

THE NEW INTERNATIONAL CATASTROPHE LAW: a brief introduction

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1. GENERAL CONSIDERATIONS²

When thinking about catastrophes, the idea that first comes to mind is related to scenarios of volcanic eruptions, earthquakes and tsunamis, major floods on a regional scale or devastation caused by hurricanes, i.e. images of the destruction of human environments by sudden and extreme geological or atmospheric phenomena. However, there are a number of catastrophe scenarios³ that are produced by actions taken by the human species, many of them resulting from economic crises, armed conflicts and pandemics.

Situations such as those described (catastrophe scenarios) directly affect aspects that are currently regulated by international law, such as human rights, the environment, economic development and others. It is no coincidence that there are a number of international legal norms that touch on this issue.

However, because there is no branch of international law that deals specifically with catastrophe, it is clear that they are presented in a fragmented way, i.e. they are not enshrined as a harmonious whole that is capable of preventing/minimizing catastrophes (guaranteeing preventive mechanisms/instruments); protecting the rights inherent to the human person and the corresponding assistance to victims during catastrophes; and also helping the affected state to recover when a catastrophe strikes.

In order to present the idea of the existence of a specific segment in the international legal system dealing with disasters, it is imperative to analyze the meaning of the expression. In addition,

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² For an understanding of the theory of international catastrophe law, see GUERRA, Sidney. *International Catastrophe Law*. 2. ed. Rio de Janeiro: Grande Editora, 2024.

³ GUERRA, Sidney. *Catastrophe scenarios in global society and the international law of catastrophes*. Curitiba: Memory Institute, 2021.

it is also interesting to look at the concept of disasters, since the expressions (“catastrophes” and “disasters”) often have the same meaning.

It should be pointed out, by the way, that doubts and confusion are common, because when the terms are used in everyday language (vernacular), they are generally presented as synonyms. It is no coincidence that studies formulated in the field of legal doctrine, which set out to address a theory of disasters, end up using the terms disasters and catastrophes indiscriminately.

In this sense, Carvalho, in promoting this approach (disasters) in the field of environmental law, adopts the line set out above and uses the two expressions as if they portrayed the same thing:

A so-called disaster law presents itself as a contemporary reflection of humanity's constant quest to control the uncontrollable. This process of humanity observing disasters has three clear moments of rationalization. Firstly, disaster was seen as a divine phenomenon, a manifestation of the fury of the Gods. In a second moment, catastrophes, especially natural ones, came to be seen as a demonstration of the greatness of nature's devastating power, against which man could do very little. Finally, in the contemporary era, disasters, even those called natural, are described as phenomena that, although somehow triggered by natural events, only reach the status of disasters when fueled by socially (re)produced vulnerabilities⁴. (free translation)

However, although the terms have some similarities, it is understood, for the purposes of this study and along the lines of a specialty to be discussed in the field of international law, that they have different meanings in legal terms, as will be shown below.

2. DISASTERS OR CATASTROPHES? A NECESSARY APPROACH?

The terms “disasters” and “catastrophes” are commonly used synonymously and are therefore used indiscriminately in legal studies. This is due to the etymological meaning given to the expressions.

⁴ CARVALHO, Délton Winter de. Desastres ambientais e sua regulação jurídica: deveres de prevenção, resposta e compensação ambiental. São Paulo: Revista dos Tribunais, 2015, p. 21.

In order to demonstrate this, some perceptions have been collected in accordance with dictionaries⁵ that are constantly used for research, such as the Aurélio; Cambridge; Michaelis; and Larousse dictionaries.

Starting with the term disaster, contained in the Aurélio Dictionary⁶, it is clear that the idea is related to a “serious or disastrous accident; that which causes excessive suffering; misfortune, fatality, catastrophe. [Figurative] Lack of success; failure. Etymology (origin of the word disaster). From the Italian disastro.

The Cambridge Dictionary treats disaster as:

an event that results in) great harm, damage, or death, or serious difficulty: An inquiry was ordered into the recent rail disaster (=a serious train accident). It would be a disaster for me if I lost my job. This is one of the worst natural disasters ever to befall the area. Heavy and prolonged rain can spell disaster for many plants. Everything was going smoothly until suddenly disaster struck. Inviting James and Ivan to dinner on the same evening was a recipe for disaster (=caused a very difficult situation) -they always argue with each other⁷.

In the case of the Michaelis dictionary, the expression enshrines

1. An unfortunate event, usually unexpected, which causes serious damage of any kind; shipwreck. 2. accident involving means of transport. 3. failure, usually professional or affective, which brings unpleasant consequences, fiasco: “I never saw her again; I didn't know anything about her life, not even if her mother was dead, or what disaster had brought her to such misery”. 4. any unfortunate event that happens to someone or is committed by someone involuntarily⁸.

