


Chapter 60

Urban funding regularization, environmental disasters, civil defense and mining: braskem and gema salt extraction in Maceió

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1 INTRODUCTION

The research that is being developed by the Professional Doctoral Course of the Environment Nucleus of the Federal University of Pará (2019) Postgraduate Program in Natural Resources Management and Local Development in the Amazon, contemplates the theme of Urban and Environmental Land Regularization With an emphasis on the prevention of Environmental Disasters, it aims to show the importance of implementing the Urban and Environmental Land Regularization (Reurb) in the National Policy for Safety of Dams as a way to avoid the destruction of informal urban centers in the Pará Amazon.

In summary, the objective of this article is to address how urban and environmental land tenure regularization should be related to the safety plans of mining enterprises, including mapping the areas vulnerable to natural disasters and which, consequently, should not have been considered subject to urban occupation. The focus is to demonstrate that urban land tenure regularization cannot be dissociated from the defense of the environment and measures to prevent environmental disasters.

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ABSTRACT

Description and Comments on the Legislation in force and its effectiveness in public policies, one item dedicated to Land Regularization, the other to Environmental Disasters and Civil Defense, and the third to Mining. The case study will be about Braskem and the extraction of rock salt in Maceió - AL. In the final considerations, the importance of compatibility between legislation and public policies is highlighted in the three themes Urban Land Regularization, Environmental Disasters, and Mining.

Keywords: Urban Land Regularization, Environmental Disasters, Mining.

To this end, a description and comments will be made on the legislation in force and its implementation concerning public policies, with one item dedicated to Land Regularization, and the other to Environmental Disasters and Civil Defense. The regulations in force at the Federal and State level related to Social Assistance and Environmental Disasters will also be presented.

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2 JUSTIFICATION

At the constitutional level, planning against public calamities and environmental disasters is up to the Union (Article 21, XVIII), while urban territorial planning is up to the Municipalities (Article 30, VIII, and Article 182). However, combating factors that contribute to triggering disasters, such as environmental degradation, and managing disasters and their prevention are listed in the common competencies (Article 23, VI, VII, and IX). (FEDERAL CONSTITUTION, 1988).

Federal Law No. 6,938/1981 also contemplates the important risk prevention instrument which is environmental licensing, prohibiting occupations in disaster risk areas. The Urban Land Regularization Law provides in its article 39 as a condition for the approval of the Reurb of informal urban centers, or part of them, located in areas of geotechnical risks, floods, or other risks specified by law, technical studies must be carried out to examine the possibility of eliminating, correcting or managing risks in the portion affected by them.

It is fixed in the paragraphs that the implementation of the measures indicated in the technical studies carried out is an indispensable condition for approval by Reurb. And in Reurb-S involving areas of risk that do not involve elimination, correction, or administration, the Municipalities must proceed with the relocation of the occupants of the informal urban nucleus to be regularized.

Specifically, the Urban Land Subdivision Law, Federal Law No. 6766/1979, provides for which areas cannot be occupied: swampy land and land subject to flooding, before measures are taken to ensure water drainage, the land where the conditions geological conditions do not advise building. In other words, it expressly provides for the exclusion of risk areas from urban occupation. (BRASIL, 1979)

Another very important legal instrument for the prevention of catastrophes is Environmental Zoning, provided for in Federal Law No. 6,938/1981 and regulated by Federal Decree No. urban and rural land and guide the implementation of programs, projects, works, and public and private activities concerning ecological sustainability.

3 URBAN LAND REGULARIZATION

A milestone in urban land regularization legislation is Federal Law No. 11,977/2009, which provides for the Minha Casa, Minha Vida Program – PMCMV and the land regularization of settlements located in urban areas. Even though it has undergone several changes over the years, it can be considered an effective instrument for access to housing. Except for exceptions concerning the diversion of resources when building popular housing complexes.

However, even though access to housing was contemplated, urban land tenure regularization did not occur, especially about access to essential quality public services, following paragraph 7 of article 13 of the Federal Law, which provides: “§ 7 From the availability of equipment and infrastructure to provide public water supply, sewage collection, electricity distribution, or other public services, it is mandatory for Reurb beneficiaries to connect the building to the water network, sewage collection or electricity distribution and adopt the other measures necessary for the use of the service unless otherwise provided in municipal legislation.”(Brasil, 2017).

Federal Law nº 13.465/2017, as much as it is a great reference in Urban Land Regularization, contemplated several subjects, in particular the alienation of federal public assets and Rural Land Regularization. To explain the reasons why the said law contemplates so many subjects, the authors (LOUREIRO and LOPES, 2019), analyze the explanatory reasons that justified the processing of Provisional Measure No. contradiction in the various norms related to land regularization in its different hierarchical levels, compromising the realization of the social right to housing.

