARMO; GUIZARDI, 2018).

Public policies expanded after the Second World War, when ills arose and, because of this problem, the new economic and political situation raised the need for greater State intervention, in the quest to guarantee social well-being (CARVALHO; ARASHIRO, 2017).

The environmental debate takes on more relevance in the Brazilian political scenario after the Stockholm Conference in 1972. At that time, the high rates of population growth in developing countries, the growth of the population living in megacities, the challenges for controlling atmospheric pollution, the need to protect forest areas, among others, as the main sustainability challenges to be faced in the coming years (OJIMA; MARANDOLA JUNIOR, 2010).

In 1987, under the title “Our Common Future”, by the UN World Commission on Environment and Development, the Brundtland Report was published, which defined the term “sustainable development” as development that “meets the needs of the present generation without compromising the ability of future generations to meet their own needs” (WCED, 1987).

However, the aggressions to the natural environment continued, as well as the exploitation of natural resources, the use of fuels and energy sources from non-renewable matrices, such as those of fossil origin, which, together with the pressures of society, motivated the convening of the Conference of United Nations on Environment and Development (Rio-92). In parallel with the official conference, the Global Forum took place at the Flamengo landfill, a civil society event that brought together thousands of people and various environmental and social organizations and movements from around the world (ESTEVES, 2011).

The main document approved at Rio-92 was agenda 21, through which participating countries committed to identify their priority environmental problems and find ways to solve them and set goals for conservation in the coming decades. Other important documents approved were: “Framework Conventions”, “Declaration of Principles on Forest Conservation”, and “Rio Declaration on Environment and Development”. Created in Rio-92, in 2000 the “Earth Charter” was launched, which constitutes a list of ethical principles aimed at the transition and construction of a fraternal, solidary and sustainable society in the 21st century (EARTH CHARTER INICIATIVED, 2011).

With the objective of evaluating the advances, setbacks and gaps in the agreements made at Rio 92, especially the commitments contained in Agenda 21 and in the landmark environmental conventions, the United Nations Conference for Sustainable Development – Rio+20 was convened. However, the discussion that in 1992 had as its basic axis “environment and sustainable development”, guided by the tripod “economy, governance and sustainability”, presenting as guiding themes “the 'green economy' in the context of poverty eradication” and “the governance for sustainable development within the United Nations”. The green economy, although discussed in the United Nations Environment Program (UNEP) since the beginning of the 21st century, was initially presented in the Rio+20 base document as a means to achieve sustainable development and a decision-making framework. to foster the integration of the three pillars of sustainable development (UNITED NATIONS ORGANIZATION, 2012).

The document: “The Future We Want”, the main result of Rio+20, subsequently guided the formulation of the 2030 Agenda that presents the 17 Sustainable Development Goals. It should be noted that the document guides goals and indicators to contribute to the fight against poverty, fight hunger, reduction of social inequalities, as well as presents contributions in relation to care for the environment. Particularly in this research, objectives 6 can be highlighted, which presents considerations on water and sanitation and 11, which deals with the construction of sustainable cities and communities (UNITED NATIONS ORGANIZATION, 2015).

In order to minimize the situation of inequality in Brazilian cities and, therefore, socio-environmental vulnerability. The State invested in the creation of Law 10,257/2001 to regulate urban policy and development, with the objective of equipping the municipality to guarantee the full development of the city's social functions and urban property. In addition, there is still the Master Plan which, through a set of municipal laws, establishes the local urban policy for the full development of social functions. Such an instrument is mandatory for the development and expansion of urban centers with more than 20 thousand inhabitants, as provided in article 182, §¹ of the Federal Constitution (BRASIL, 1988; CORREIA, 2016).

Public policies in the local space are important so that society can extinguish its problems in a peaceful and consensual way, since individuals know their problems well. Thus, when analyzing the local space, it is perceived that it will provide autonomy to the population, allowing citizens to participate in decision-making in their municipality. In this context, Canotilho and Moreira (2010, p. 714) understand that “local autonomy is, together with regional autonomy, one of the fundamental constitutional principles in terms of the decentralized organization of the State”.