Finally, the Larousse Dictionary presents disaster as

⁵ These dictionaries were chosen according to the author's preferences.

⁶ Available at <https://www.dicio.com.br/desastre/>. Accessed on 17/05/2019.

⁷ Available at <https://dictionary.cambridge.org/pt/dicionario/ingles/disaster>. Accessed on 17/05/2019: In free translation: “an event resulting in great harm, injury or death, or serious difficulty: An inquiry has been ordered into the recent rail disaster (= a serious train accident). It would be a disaster for me if I lost my job. This is one of the worst natural disasters ever to hit the area. Heavy, prolonged rain can spell disaster for many plants. Everything was going well until disaster suddenly struck. Inviting James and Ivan to dinner on the same night was a recipe for disaster (= caused a very difficult situation) - they always argue with each other.

⁸ Available at <http://michaelis.uol.com.br/busca?r=0&f=0&t=0&palavra=desastre>. Accessed on 17/05/2019.

*Catastrophe, événement funeste; grand malheur, dégâts qui en résultent: Le désastre leur apparut, une fois les eaux retirées. Défaite, écrasement à la guerre: Désastre militaire. Ruine, échec total sur le plan économique, social, littéraire, professionnel, personnel, etc.; faillite: Un désastre monétaire. Chose déplorable: Cette mode est un vrai désastre*⁹.

As for the term catastrophe, using the same sequence as the dictionaries presented, Aurélio¹⁰ refers to the expression as “great misfortune, disastrous event, calamity. Sad end. Literature Decisive event that leads to the end of a tragedy. Etymology (origin of the word catastrophe). From the Greek katastrophe.”

In the Cambridge Dictionary, “a sudden event that causes very great trouble or destruction: They were warned of the ecological catastrophe to come. A bad situation: The emigration of scientists is a catastrophe for the country.”

As far as the Michaelis Dictionary is concerned, this is

1. A deplorable and disastrous event, generally of large proportions and caused by convulsions of nature, which results in loss of human and animal life, destruction and material damage. 2. a disaster or accident of large proportions. 3. any event that constitutes a great misfortune, with serious and regrettable consequences: “The first thing that interested him: the catastrophe of his last passion! He would never want another woman again” (DT). 4) Geology: cataclysm. (5) Ecology: Disastrous event, usually unexpected and unusual, involving the destruction of an ecosystem; ecological tragedy or disaster; ecocatastrophe. 6. theater: tragic ending, common in the last act of classical Greek tragedy, by which the plot ends.

And the Larousse Dictionary states that

Événement qui cause de graves bouleversements, des morts: Le sang-froid du pilote a évité la catastrophe. Accident jugé grave par la personne qui en

⁹ <https://www.larousse.fr/dictionnaires/francais/d%C3%A9sastre/24249?q=+d%C3%A9sastre#24121>. Accessed on 17/05/2019. In free translation: “Catastrophe, fatal event; Great misfortune, resulting damage: Disaster appeared to them once the waters were removed. Defeat, crush in war: Military disaster. Ruin, total failure in economic, social, literary, professional, personal, etc.; bankruptcy: a monetary disaster. Unfortunate thing: This fashion is a real disaster.

¹⁰ Available at <https://www.dicio.com.br/catastrofe/>. Accessed on 17/05/2019.

*subit les conséquences: Le départ de Pierre est une catastrophe pour elle. Événement décisif qui amène le dénouement de la tragédie classique*¹¹.

Nonetheless, based on the concepts established in the dictionaries referenced above, it is clear that the expressions “disaster” and “catastrophe” are often used synonymously; however, the entries provide interesting clues for formulating a differentiated understanding, to be used at a legal level, of the effects arising from one and the other. However, before arriving at the understanding that is intended to serve as the foundation for this study, a few other points will be made.

In an interesting approach produced at the University of Delaware's Disaster Research Center, Quarantelli¹² sets out to unravel what he thinks disaster means and tries to “slice” the term into a few points: physical agents; the physical impact of these agents; an assessment of physical impacts; the social disruption caused by physical disasters; the social construction of reality in crisis situations; the political definition of certain crisis situations; the imbalance between demand and capacity in a crisis.

The author begins his approach by dealing with physical agents, where “something” can potentially generate an effect on the environment, whether this cause is produced by a natural agent or by human action.