Technical Note No. 01/2017 from the Public Ministry of the Federal District and Territories - MPDFT. Technical Note No. 1/2017 – PROURB/PRODEMA/PDDC. 2017, criticizes the fact that the Reurb Law was approved on an urgent basis since it was being investigated, possible irregularities in the selection of beneficiaries of the National Agrarian Reform Program, in charge of the National Institute of Colonization and Agrarian Reform – INCRA. That is, Federal Law No. 13,465/2017, was approved on an urgent basis due to irregularities in the National Agrarian Reform Program reported in the determinations of the Federal Court of Accounts - TCU to suspend preliminarily some of these acts that hindered the process of degrees, with Judgments No. 775/2016, No. 1086/2016 and No. 2451/2016, issued by the Plenary of the TCU in the Accounting Process No. 000517/2016-0.

Federal Law No. 13,465/2017, established in the national territory, general rules and procedures applicable to Urban Land Regularization (Reurb), having been regulated by Federal Decrees No. 9,310/2018 and No. 9,597/2018. Even so, the major criticism is the fact that they are not self-applied, that is, without state and municipal norms.

The public policies of Urban Land Regularization are still not implemented, being essential for the approval of the State Decree of regulation and that the Municipalities approve the municipal norms, taking into account the local problem, in special concerning the properties that belong to the Union, under the management of the Union Heritage Superintendence.

Law n° 13.465/2017, brought a procedural mixture involving several actors in the regularization process, in particular the technical bodies of the Municipal and State Executive Branch responsible for the occupation of the territorial order, the environmental agencies, teaching and research institutions, the Registry of Property Registry, the Public Ministry and also the Judiciary.

Of note is the recently approved Federal Law No. 14,118, of January 12, 2021, which established the Casa Verde Amarela Program. The main public policy of the program will be carried out by the Ministry of Regional Development and includes the elaboration and funding of the land regularization project, changing some conditions which are presented as better. (BRASIL, 2021).

Article 12 of the Casa Verde Amarela Program Law expanded access possibilities for assisting families involved in resettlement, relocation, or housing replacement operations; and care for homeless families who have lost their only property due to an emergency or state of public calamity recognized by the Union.

4 ENVIRONMENTAL DISASTERS AND CIVIL DEFENSE

Federal Law No. 12,608/2012 establishes the National Civil Defense and Protection Policy - PNPDEC; deals with the National Civil Defense and Protection System - SINPDEC and the National Civil Defense and Protection Council - CONPDEC; authorizes the creation of a disaster information and monitoring system, can be considered the main normative instrument in force, especially about changes in the Statute of Cities Federal Law No. 10,257/2001, through articles 42-A and 42-B.

That is, the City Statute now expressly establishes that the master plan of municipalities included in the national register of municipalities with areas susceptible to the occurrence of high-impact landslides, sudden floods, or related geological or hydrological processes must contain the mapping containing the areas susceptible to the occurrence of landslides of great impact, sudden floods or correlated geological or hydrological processes; the planning of preventive intervention actions and relocation of the population from disaster risk areas; the urban drainage measures needed to prevent and mitigate the impacts of disasters; the delimitation of stretches with restrictions on urbanization and stretches subject to special control due to the threat of natural disasters.

The City Statute and the Urban Land Subdivision Law were amended by Federal Laws n° 12.608/2012 – National Civil Protection and Defense Policy (PNPDEC) and n° 12.340/2010 (National Emergency Disaster Management System), determining the need for Municipalities with less than 20,000 (twenty thousand) inhabitants that are inserted in the area of influence of undertakings or activities with significant environmental impact at the regional or national level. Likewise, the master plan became mandatory for cities included in the National Register of municipalities with areas susceptible to the occurrence of major landslides, sudden floods, or related geological or hydrological processes.

In case the Municipality is included in the National Register, the Master Plan must necessarily include: mapping of areas susceptible to the occurrence of disasters; the planning of preventive intervention

actions and relocation of the population from areas at risk of disasters; urban drainage and disaster impact mitigation measures, and especially guidelines for land regularization of irregular urban settlements.

However, the National Register of Municipalities susceptible to environmental disasters has not yet been regulated. The closest public policy instrument has been carried out by the National Confederation of Municipalities, which created an observatory of natural disasters by municipalities. (Source: <http://www.desastres.cnm.org.br/pagina/municipio>, accessed in November 2019). That is, the main preventive public policy had not yet been implemented.

Only at the end of 2020, Federal Decree No. 10,593, of December 24, 2020, was published, providing for the organization and operation of the National Civil Defense and Protection System and the National Civil Defense and Protection Council and on the National Civil Defense and Protection Plan and the National Disaster Information System. (BRASIL, 2020).

According to IBGE estimates for the year 2020, the State of Alagoas has 3,351,542 inhabitants, which are distributed in 102 (one hundred and two) municipalities. (IBGE, 2020).