In this way, it is understood that the local space can act both as a reproducer of socio-environmental inequalities by not providing adequate living conditions, but also as a differentiating element to solve this problem. In this sense, local public policies aimed at social cooperation allow the implementation of rights that minimize or even eliminate socio-environmental vulnerability (CALGARO; PEREIRA, 2017).

¹ Art. 182. The urban development policy, carried out by the Municipal Government, according to general guidelines established by law, aims to order the full development of the city's social functions and guarantee the well-being of its inhabitants. § 1 - The master plan, approved by the City Council, mandatory for cities with more than twenty thousand inhabitants, is the basic instrument of the urban development and expansion policy (BRASIL, 1988).

FINAL CONSIDERATIONS

Given the above, it can be said that there is no consensus on the concept of vulnerability, whether social, environmental or socio-environmental in the academic literature, since the analysis criteria are varied and discussed by a wide spectrum of epistemological assumptions and methodologies derived from also varied conceptions.

The aspirations, values and guiding principles of human relations with the environment and society itself are the result of a historical process in which psychosocial and cultural aspects compete. There are frustrated attempts to form groups to act in the strengthening of relationships and exercise their citizenship in relation to the environment, however people feel powerless and deprived of the necessary resources to mitigate the difficulties they face daily. The collectivity only manifests itself in emergency situations, and is not a practice included in the daily way of dealing with the various situations that arise.

The types of commitment to the environment (or lack of it) contemplate a set of attitudes adopted to face problems and highlight the aspects of vulnerability in which they are inserted. Little or no community organization perpetuates the historic exclusion, both social and environmental.

Initiatives have been taken, aiming at a sustainable city, which is why the eradication of poverty has been sought, which is the greatest challenge of the century for sustainable development. Many programs and policies have already been developed to reduce poverty, hunger and disease, but they have not yet been sufficient. Even through the expansion of education from childhood to adulthood, serving all genders in order to seek equality between people on the planet through accessibility to all services to guarantee people's quality of life and overcome vulnerabilities.

Therefore, people in general must be aware of the risks and vulnerabilities that are permanently observed in cities. The rapid and intense alteration of natural landscapes into artificial landscapes generated, above all, by human constructions, and which characterize urban spaces, results in numerous problems for cities, requiring public policies to create defense mechanisms for risk factors. and all together can overcome vulnerabilities.

BIBLIOGRAPHIC REFERENCES

BARCELLOS, F.C; OLIVEIRA, S.M.M.C. New Data Sources on Environmental Risk and Social Vulnerability. ANNPAS National Meeting, IV, 2008, [S.l.]. **Anais [...]**, [S.l.]: [s.n.], 2008. Available at: http://www.anppas.org.br/encontro4/cd/ARQUIVOS/GT11-848-561-2008050910561_1.pdf. Accessed on: 8 jun. 2018

BECK, U. **Risk society**: towards another modernity. São Paulo: Publisher 34, 2011.

BISSACOT, T.C.C; OLIVEIRA, S.M.A.C. Instrument for managing environmental risks. **Eng Sanit Ambient**, [S.l.], v.21, n.2, abr./jun. 2016. Available at: <https://www.scielo.br/j/esa/a/N88YzZ3kKkDBXKC8GYNpW3b/?lang=pt&format=html&stop=previous>. Accessed on: 8 jan. 2022.

BRAZIL. **Constitution of the Federative Republic of Brazil of 1988**. Brasília, 05 Oct. 1988. Available at: http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm. Access on: 02 Oct. 2021.

CALGARO, C; PEREIRA, A. O. K. Public Policy and Social Cooperation in John Rawls. **Veredas do Direito**, Belo Horizonte, v.14, n.28, p.277-302, jan./abr., 2017.

CANÇADO, T.C.L; SOUZA, R.S; CARDOSO, C.B.S. Working on the concept of Social Vulnerability. National Meeting of Population Studies, XIX, 2014, São Paulo/SP. **Anais [...]**, São Paulo/SP: [s.n.], 2014, p. [21]. Available at: <http://www.abep.org.br/~abeporgb/abep.info/files/trabalhos/trabalhocompleto/TC-10-45-499-410.pdf>. Accessed on: 10 Jan. 2022

CANOTILHO, J.J.G; MOREIRA, V. **Annotated Constitution of the Portuguese Republic**. v. II. Portugal: Coimbra, 2010.