As far as physical impact is concerned, this occurs when there is a perceptible impact on the environment and he cites, as an example, the case of a tsunami which will cause damage to the coastal areas affected and not to the areas located in the interior of the continent.

As for assessing physical impacts, he says that not all impacts will be considered disasters. However, if the magnitude is considered high enough to generate a disruption in social life, the physical impact will be considered a disaster, with the incidence of material losses and even deaths.

¹¹ <https://www.larousse.fr/dictionnaires/francais/catastrophe/13747>. Accessed on 17/05/2019. In free translation: event that causes serious convulsions, deaths: the pilot's coolness prevented the disaster. Accident considered serious by the person suffering the consequences: Pierre's departure is a disaster for her. Decisive event that brings about the outcome of the classic tragedy.

¹² QUARANTELLI, E.L. What is disaster? The need for clarification in definition and conceptualization in research. Reprinted from *Disasters and Mental Health Selected Contemporary Perspectives*, ed. by Barbara Sowder. (Washington, D.C.: U.S. Government Printing Office, 1985): 41-73. Available at <http://udspace.udel.edu/bitstream/handle/19716/1119/ART177.pdf?sequence=6&isAllowed=y>. Accessed on 18/05/2019.

The involvement of the social group affected will not only be based on knowledge of the facts, but also on the recognition of a state of crisis that arises from the outbreak of a disaster. This situation certainly depends on decisions taken by political agents so that, based on a formal designation recognizing the disaster, preventive measures and forms of recovery can be taken.

In a crisis situation resulting from a disaster, the group affected ends up making a collective effort to ensure that the negative effects are soon dissipated, thus minimizing the imbalance between demand and capacity.

In summary, it can be said that a disaster can occur as a result of natural phenomena or anthropogenic actions and that, in either circumstance, it will present itself as an episode that will produce severe damage, as well as losses for a person or a certain group. Depending on the magnitude of the disaster, it is important to mobilize the community so that the harmful effects can be stopped more quickly.

On the other hand, Antônio Portela¹³, when writing about catastrophe, defines it as a public misfortune, a calamity, arising from natural reasons or due to the influence of human behavior. The author¹⁴ uses episodes that occurred in the past, but which continue to have a harmful impact today. With this, he tries to present some solutions so that human beings can deal better with disasters, such as: mitigating/relieving the negative effects of disasters; enhancing positive effects; ensuring new ways of functioning in society, where damage must be prevented, based on episodes produced in the past. It divides disasters into two groups¹⁵:

- a) Natural: whose origin comes from short-lived natural phenomena, such as tsunamis, earthquakes, storms; and long-lived natural phenomena, such as global warming. Such disasters are independent of human action and will. However, with prior knowledge of the possibility of occurrence, it is possible for human power to mitigate the negative effects and even enhance the positive effects, for example, by controlling flooding in order to carry out irrigation later.
- b) Human-made: disasters caused by human action can have negative and/or positive effects on society and the local economy. If the right measures are

¹³ PORTELA, Antônio João Santiago. Disasters: capacity and will to find solutions. *Revista economia e empresa*. Lusíada, n. 11, 2010, p. 27. Available at <http://revistas.lis.ulusiada.pt/index.php/lee/article/view/879/956>

¹⁴ PORTELA, Antônio João Santiago. Disasters: capacity and will to find solutions. *Revista economia e empresa*. Lusíada, n. 11, 2010, p. 27. Available at <http://revistas.lis.ulusiada.pt/index.php/lee/article/view/879/956>, p. 28

¹⁵ PORTELA, Antônio João Santiago. Disasters: capacity and will to find solutions. *Revista economia e empresa*. Lusíada, n. 11, 2010, p. 27. Available at <http://revistas.lis.ulusiada.pt/index.php/lee/article/view/879/956>, p. 29

not taken to control the environment, the economic effects can be a worsening of social inequalities and the political and economic cartelization of a country.

Richard Posner¹⁶, when looking at the subject, states that the term catastrophe can be used to designate an event that is believed to have a low probability of materializing, but which, if it does materialize, will cause enormous and sudden damage, as well as being disconnected from the flow of events that follow it. According to the author, Spanish influenza and AIDS are considered catastrophes, given the high number of deaths. However, despite the harmful effects produced by a volcanic eruption, it is clear that it will have less of a cataclysmic effect than a pandemic or a collision of asteroids in solar orbit.

A catastrophe is a tragic and sudden event characterized by effects ranging from extreme misfortune to the complete overthrow or ruin (of something).