However, according to information from the official website of the Military Fire Department of the State of Alagoas (available at <http://www.cbm.al.gov.br/paginas/quarteis>, accessed in February 2021), only 11 (eleven) Municipalities have a local representation of the Fire Department.

Regarding the State Civil Defense of Alagoas, according to information on the official website, decentralization has not yet occurred, thus it is limited to a representation that is headquartered in the state capital. (Available at: http://www.defesacivil.al.gov.br/defesa_civil/servicos, accessed in February 2021). There is no official information regarding how many municipalities in the State of Alagoas have structured and functioning Municipal Civil Defense.

In the specific case of the Municipality of Maceió, the Special Adjunct Secretariat for Civil Defense, linked to the administrative structure of the Municipal Secretariat for Sustainable Development, is the body responsible for monitoring actions aimed at preventing and monitoring earthquakes in the Municipality of Maceió. (DOM-MACEIO, 2018). The performance of the Municipal Civil Defense of Maceió and the landslides involving the company Braskem and the extraction of rock salt will be analyzed in the case study.

5 CASE STUDY: BRASKEM AND ROCK SALT EXTRACTION IN MACEIÓ – AL

The proposed case study is the environmental disaster involving the sinking of the Bebedouro, Mutange, and Pinheiro neighborhoods in Maceió due to the mineral exploration of rock salt by the company Braskem.

Historical information about Braskem can be found on the official website, including a layout with the most important dates in ascending chronological historical order. The origin of the company is related to the beginning of Odebrecht's activities in the petrochemical sector in 1979. (BRASKEM S.A., 2018).

Specifically, about rock salt, Odebrecht created OPP – Petroquímica in 1995, with control of the company SALGEMA, promoting the first vertical integration of the sector in the country. Formally,

Braskem was only created in 2002, through the merger of the companies: COPEME, OPP, TRIKEM, PROPPET, NITROCARBON, and POLIALDEM. (available at <https://www.braskem.com.br/historia>, accessed in February 2021).

According to information cited by (DIODATO, 2017), based on the Annual Activity Report released in 2015, the production segment of the Vinyls Unit is located in the Northeast region of Brazil with five production units, two located in the Petrochemical Complex of Camaçari-BA and three located in the Chlorochemical Complex of Alagoas. The Vinyls Unit is responsible for the production of Polyvinyl Chloride (PVC), Caustic Soda, Chlorine, Hydrogen, and Sodium Hypochlorite, with PVC and Soda as its main products.

The case study is related to the exploitation of rock salt in Maceió - AL, especially in the chlor-soda factory in Pontal da Barra, and the environmental disaster involving the sinking of Bebedouro, Mutange and Pinheiro neighborhoods. To this end, official documents prepared by public institutions and also by the company Braskem S.A. will be described and analyzed.

5.1 REPORTS ON THE ACTIVITIES OF THE WORKING GROUP FOR THE STUDY OF CAUSES AND CONSEQUENCES OF EARTHQUAKES, LINKED DIRECTLY TO THE MUNICIPAL SECRETARIAT FOR SUSTAINABLE DEVELOPMENT – SEMDS – AND MUNICIPAL CIVIL DEFENSE. (AVAILABLE AT [HTTP://WWW.MACEIO.AL.GOV.BR/DEFESACIVIL/DEFESA-CIVIL-NO-BAIRRO-PINHEIRO/](http://www.maceio.al.gov.br/defesacivil/defesa-civil-no-bairro-pinheiro/), ACCESSED IN FEBRUARY 2021)

The Civil Defense of the Municipality of Maceió has been the main institution responsible for monitoring environmental disasters concerning the sinking of the Bebedouro, Mutange and Pinheiro neighborhoods.

To this end, even without a definition of the causes of environmental disasters, the City Hall published Decree No. 8573 on April 27, 2018, creating the working group responsible for actions aimed at preventing and monitoring earthquakes in the municipality of Maceio. (MACEIÓ, 2018).

It is important to transcribe the considerations that justified the aforementioned municipal legislative device, which is more related to earthquakes. Noting that when the decree was published there was no technical conclusion on the causes:

“...Considering the need to investigate the causes and consequences of earthquakes, tremors or vibrations on the surface of the earth's crust, of different intensities and varied dimensions, which occurred in the municipality of Maceió;
Considering the last tremors that occurred in the municipality of Maceió, which caused cracks in houses, with the need to evacuate some residents of the Pinheiro neighborhood due to the imminent risk of collapse;
Considering that the recent seismic events in the city of Maceió, with the appearance of fractures in the soil, resulted in the rupture of the asphalt and made access to some local roads in Maceió impossible;
Considering the urgent need to take preventive security measures to contain and monitor new earthquakes...; (MACEIÓ, 2018).

Public policy is directly implemented by the Special Adjunct Secretariat for Civil Defense, which shares the activities carried out through 10 (ten) official links on the website <http://www.maceio.al.gov.br/defesacivil/>, among which stands out the link with the presentation of all actions in a chronological way of the activities that are taking place in the Bebedouro, Mutange and Pinheiro neighborhoods.