CARVALHO, L. P.E; ARASHIRO, E.S.H. Public Policy, Vulnerability and Education: A Bibliographic Review. EDUCERE – National Education Congress, XIII, 2017, [S.l.]. **Anais [...]**, [S.l.]: [s.n.], 2017, p.12929-12939. Available at: https://educere.bruc.com.br/arquivo/pdf2017/24491_14158.pdf. Accessed on: 10 jan. 2022.

COELHO, F.A; COSTA, M. C. L. Urban transformations, public policies and social vulnerability in the city of Caucaia-Ce (2000 -2010). Urban Regimes and Metropolitan Governance. National Meeting of the Observatory of Metropolis Network, 2017, Natal, **Anais [...]**, Natal: [s.n.], 2017, p. [23]. Available at: http://www.cchla.ufrn.br/rmnatal/evento_2017/anais/ST6/as_transformacoes.pdf. Accessed on: 10jan. 2022.

CORREIA, L.A.M.B. **Socioenvironmental Vulnerability**: analysis of the city of Natal/RN based on the General Index of Socioenvironmental Vulnerability by Neighborhood. Dissertation (Regional Graduate Program in Development and Environment) – Federal University of Rio Grande do Norte, Natal/RN, 2016.

COSTA, M.C.L; DANTAS, E.W.C. **Socio-environmental vulnerability in the metropolitan region**. Fortaleza: UFC Editions, 2009.

CUTTER, S.L. The science of vulnerability: Models, methods and indicators. **Critical Journal of Social Sciences**, [S.l.], v.93, p.59-69, 2011.

DESCHAMPS, M. V. **Social and Environmental Vulnerability in the Metropolitan Region of Curitiba**. Thesis (Postgraduate Program in Environment and Development) – Federal University of Paraná, Curitiba, 2004.

DO CARMO, M.E; GUIZARDI, F.L. The concept of vulnerability and its meanings for public health and social assistance policies. **Notebook Public Health**, [S.l.], v.34, n.8, 2018. Available at: <https://www.scielo.br/j/csp/a/ywYD8gCqRGg6RrNmsYn8WHv/?lang=pt>. Access in; 10 jan. 2022.

EARTH CHARTER INICIATIVED. **What is the Earth Charter**. [S.l.]: [s.n.]. Disponível em: <http://www.earthcharterinaction.org/content/pages/What-is-the-Earth-Charter%3F>.html. Acesso em: 08 jun. 2021.

ESTEVES, C.J. O. Socio-environmental Risk and Vulnerability: Conceptual Aspects. **Not. IPARDES**, Curitiba/PR, v.1, n.2, p. 62-79, jul./Dec. 2011.

GALLO, D. Sustainable development and quality of life: reflections on urban vulnerability and resilience. **Electronic Journal Environmental Forum of the Alta Paulista**, [S.l.], v. 13, n.2, p.44-56, 2017.

HOGAN, D.J. et al. Urbanization and Environmental Vulnerability: the case of Campinas. In: HOGAN, D.J. et al. (Org) **Migration and Environment in urban agglomerations**. Campinas: NEPO/Unicamp, 2001.

HOUAISS, A. **Electronic Dictionary of the Portuguese Language**. Rio de Janeiro: Ed. Objetiva Ltda, 2001. 1 CD-ROM.

JATOBÁ, S.U.S. Urbanization, Environment and Social Vulnerability. **Regional, urban and environmental bulletin**, [S.l.], v. 05, jun. 2011.

MAIOR, M.M.S.; CÂNDIDO, G. A. Assessment of Brazilian methodologies of socio-environmental vulnerability as a result of urban problems in Brazil. **Not. Metrop.**, São Paulo, v. 16, no. 31, p. 241-256, 2014.