According to Portela¹⁷, a catastrophe can be identified from the groups indicated and certain characteristics must be observed, namely:

1. Intensity: the intensity of a disaster is measured using parameters intrinsic to the disaster itself or relating to the external impacts it generates. Examples in natural disasters are: the scale of earthquakes; the size and speed of a tsunami; the extent of an affected area. Examples of disasters caused by human action are: indicators of the current economic crisis; indicators associated with the growth and impact on the internet. The assessment of any disaster is subjective, as it depends on who is assessing it and the actual impact suffered by the assessor.
2. Complexity: can be associated with the intrinsic characteristics or the agents involved or affected by it. In the case of natural disasters, there are efforts to evolve forecasting techniques, calculate the probability of occurrence and develop solutions for anticipation and reaction. Disasters caused by human actions can have a positive impact, such as the discovery of alternative energies, medical breakthroughs and advances in military, economic and political stability. But they can also be negative, such as the countless military conflicts that exist, or the sustainability of the planet. In these types of disasters, it is difficult to find solutions due to three factors: the social, economic, political and technological complexity of the

¹⁶ POSNER, Richard. *Catastrophe: Risk and Response*. Oxford University Press, USA, 2004.

¹⁷ PORTELA, Antônio João Santiago. Disasters: capacity and will to find solutions. *Revista economia e empresa*. Lusfada, n. 11, 2010, p. 27. Available at <http://revistas.lis.ulsiada.pt/index.php/lee/article/view/879/956>, p. 30-32.

disasters; solutions that, although effective in preventing and resolving them, run counter to political and economic interests; and the lack of effectiveness in society's monitoring mechanisms.

3. Duration: the duration is considered to vary according to its size and complexity.

4. Frequency: the number of times it occurs, which is also an indicator of the need to find solutions.

5. Predictability: prior knowledge of a disaster can lead to mechanisms that overcome or mitigate its effects. This criterion applies to both natural and man-made disasters.

6. Nature of the solutions: it is up to humanity to evolve in mastering the complexity of disasters, possessing the will to find solutions.

In fact, based on the ideas presented above, it can be seen that both disasters and catastrophes can occur from natural phenomena and from practices and actions developed on the initiative of human beings. In both circumstances, there are problems, damage, the need to provide adequate support for those affected, etc. In this sense, trying to make a distinction between disaster and catastrophe is relevant?

In this brief study, some aspects involving the meaning of the expressions “disasters” and “catastrophes” have been brought up so that they can underpin the understanding and approaches that will be presented throughout this work. Therefore, it was not the aim of this study to go into all the possible points that have relevance to the matter, which will be covered at another time¹⁸. Even so, it is imperative to revisit some elements that substantiate the proposal contemplated here.

Thus, before going into the issue itself, using studies developed in environmental law, considerations will be made about the principle of prevention and precaution. The possible question, at this point, is why some reflections on these principles are being brought up.

The aim is to show that in everyday language, the terms “prevention” and “precaution” are sometimes used synonymously, as in the case of “disasters” and “catastrophes”. Like the comparison made using dictionaries to identify the meaning of the expressions that permeate this study, the same procedure will be used for those that are now being analyzed.

In the Aurélio dictionary, which is widely used in Brazil, the expression “prevention” means:

¹⁸ GUERRA, Sidney. *International Catastrophe Law*. 2. ed. Rio de Janeiro: Grande Editora, 2024.

Action or effect of preventing, acting in advance. A set of activities and measures which, taken in advance, seek to avoid damage or harm: fire prevention, disease prevention. (Legal) Judicial action by which a judge determines competence to analyze and pass judgment on a case, to the detriment of other judges, because he was the first judge to have access to it. Feeling of disgust, disgust or disgust directed at someone, for no apparent reason; prejudice. Characteristic of one who is cautious; in which there is prudence; precaution. Opinion formed without examination; partiality¹⁹.

As for the word “precaution”, the same dictionary states:

Prevention; action taken in advance to avoid or prevent harm or something bad: the player was taken to hospital as a precaution. Prudence; characteristic of a cautious person, one who acts with caution and care: he behaved with caution²⁰.

In the dictionary of synonyms²¹, when you type in the expression “prevention”, the first thing that comes up is the term “precaution”, which means “Precaution: warning; notice; caution; care; diligence; precaution; foresight; foresight; providence; prudence; safeguard; forewarning”. Then, when you perform the operation with the term “precaution”, the result is “Prevention: prevention; providence; foresight; preparation; foresight; measure; warning; foreknowledge; provision.

As you can see, the expressions “prevention” and “precaution”, in everyday language, are used with the same meaning, as is also the case with “disasters” and “catastrophes”. However, on a legal level, although the expressions have a core that is close to each other, they translate different ideas and effects, as is also the case with the terms (disaster and catastrophe) that permeate this study.