The Contingency Plan and the Evacuation Plan were drawn up in partnership, with the participation of the Municipal Civil Defense, State Civil Defense and also the Geological Survey of Brazil.

It should be noted that the Contingency Plan brings the following numbers with the number of families and houses

The Geological Survey of Brazil listed 26 areas, divided into very high risk - red (493 properties), high risk - orange (1,158 properties), medium risk - yellow (325 properties) and low risk - blue (3,456 properties), totaling 5,432 properties in the region affected by the fissures, estimated population of 20,099 inhabitants. (CIVIL DEFENSE, 2019).

5.2 THE SHORTHAND NOTES OF THE PUBLIC HEARING HELD ON MARCH 21, 2019, AT THE TRANSPARENCY, GOVERNANCE, INSPECTION AND CONTROL AND CONSUMER PROTECTION COMMISSION OF THE FEDERAL SENATE. (AVAILABLE AT <HTTPS://WWW25.SENADO.LEG.BR/WEB/ATIVIDADE/NOTAS-TAQUIGRAFICAS/-/NOTAS/R/8276>, ACCESSED IN FEBRUARY 2021)

Given the severity and complexity of the environmental disaster on March 21, 2019, a public hearing was held before the Federal Senator. The full minutes of the Public Hearing is available on the Senate's official website, in shorthand notes.

It should be noted that the purpose of the Public Hearing was to discuss the situation faced by Bairro do Pinheiro and its surroundings, in the Municipality of Maceió, Alagoas, which, still for unknown reasons, is suffering shocks and damage that have motivated residents to vacate the area.

The work was divided into four tables: The first table was composed of a representative of CPRM, a representative of the National Mining Agency of the Ministry of Mines and Energy, a representative of CASAL, a representative of Braskem and a representative of CREA. Representatives of the Secretariat of Civil Defense of Maceió, representatives of the Municipality of Maceió, representatives of the Civil Defense of Alagoas, representatives of the Ministry of Regional Development, representatives of Ufal and Caixa Econômica Seguradora participated in the second table. In the third, the control bodies, represented by the Public Ministry of the State of Alagoas, also by the Federal Public Ministry, with its Regional Attorney of Alagoas; representative of the Attorney General's Office; the Labor Public Prosecutor's Office; the Public Defender's Office of Alagoas; also from OAB Alagoas; and the Court of Justice. And in the fourth table, the components of civil society: representatives of Nudex, representative of SOS Pinheiro,

representative of the Association of Entrepreneurs of Bairro Pinheiro and representative of the Special Commission of Inquiry on Pine established in the City Council of Maceió.

In the speech of the representative of Braskem S.A. Mr. Alexandre de Castro - Business Director, it can be confirmed that the location of the disasters coincides with the concession polygon. The company representative informs that the mining area is 1,900ha, in these more than 40 years of operation, only 83ha, which represents something around 4.4% of the concession.

We also highlight the considerations of the representative of the Geological Survey of Brazil Antônio Carlos Bacelar Nunes, disconnecting the conclusion of the technical report from the need for emergency measures to be adopted:

“But I also want to make a warning here: this does not prevent municipal, state, federal and Civil Defense agencies from starting to work for a future emergency in the Pinheiro neighborhood. The Doctor. Thales was clear that the Pinheiro neighborhood is in constant motion. And our biggest concern is with the rainy season, which is approaching. Therefore, it is necessary that municipal, state and federal bodies, non-governmental organizations and the Attorney General's Office are already working, to avoid harmful consequences to the life of the human being.

The public hearing is closed awaiting the conclusive report of the causes by the Geological Survey.

5.3 STUDIES ON TERRAIN INSTABILITY IN THE PINHEIRO, MUTANGE AND BEBEDOURO NEIGHBORHOODS, MACEIÓ (AL), PREPARED BY THE GEOLOGICAL SURVEY OF BRAZIL (CPRM), PRESENTED ON APRIL 29, 2019. (AVAILABLE AT [HTTP://RIGEO.CPRM.GOV.BR/JSPUI/HANDLE/DOC/21133](http://RIGEO.CPRM.GOV.BR/JSPUI/HANDLE/DOC/21133), ACCESSED IN FEBRUARY 2021)

Still in 2018, based on the mapping carried out by the Civil Defense of Maceió, the Geological Survey of Brazil (CPRM) prepared the “Map of Features, identifying that the phenomenon that occurred in Pinheiro had never been recorded with such proportions in an urban area of no other city in Brazil.