MALTA, F.S.; COSTA, E.M.; MAGRINI, A. Socio-environmental vulnerability index: a methodological proposal using the case of Rio de Janeiro, Brazil. 2017. **Science collective health**, v. 22, no. 12, Dec. 2017. Available at: <https://www.scielo.br/j/csc/a/rMHFrJ7w7pWgVpsvFT5Tyjn/?lang=pt>. Accessed on: 8 jan. 2022

MARANDOLA JUNIOR, E., HOGAN. D.J. The dimensions of vulnerability. **São Paulo in Perspective**, [S.l.], v. 20, no. 1, p. 33-43, jan./Mar. 2006.

MEDEIROS, C.N.; SOUZA, M. J. N. Methodology for Mapping Social and Environmental Vulnerability: the case of the Municipality of Caucaia, State of Ceará REDE - **Revista Eletrônica do PRODEMA**, Fortaleza, v. 10, no. 1, p. 54-73, jan./jun. 2016.

MILANEZI, C.H.S; PEREIRA, J.G. Characterization of Environmental Vulnerability in the Córrego Azul Watershed, Ivinhema – **MS. Geography** (Londrina), [S.l.], v. 25. n. 1. p.43-63, jan./jun., 2016.

OJIMA, R. Socio-environmental vulnerability as an interdisciplinary concept: advances and potential for timing about environmental changes. **Cronos: R. Post-Grad. ci. social UFRN**, Natal, v.13, n. 1, p. 110-120, jan./jun. 2012.

OJIMA, R; MARANDOLA JUNIOR, E. Indicators and public policies for adaptation to climate change: vulnerability, population and urbanization. **Brazilian Journal of Environmental Sciences**, [S.l.], n.18, p.16-24, dec. 2010.

UNITED NATIONS ORGANIZATION. **The Sustainable Development Goals**. Brazil: ONU, 2015. Available at: <https://nacoesunidas.org/pos2015/agenda2030/>. Accessed on: 24 Aug. 2018.

OVIEDO, R.A.M; CZERESNIA, D. The concept of vulnerability and its biosocial character. **Interface**, v. 19, no. 53, ap./jun. 2015. Available at: <https://www.scielo.br/j/icse/a/5BDdb5z4hWMNn58drsSzkfF/abstract/?lang=pt>. Accessed on: 10 jan. 2022

PENNA, N.A; FERREIRA, I.B. Socio-spatial inequalities and areas of vulnerability in cities. **Mercator Magazine**, Fortaleza, n. 3, v. 13, p. 25-36. 2014.

SANTOS, J.O. Relationships between Environmental Fragility and Social Vulnerability in susceptibility to risks. **Mercator**, Fortaleza, v. 14, no. 2, p.75-90, 2015.

SANTOS, J.O. **Fragility and Socio-environmental Risks in Fortaleza - CE**: contributions to territorial planning. Thesis (Postgraduate Program in Physical Geography) – University of São Paulo, São Paulo/SP, 2011.

SANTOS, J.O. and SOUZA, Marcos J. Nogueira de. Geoenvironmental approach applied to vulnerability and risk analysis in urban environments. Goiano **Geography Bulletin**. Goiania, v 34, n2, p. 215-232, May/Aug. 2014.

SEVALHO, G. The concept of vulnerability and health education based on Paulo Freire. **Interface**, [S.l.], v.22, n.64, Jan./Mar. 2018. Available at: <https://www.scielo.br/j/icse/a/CCnBTxySpYqFqS93W5RN3Sv/abstract/?lang=pt>. Accessed on: 10 jan. 2022.

VERGARA, S.C. **Projects and research reports in administration**. 5th edition São Paulo: Atlas, 2004.

WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT. **Our common future**. Oxford: Oxford University Press, 1987. Available at: <http://www.un-documents.net/wced-ocf.htm>. Accessed on: 8 jun. 2021.

ZANELLA, M.E; OLÍMPIO, J.L; COSTA, M.C.L; DANTAS, E.W.C. Socioenvironmental Vulnerability of the Lower Course of the Cocó River Watershed, Fortaleza-CE. **social & Nat.**, Uberlândia, v. 25, no. 2, p.317-332, May/Aug., 2013.