In the same vein, Granziera²², when discussing the subject, states that

¹⁹ Available at <https://www.dicio.com.br/prevencao/>. Accessed on 19/05/19.

²⁰ Available at <https://www.dicio.com.br/precaucao/>. Accessed on 19/05/19.

²¹ Available at <https://www.sinonimos.com.br>. Accessed on 19/05/19.

²² GRANZIERA, Maria Luiza Machado. Environmental Law. São Paulo: Atlas, 2009, p. 55: “Precaution tends not to authorize a given undertaking if there is no certainty that it will cause irreversible damage in the future. Prevention is about making the activity to be licensed compatible with environmental protection, by imposing conditions on the project.”

in Portuguese, the words prevention and precaution are synonymous. However, environmental legal doctrine has chosen to distinguish the meaning of these terms, with the precautionary principle consisting of a narrower concept than prevention.

Thus, although it is not my intention to expand too much on the nuances of “prevention” and “precaution”, it is clear that the understanding enshrined in environmental doctrine, case law and practice gives them different perceptions. Although the prevention and precautionary principles are aimed at protecting and preserving the environment and, for this very reason, all safeguard measures to achieve this goal must be observed, they have been presented differently.

The precautionary principle is the one that determines that interventions in the environment should not take place before it is certain that they will not be adverse to the environment, while the preventive principle applies to environmental impacts that are already known and have a history of information about them²³. In other words, while the former applies to impacts that are unknown, the latter corresponds to the applicability of impacts that are already known. The basic distinction, therefore, between the principles is that they correspond to a concrete danger (in the case of prevention) and an abstract danger (in the case of precaution). In this sense, Leite and Ayala state that:

the precautionary content of the precautionary principle is driven by science and the possession of certain and precise information about the danger and risk posed by the activity or behavior, which thus reveals a situation of greater likelihood of harmful potential than that controlled by the precautionary principle. The fundamental objective pursued in the application of the precautionary principle is to prohibit the repetition of an activity that is already known to be dangerous. In the case of precaution, it is limited to the hypothesis of potential risk, even if this risk has not been fully demonstrated, cannot be quantified in its amplitude or effects, due to the insufficiency or inconclusive nature of the scientific data available for risk assessment²⁴.

²³ ANTUNES, Paulo Bessa. Environmental law. 3. ed. Rio de Janeiro: Lumen Juris, Forense, 1997, p. 46

²⁴ LEITE, José Rubens Morato, AYALA, Patrick de Araújo. Direito ambiental na sociedade de risco. 2. ed. Rio de Janeiro: Forense Universitária, 2004, p. 72-76.

There is an understanding that the precautionary principle does not prevent a certain activity from being carried out, but that it should be carried out with due caution so that scientific knowledge can advance and doubts can be clarified²⁵.

Álvaro Mirra states that the precautionary principle is applied in a context of scientific uncertainty and because there is the possibility of serious and irreversible damage, adopting a right of prudence, of vigilance - and no longer tolerance - imposing in practice that whenever there is a danger of serious or irreversible damage, the lack of absolute scientific certainty should not be used as a reason to postpone the adoption of effective measures to prevent environmental degradation²⁶.

Having made these brief considerations of the terms “prevention” and “precaution”, by way of illustration, it can be seen that in everyday language they have the same meaning, but in legal terms they are different.

However, when we return to the central point of this study (catastrophes), we see, as has already been pointed out, that the initial perception is focused on those scenarios of volcanic eruptions, earthquakes and tsunamis, floods on a regional scale or devastation caused by hurricanes, i.e. images of the destruction of human environments by sudden and extreme geological or atmospheric phenomena.

In fact, although the situations listed above are directly associated with disasters, there are others that can occur due to economic episodes and armed²⁷ conflicts²⁸, for example.

²⁵ Along the same lines ANTUNES, Paulo Bessa. Environmental law. 3. ed. Rio de Janeiro: Lumen Juris, Forense, 1997, p. 46.

²⁶ MIRRA, Álvaro Luiz Valery. Environmental law: the precautionary principle and its judicial application. Journal of environmental law. N. 21. São Paulo: Revista dos tribunais, 2001, p. 95.

²⁷ In this sense PRONER, Carol; GUERRA, Sidney. International humanitarian law and the international protection of the individual. Porto Alegre: Sérgio Antonio Fabris Editor, 2008.