Faced with the complexity and the need to provide answers to the population, the Municipality of Maceió decreed a State of Emergency on December 4, 2018, which was recognized by the Union on December 26. On March 21, 2019, the National Civil Defense announced the release of housing assistance, in the monthly amount of R\$ 1,000 per property evacuated. Shortly after the public hearing before the Federal Senate, the Municipality of Maceió decreed a Public Calamity, on March 26, 2019. The decrees have been published, including at the federal level, extending the Public Calamity situation

The report is part of the activities of the Institutional Repository of Geosciences of the Geological Survey of Brazil – CPRM. Regarding the STUDY ON THE INSTABILITY of the terrain in the Pinheiro, Mutange and Bebedouro neighborhoods, Maceió (AL) Emergency Action in the Pinheiro neighborhood, the Synthesis Report brought the following outcome:

“...The cavities resulting from rock salt extraction are destabilizing, causing halokinesis (salt movement) and creating a dynamic situation with reactivation of preexisting geological structures, subsidence and brittle surface deformations in part of the Pinheiro, Mutange and Bebedouro, Maceió-AL In the Pinheiro neighborhood, whose reflection of subsidence is the formation of a zone of brittle deformation (fissures and cracks), the instability of the terrain is aggravated by the erosive effects caused by the increase in infiltration of rainwater in the plane of fractures /preexisting faults and presence of extremely erodible soil, due to the significant increase in secondary permeability (cracks). This erosion process is accelerated by the existence of small endorheic basins, lack of an effective stormwater drainage network and adequate basic sanitation.”

The Technical Reports of the Geological Survey of Brazil confirmed the relationship between the extraction of rock salt by the company Braskem S.A. with the subsidence of neighborhoods, emphasizing the aggravation due to sanitation problems, especially the infiltration of rainwater into the soil and the lack of an adequate drainage and sanitation network.

5.4 TERMS OF TECHNICAL COOPERATION TERM OF TECHNICAL COOPERATION ENTERED INTO BETWEEN THE MUNICIPALITY OF MACEIÓ AND BRASKEM. (HTTP://WWW.MACEIO.AL.GOV.BR/2019/12/PREFEITURA-DE-MACEIO-E-BRASKEM-FIRMAM-NOVO-TERMO-DE-COOPERACAO/ ACCESS JANUARY 2020)

Braskem and the Municipality of Maceió have already signed 04 (four) Technical Cooperation Agreements, as shown in the table below:

NUMBER/DATES	JUSTIFICATION	GOAL
1st Term of Technical Cooperation - April 2019	City Hall of Maceió decreed a state of public calamity	Search for a solution to problems in the neighborhoods and improve the living conditions of these residents
2nd Technical Cooperation Term - December 2019	In May 2019, CPRM released a report that indicated the destabilization or displacement of some salt extraction wells.	Improvements in geological monitoring.
3rd Technical Cooperation Term - January 2020	In June 2019, the Civil Defense of the Municipality prepared a “Map of Sectorization of Damages”.	The agreement was extended to the neighborhoods of Mutange and Bebedouro, in addition to Pinheiro.
4th Technical Cooperation Term - September 2020	The purpose of establishing the adoption of important new measures for the safety of the local population.	Demolition of the properties would be taken over by the Municipal Civil Defense, Braskem was responsible for hiring the companies responsible for carrying out these actions.

Source: BRASKEM, S.A, 2020. Disponível em <https://www.braskem.com.br/termos-de-cooperacao#>, acesso em Fevereiro de 2021.

By analyzing the Terms of Cooperation, it can be seen that as the situation worsens, the territorial scope of the environmental disaster increases. The First Cooperation Agreement, contemplated only Bairro Pinheiro. The Second Term of Technical Cooperation, signed 08 months later, included the Mutange and Bebedouro neighborhoods. Finally, the Four Term of Cooperation, signed in September 2020, brought Bairro Bom Parto, as the territory of the environmental disaster.

5.5 JUDGMENT OF THE 4TH FEDERAL COURT - AL - No. 583/2019/SJVM/JFT/4th COURT/AL - Process No. 0803662-52.2019.4.05.8000 - PUBLIC CIVIL ACTION - FEDERAL PROSECUTION OFFICE PLAINTIFF: BRASKEM S/A, the AGENCY NACIONAL DE MINERAÇÃO - ANM and INSTITUTO DE MEIO ENVIRONMENT DEALAGOAS - IMA/AL, THE ADOPTION OF ADMINISTRATIVE MEASURES RELATED TO SAFETY STANDARDS FOR THE STOPPAGE AND CLOSURE OF ROCK SALT EXTRACTION MINES. (AVAILABLE AT [HTTP://WWW.MPF.MP.BR/AL/ARQUIVOS/2019/SETENCA_PINHEIRO.PDF](http://www.mpf.mp.br/al/arquivos/2019/setenca_pinheiro.pdf), ACCESSED IN FEBRUARY 2021)

Even though 4 (four) Cooperation Agreements were signed, the Federal Public Prosecutor's Office called on the company Braskem S.A, the National Mining Agency - ANM and the Institute for the Environment of Alagoas - IMA/AL.