²⁸ The project developed by non-governmental organizations and the Red Cross in relation to disasters and conflicts is interesting, according to a study by BIRCH, Marion; MILLER, Simon. Humanitarian assistance: standards, skills, training, and experience. ABC of conflict and disaster. Available at <http://smhis.kmu.ac.ir/Images/UserUpload/Document/SMHIS/modiriat%20colg/%D8%B3%D9%84%D8%A7%D9%85%D8%AA%20%D8%AF%D8%B1%20%D8%A8%D9%84%D8%A7%DB%8C%D8%A7/ABC%20of%20Conflict%20and%20Disaster.pdf>. Accessed on 23 de julho de 2017, p. 1: “Those affected by catastrophe and conflicts often lose basic human rights. Recognizing this, a group of humanitarian non-governmental organizations and the Red Cross movement launched the Sphere Project in 1997. The aim of this project was to improve the quality of assistance and enhance the accountability of the humanitarian system in disaster response by developing a set of universal minimum standards in core areas and a humanitarian charter. The charter, based on international treaties and conventions, emphasises the right of people affected by disaster to life with dignity. It identifies the protection of this right as a quality measure of humanitarian work and one for which humanitarian actors bear responsibilities.

This is why it is understood that the study of disasters, from a legal perspective, affects and operates in various scenarios involving natural disasters, armed conflicts and economic crises²⁹.

In all these possible scenarios, there are various consequences and effects in the international arena, and we would like to highlight the wide range of episodes, natural or otherwise, which are observed in the wake of major events that significantly shake up the functioning of public or private institutions, both domestically and internationally, and end up generating severe problems.

It is true that a disaster can also have large proportions, but it will never have the same dimension as a catastrophe, whose scope and breadth will be much greater. When talking specifically about environmental disasters, Carvalho emphasizes that:

disasters, which are increasingly frequent and intense in our society, commonly have at their origin a regulatory deficit in environmental norms. Paradoxically, it is catastrophes that serve as the driving force behind environmental law, raising awareness among authorities and public opinion of the need for higher levels of regulation³⁰. (emphasis added)

In fact, although it is disasters that, in some way, serve as driving forces for possible decision-making, specifically in the field of environmental law, the law has tried to establish rules, which are obviously important, in the area of disasters, whether to establish duties of prevention and compensation, it should be emphasized again, in environmental matters³¹, but it still lacks a consistent approach to issues relating to disasters.

After all, this is a discussion that is not only timely, but necessary due to catastrophic events, with significant consequences, but which has still been somewhat neglected by the law.

²⁹ GUERRA, Sidney. Disaster scenarios in global society and international disaster law. Curitiba: Instituto Memória, 2021.

³⁰ CARVALHO, Délton Winter de. Environmental disasters and their legal regulation: duties of prevention, response and environmental compensation. São Paulo: Revista dos Tribunais, 2015, p. 22

³¹ When discussing disaster law, CARVALHO, Délton Winter de. Environmental disasters and their legal regulation: duties of prevention, response and environmental compensation. São Paulo: Revista dos Tribunais, 2015, p. 27 states: “For all these reasons, this work aims to present its reader with a critical analysis of the emerging Disaster Law, in its structural function of preventing, mitigating, responding to, compensating and rebuilding communities affected by disasters. This function cannot be exercised without unveiling the socio-environmental inequalities and scientific uncertainties that underpin the genetics of contemporary extreme events.

3. DISASTERS AND THEIR REGULATION BY LAW: THE NEW INTERNATIONAL DISASTER LAW

Public international law has changed considerably in recent years. In fact, it can be said that it has, so to speak, broadened, that is, it has come to cover the most diverse issues in the international system.

While in the past, discussions on this subject were practically restricted to the classic themes (for example, treaty law; law of the sea; organs of states in international relations), it is clear that nowadays the discipline demonstrates and offers a variety and richness of approaches, dealing with human rights, the environment, international trade, international crimes, giving rise to a specialty of its own and corresponding to each of the subjects mentioned and so many others that are governed and regulated by international law.

This can be explained by the spectacular changes that have taken place in international society, which has ceased to be static and has become dynamic, with the insertion of multiple actors who interact in the most diverse ways in this arena.

Undoubtedly, some very positive aspects have come to light with the transformations that have taken place over the centuries in the international arena, such as the recognition of the international subjectivity of the individual and the consequent evolution of international human rights law; the proliferation of international bodies, which have started to act in the most diverse fields and the need to establish a system that takes multilateralism into account; the growth of technology and information in communication channels.

On the other hand, the practices adopted by the various players operating in the international system have produced devastating episodes in various areas, i.e. the occurrence of real disaster scenarios.

In fact, thinking about Catastrophe law based on environmental, economic, pandemic or armed conflict crises requires an in-depth effort to investigate the possibilities of creating effective rules in the international system for preventing future disasters, managing present ones and repairing past ones. Such reflections refer to levels of theoretical-formal abstraction such as those experienced by the jus-internationalist thinking that preceded the idea proposed here.

Every theory in its embryonic phase, not yet finished, presents practical difficulties that can question its viability in the material field, but tackling them is the gestational stage of any thought whose ambition is to perpetuate itself in human relations. It is in this spirit that the study of international catastrophe law is proposed.

The first step to be taken concerns the speculative capacity of the theoretical researcher. In this case, it comes from an initial question: how can mechanisms be created to prevent, manage and repair damage in catastrophe scenarios?

It is true that there are tools available in the international system itself, involving the signing of treaties, the creation of international organizations dealing specifically with the matter, as well as the improvement of existing programs within the United Nations, which can be presented as possible paths.

These paths, which were difficult to follow in the past, given that the international system only accepted law from a classical perspective - Public International Law - have nevertheless served to inspire and create international legal foundations in various fields, such as human rights, the environment, trade and many others. It is no coincidence that today international law is recognized and applied in the most diverse situations.

Just by way of example and introduction, we can mention the catastrophes resulting from the earthquake in Haiti³² in 2010; the Tsunami in Japan³³ in 2011, whose magnitude 9 earthquake unleashed gigantic waves on the coast and turned cities into piles of rubble and triggered the worst nuclear accident since Chernobyl in 1986; and the Caribbean hurricanes Irma³⁴, José and Maria.

³² Haiti is a country located in Central America, with a territorial extension of 27,750 square kilometers and a total population of more than 10 million inhabitants. Marked by a series of dictatorial governments and coups d'état, the Haitian population is witnessing a civil war and many socio-economic problems. Haiti is the economically poorest country in America, its Human Development Index is 0.404 (low); approximately 60% of the population is undernourished and more than half live below the poverty line, i.e. on less than 1.25 dollars a day. In addition to all these factors, the country has experienced another tragedy, this time a natural one. On January 12, 2010, an earthquake measuring 7.0 on the Richter scale hit the country, causing a number of injuries, homeless people and deaths. Several buildings collapsed, including the presidential palace in the capital Port-au-Prince. Available at <http://brasilecola.uol.com.br/geografia/o-terremoto-no-haiti.htm> Accessed on June 10, 2017.

³³ The tsunami that devastated the northeastern coast of Japan, generated by the violent earthquake of March 11, reached a height of 23 meters, according to a study published by the Japanese daily "Yomiuri Shimbun". Available at <http://www.jn.pt/mundo/dossiers/terramoto-no-japao/interior/tsunami-no-japao-atingiu-23-metros-1809576.html>. Accessed on June 10, 2017

³⁴ Hurricane Irma passed over northern Puerto Rico on Wednesday afternoon with extraordinary force - regular winds of 295 kilometers per hour - but it didn't hit the island completely. The eye of the hurricane remained 50 kilometers from the coast, following its course in a northwesterly direction at 25 kilometers per hour. Before midnight (local time) it had left the region after causing another death, bringing the total number of deaths on different islands to 11. Around 900,000 Puerto Ricans were left without electricity and 2,800 had to take refuge in shelters. The catastrophe

In fact, when tragedies occur in which the national state is limited in its ability to remedy the existing difficulties, and needs help from international society, there are often obstacles to assistance, such as the earthquake followed by the tsunami in Japan³⁵ in 2011, when several cities and regions of the country were destroyed; although humanitarian and financial aid from Western countries was announced in the media, few were willing to help.

In this field of ideas, it is necessary for the existing norms in the international system to be expanded and worked on in an articulated manner for the formulation of the new international law on catastrophes, whose main objective will be based on risk management in order to minimize the incidence of catastrophes, with the clear aim of reducing environmental and social vulnerabilities. The development of prevention, management and recovery mechanisms are important in achieving the objectives to be attained.

In fact, the world has undergone significant changes in various fields and in this sense international law, which presents itself as the “constitutional law of humanity”³⁶, needs to adjust to the new trends and needs that emerge in the society it regulates and, in particular, in catastrophe scenarios.

skimmed Puerto Rico, but Hurricane Irma is heading for a much more populous target, Florida, where it is expected to arrive at the weekend. On Thursday, the Miami authorities began evacuating 100,000 residents from their waterfront homes. Available at https://brasil.elpais.com/brasil/2017/09/07/internacional/1504748367_731598.html. Accessed on 08/09/2017.