Specifically, concerning Braskem S.A., the Federal Public Prosecutor's Office requested, in the Initial Petition of the Public Civil Action, the following obligations to do and not to do, taking into account that the company itself had publicly announced the stoppage of mining activities, official note, on 05/09/2019.

a) presentation, within 15 days, of the mine closure plans (PFM) that already have the sonar study carried out, sending them immediately to the ANM;

b) carrying out sonar studies, within 30 days, to assess the geometry of the interior of the cavities resulting from the extraction of rock salt, using a sonic profile - or by another technologically adequate method if it is not feasible to study by sonar - to be performed by third parties at the expense of the defendant (Braskem S/A), in the other 26 (twenty-six) wells, whose studies have not yet been carried out/concluded, to enable the assessment of the stability of the walls and roof of all caves, and the ANM must monitor the performance of each study;

c) in the course of the previous period, shortly after the completion of each sonic profile - or another technologically appropriate method, if the sonar study is not feasible -, the presentation of the mine closure plan (PFM), individually, sending the PFM immediately to the ANM;

d) the execution of the mine closure plan, with the respective decommissioning of these wells and other stages, to be carried out by third parties at the expense of the defendant (Braskem S/A), after analysis and respective approval by the ANM, under the terms in which required in items "a" and "b";

e) the immediate stoppage of the drilling work for the new wells 36 and 37, as well as the abstention from adopting any measure to start drilling well 38, already licensed by the IMA/AL (Operation License No. 157/2016 - IMA/GELIC), and well 39

As can be seen from the judgment report to Braskem S/A, as shown in the next topic, it is known that it is the company that holds the mining concession granted in the years 1970/71, through Mining Decree No. 66,718, of 06/15/70 (rected by Decree No. 69.037, of 08/09/71), in the Municipality of Maceió/AL, for the extraction of rock salt, starting operations in 1976. Between 1976 and 2018, Braskem developed 35 (thirty-five) mines/wells, of which 4 (four) were in operation as of May 8, 2019, the day on which the Summary Report of studies No. 01 was presented by CPRM - Geological Service.

Two conciliation hearings were held, which were unsuccessful, and the preliminary injunction was partially granted. The administrative suspension of environmental operating license No. 157/2016-IMA was temporarily granted, to allow Braskem to carry out only the activities of studies and those that are necessary for the closure of the mines, and no longer extracting the rock salt.

As for the merits, the sentence was judged partially valid, determining that Braskem adopt the following measures: a) submission to this Court, within 15 days, of the mine closure plans (PFM) as the sonar study is carried out and that are able to close, sending them, equally, in the same and single term, to the ANM; b) for those mines whose sonar study indicates that they are not suitable for closure, the mining company must carry out the necessary study and, from the conclusion of this study, it will present the closure plan within 15 (fifteen) days to this Court and to the ANM; c) the execution of the mine closure plan, with the respective decommissioning of these wells and other stages, after the analysis and respective approval by the ANM, observing all eventual determinations and recommendations of the ANM; d) non-operation/exploration of all mines, including wells 36, 37, 38 and 39; e) the immediate stoppage of the drilling work for the new wells 38 and 39; f) that it adopt the necessary safety measures to remove the bit that got stuck in the drilling of mine 36, as well as the relevant measures to interdict/stop it.

It is important to point out that the sentence faced the causal link expressly leaving the responsibility of the Braskem company for the environmental disaster. Given the social repercussions of the facts, the potential for irreversible environmental damage, in addition to those already caused, for all the documentation that instructs the present action, which contains reports, reports and technical studies that show the events (subsidence movements), their consequences (cracks, fissures, cracks, etc.), the causal link between the damage (concrete and imminent) and the mining activity carried out by BRASKEM and the reports attached to the case file that announce the need for the adoption of additional measures by BRASKEM S.A.

As certified in the case file, Braskem and ANM filed an appeal, on 11/27/2020, the aforementioned process was sent to the TRF of the 5th.

Finally, still under the aspect of filing lawsuits. According to information from the CONJUR Magazine, available at <https://www.conjur.com.br/2021-fev-15/moradores-maceio-processam-braskem-holanda> - Soil subsidence - Residents of Maceió sue Braskem in the Netherlands. The PGMBM office disclosed that it is in charge of a collective action filed by residents of Maceió against Braskem in Holland — headquarters of the Brazilian petrochemical company in Europe — to be compensated for the sinking

of the soil in four neighborhoods of the capital of Alagoas. The cause of the sinking would be the extraction of rock salt by the company. (CONJUR, 2021). Thus, the battle in the Courts tends to continue.

Finally, in a recent announcement on Braskem's official platform, on February 17, 2021, the National Mining Agency (ANM) accepted the request made by Braskem to reconsider the requirement for additional measures to the rock salt mine closure plan in Maceió (AL) that had been proposed by the Company. These additional measures could lead to expenses estimated by Braskem at approximately R\$3 billion.