³⁵ In this vein, GOMES, Carla Amado. Natural disaster risk management: an introduction from the perspective of international law. *Natural Disasters Law*. Coimbra: Almedina, 2012 stated that “it is appropriate to make a distinction between a natural disaster, which strictly calls on national response resources and whose physical effects are confined to a state territory, and a natural disaster, the magnitude of which forces the injured state to request assistance from the international community (the case of the earthquake + tsunami that occurred in March 2011 in Japan, which forced a state especially prepared to deal with this type of event to request international help in terms of search and rescue teams). The terms are usually equated, however, and international documents mostly use the term “disaster” in the sense of catastrophe. The essentially international dimension of disasters has led the Centre for Research on the Epidemiology of Disasters (a UN agency) to define a disaster (technological or natural) as a “situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering”: - 10 or more human deaths (actual and presumed); - at least 100 people affected (in need of food, water, basic care and sanitation; homeless and injured); - a state of emergency has been declared; - there has been a request for external aid. Strictly with regard to natural disasters, the Center for Research on the Epidemiology of Disasters considers three types of events: hydro-meteorological (floods, storms, droughts, landslides, avalanches); geophysical (earthquakes, tsunamis and volcanic eruptions); and biological (epidemics and insect plagues) — a classification which, of course, is merely for descriptive purposes.”

³⁶ GUERRA, Sidney. *Curso de Direito Internacional Público*. 16.ed. São Paulo: Saraiva, 2024, chap. I.

4. BY WAY OF AN UNFINISHED CONCLUSION

International law, as a set of rules and principles of a customary and conventional nature, is a product of history, life in society and the evolution of peoples and nations. Born with the primary aim of regulating relations between states, initially known as the Law of Nations, it has not been indifferent to the changes that have taken place within them (nations and peoples). Inserted in an international society nourished by violence, wars and massacres, by the domination of some peoples over others and by systematic disrespect for intangible values, international law has adapted to the needs of its time.

The history of international law begins with the era of the strengthening of national states, in which it became necessary to create indispensable rules to maintain world equilibrium. This was the context of the Peace of Westphalia, which brought with it a series of postulates, including the paradigm that national states were the only ones with a monopoly on the creation of law, the sacrosanct principle of sovereignty and the principle of non-intervention. These principles are beginning to be overcome as a result of a redesign of contemporary international society, from which new values are emerging.

In fact, over time, international law has undergone many changes. In this sense, thinking about and proposing a new international law on catastrophes, taking into account the existence of multiple possible scenarios, requires a great deal of effort to characterize them, investigate them, and then propose that specific rules be improved and established in the international system for the prevention of future disasters, management of the present ones, and reparation for past ones.

The road ahead is not yet at an end; on the contrary, it is only just beginning. However, it is on the basis of successful experiences from the past and paths taken in the past that this study is intended to be colored each day.

The international system used to accept law only from a classic perspective - public international law - but, as a result of significant changes in the world, new values and foundations have started to inspire and create foundations in various other fields, such as human rights, the environment, trade and many others. From this perspective, we propose a different approach to the study of catastrophes.

This is perhaps the great initial challenge, which once overcome, will move on to practical implementation and material realization. It is clear, therefore, that despite the importance of the

outbreak of successive catastrophes, which produce damaging results at global level, there has been a lack of political will to transform soft³⁷ strategies into hard law and to set up an international structure, at global level³⁸, to deal with the risk management of extreme events, ensuring a prompt, material and financial response in situations involving disasters. Studies on the international law of catastrophes are still in their infancy, but they are already producing fruitful results.

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³⁷ In the same vein DERANI, Cristiane; VIEIRA, Ligia Ribeiro. Human rights and the emergence of environmental catastrophes: a necessary relationship. *Veredas do Direito*. Belo Horizonte, v.11. n. 22. 2014, p.155: “It should be noted that these are the international documents that represent the basis for disaster management, but they are not considered legally binding. The choice, at international level, was to deal with the problem in the form of guidelines and a common policy to be adopted by countries in their domestic legislation, according to the reality of each one, rather than imposing obligations through binding rules. In view of this, despite the fact that concern about disaster risk reduction has been included on the international community's agenda, what can be inferred is that the small number of agreements and conventions concerning environmental disasters demonstrates an interest that has not yet been strengthened by states in dealing with this issue. This problem is aggravated by the fact that it is difficult for all countries to reach agreement to adopt binding obligations at a universal level.”

³⁸ See GUERRA, Sidney. *Course in public international law*. 15.ed. São Paulo: Saraiva, 2023, chapter VIII.

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