With the reconsideration, the ANM maintains the continuity of the implementation of the measures foreseen in the mine closure plan originally proposed by Braskem, whose amount of R\$ 1.2 billion had already been provisioned by the Company. (BRASKEM, 2021).

6 FINAL CONSIDERATIONS

Braskem has implemented the Financial Compensation and Relocation Support Program aimed at supporting people to be relocated. (available at <https://www.braskem.com.br/como-funciona#>, accessed in January 2021).

The agreement entered into in January 2020 between the Public Defender of the State of Alagoas, the Federal Public Prosecutor's Office, the Public Defender's Office of the Union, the Public Prosecutor's Office of the State of Alagoas and Braskem, which establishes cooperative actions for the vacancy of areas considered at risk by the Civil Defense in Pinheiro, Bebedouro, Mutange and Bom Parto neighborhoods. These areas were identified according to their criticality, based on Civil Defense technical criteria. Braskem will take care of supporting the relocation, under the terms of the Compensation and Relocation Program, already in effect, with the support and guidance of the competent bodies.

The areas to be vacated under the agreement, in addition to the Resguardo Area, include around 4,500 properties and 17,000 residents. Under the agreement, these residents will be assisted in the Financial Compensation and Relocation Support Program, already implemented by Braskem at the Resident Center. (<http://www.braskem.com.br/acordo-para-areas-de-risco#>, accessed in January 2021).

Large mining enterprises, in addition to exploiting water resources, as a rule, use water in their production processes. However, it must be noted that Brazil has suffered two major environmental disasters related to the collapse of mining tailings dams, with the destruction of the Rio Doce Basin (2015) and the Rio Paraopebas (2019) and several fatal human victims. Because of the large dimensions of the situation of the sinking of the four large neighborhoods in Maceió-AL, it must even be equipped as the third largest recent environmental disaster related to the mining industry sector in Brazil.

Taking into account the biggest recent environmental disasters (last 10 years) that occurred in Brazil, the city of Maceió, the Capital of the State of Alagoas, and the entire State of Alagoas, were largely harmed by the environmental disaster involving the oil spill in the year 2019, as we transcribe official news released by the Ministry of the Environment and the Brazilian Navy.

Even without defining the origin and specific date, since the beginning of September 2019, the beaches of the Northeast region of Brazil have been contaminated with a large amount of oil, the omissions are so many that only measures have been taken about the size of environmental contamination and its origin almost a month later. According to official data from the Ministry of the Environment, as of October 6, 2019, the oily material had reached 132 beaches in 61 municipalities in nine states in the Northeast, with several beaches banned. (MMA, 2019, <https://www.mma.gov.br/component/k2/item/15641-Ministro-sobrevoa-litoral-de-sergipe.html> accessed on October 9, 2019).

The Brazilian Navy, in its consolidated activities on the environmental disaster of the Brazilian coast, informs that over 4,000 (four thousand) km of extension of our coastal zone have been affected by oil, at some point, since September 2, 2019. About 5,000 tons of oily waste were collected on the coast of the Northeast and Southeast regions. The count of this material does not only include oil but is also composed of sand, tarpaulins and other materials used for collection. (MARINHA, 2019, <https://www.marinha.mil.br/manchasdeoleo/sobre> access in April 2020).

Even so, the Brazilian Public Power was not able to technically identify the origin of the oil and the proper accountability of those responsible and, consequently, the compensation of the victims.

As much as the consequences have been aggravated by deficiencies in public sanitation and urban drainage policies, if the mines had not been exploited to remove rock salt, the ground would remain firm and the neighborhoods would not be founded. That is, the risks of environmental damage from industrial mining activity were enhanced by the omission of public policies for urban and environmental land tenure regularization.

We are facing a complex matter that is the law of disasters, according to (FREITAS, 2017, apud, FARBER, 2017), the Law is completely unprepared to deal with disasters. A growing community of researchers recognizes this problem and is formulating solutions under the rubric of Disaster Law.

The judicialization in the International, Federal and State spheres, both of individual actions, but especially of collective actions, remains perfectly contemplated by the description of structural and complex disputes and by the classification of conflicts defined by (VITORELLI, 2016), in his Doctoral thesis in In summary, the author creates two indicators with collective disputes: 1 - Conflict: is the degree of disagreement between the members of the group about what is the best solution for the case. 2- Complexity: it is the degree of variability of the possibilities of protection of the litigious substantive right. According to (VITORELLI, 2016). The Braskem case must be classified as one of high conflict and complexity, being a local collective dispute, as the injuries affect the group with a great individual impact on its members, who have a bond of solidarity with each other.

The bond of solidarity of the group is precisely to reside in a territory (Bairros Pinheiro, Mutange, Bebedouro, and Bom Parto...), in which the subsoil has been exploited by mines of great depth. We understand that injuries do not affect every former resident who had to be hastily moved from their home homogeneously. The injury we call an environmental disaster radiates and affects the group in a different way and intensity. Faced with the evolution and aggravation, the tendency is to increase the territorial scope of environmental disasters. Thus, there is not even a definitive diagnosis of the dimensions of the injuries that society may still suffer.

Faced with the logic of self-inspection, the big problem is the prevailing economic aspect of a service provider that does not want to lose a contract being pressured to omit information about the stability conditions of the mines, without meeting the safety requirements.

On the other hand, there is a need for the National Mining Agency - ANM to be properly structured, including more specialized technical professionals, inspectors, and modern structures that enable efficiency in the regulation of the provision of mining services and the control of mining activities. The situation of precariousness was even included in a recent report by the Federal Court of Auditors (TCU, 2020), with an official publication entitled “TCU points out a lack of structure at the National Mining Agency.

A possible claim by mining entrepreneurs that the Public Power does not have the technical conditions to assess the safety conditions of the mines should not exist.

The regularization of the territorial organization by the Reurb was not to be a novelty, much less when related to the prevention of environmental disasters. Given the continuity and expansion of the territory affected by the environmental disaster and the complexity of the conflict, it would be up to the authorities to assess similar situations in other cities and prevent the areas from being occupied.

The concept brought by (CARVALHO, 2019, apud, FARBER, 2015), Disaster Law is closely related to risk management and the stages of the disaster cycle. According to Professor Daniel Farber, recognized worldwide for his studies on Environmental and Disaster Law, the cycle of disasters comprises the following phases: prevention and mitigation, emergency response, compensation, and reconstruction.

CARVALHO, 2019, suggests that interdisciplinary legal rationality be used (especially with Environmental, Urbanistic, Administrative, Criminal, Civil, Insurance, and Contracts Law), Disaster Law aims to manage all phases of a catastrophic event. It is urgent to point out that the autonomy of this legal branch is consolidated by a risk management cycle that unites the phases of prevention to reconstruction.

7 PROPOSITIONS

Under the analysis of its objectives and purposes, Reurb's main principle is regularization and non-removal. Applied to identify informal urban settlements, whether in public or private areas, or resulting from invasions or irregular allotments, which deserve the attention of public authorities and the solution of being regularized because they are consolidated and, therefore, this, appears as an irreversible situation from the social and urban point of view.

However, about the prevention of environmental disasters, we understand that the environmental principles of prevention and precaution must prevail, not only in the face of the real possibility of the destruction of neighborhoods but also of the death of human beings.

Thus, taking into account the Urban Land Subdivision Law - Federal Law n° 6766/1979, as well as the City Statute - Federal Law n° 10.257/2001 and the respective Municipal Master Plans, it is necessary to consider which areas located in the vicinity and especially in the surface and above mines are considered as non-buildable and also as risk areas.

In cities, neighborhoods or informal urban centers, already built and consolidated, in the territory of the mines (mining concession) should be considered as risk areas and need to be monitored preventively, with the performance of technical studies similar to those prepared by the Geological Survey Brazilian.

The National Mining Agency needs to maintain the technical capacity of its supervisory and regulatory power, which cannot be delegated to the entrepreneur, especially in the face of complex problems involving environmental disasters. In other words, who needs to technically assess whether the mines are safe or not is the Public Power, and it is up to the mining entrepreneur to adopt all technical measures to guarantee access to information.

Concerning the universalization of the National Civil Defense and Protection System, the ideal would be for the Military Fire Brigade and the Civil Defense to be present in all municipalities in the State of Alagoas with a duly structured local representation.

The Justice System, to manage such a complex situation, especially given the multiplicity of lawsuits, in the various spheres (individual/collective) and competencies (federal/state) of the Judiciary, should have established a crisis cabinet along the lines of Recommendation No. 40 of the National Council of Justice, of June 13, 2012, which determines that the Court of Justice implements an action plan to face and solve situations arising from environmental calamities and disasters (CNJ, 2012).

About land regularization, the Law of Reurb expressly brought in its article 34 that the Municipalities may create chambers for the prevention and administrative resolution of conflicts, within the scope of the local administration, including by entering into agreements with the State Courts of Justice, which will have the competence to settle conflicts related to Reurb, through the consensual solution.

There must be training and also requalification in urban and environmental land tenure regularization. Emphasizing that the mediators and conciliators who work with the Conciliation Chambers or CEJUSC/Reurb must have training in several areas of knowledge, acting in a joint and interdisciplinary way, being mainly civil engineers, surveying engineers, sanitary engineers, environmental engineers, agronomists, geographers, historians, sociologists, architects, urban planners, environmental managers, and also legal professionals.

Thus, the installation of a Judiciary Center for Conflict Resolution and Citizenship specialized in Urban and Environmental Land Regularization - CEJUSC-Reurb, in Maceió - AL, could be a great tool for dealing with conflicts resulting from environmental disasters.

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