

**The social impacts of the social-environmental disaster caused by
BRASKEM S.A in Maceió-Alagoas¹**

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Impactos sociais do desastre socioambiental provocado pela BRASKEM S.A em Maceió-Alagoas

RESUMO

Este artigo tem como objetivo discorrer sobre os impactos sociais do desastre socioambiental provocados pelas atividades da empresa Braskem S.A. na exploração do sal-gema em Maceió-AL. O estudo foi realizado a partir de uma revisão de literatura. Foram identificados depoimentos de moradores em relatórios, artigos e trabalhos acadêmicos, além de reportagens de jornais (mídia impressa e eletrônica, tanto escrita quanto em vídeos). O artigo contou também com a experiência da primeira autora, moradora da cidade e diretamente atingida pelo desastre. O texto analisa os danos sociais e afetivos para a população deslocada e para aqueles residentes em áreas impactadas pela subsidência do solo, provocada pelo desmoronamento subterrâneo das minas. Foram identificados inúmeros impactos sociais, como a perda de imóveis e de renda, o fechamento de equipamentos públicos, além da ruptura de vínculos e o surgimento de problemas emocionais. O caso deve ser considerado um crime socioambiental de grande impacto, suscitando questionamentos sobre possíveis formas de reparações econômicas e sociais que envolvem direta ou indiretamente a população maceioense.

PALAVRAS-CHAVE: Braskem. Desastre. Maceió. Socioambiental. Subsidência.

Social Impacts of the Socio-Environmental Disaster Caused by BRASKEM S.A. in Maceió, Alagoas

ABSTRACT

This article aims to discuss the social impacts of the socio-environmental disaster caused by Braskem S.A.'s salt mining activities in Maceió, AL. The study was conducted through a literature review. Testimonies from residents were identified in reports, articles, and academic works, as well as in newspaper reports (print and electronic media, both written and video formats). The article also incorporates the firsthand experience of the first author, a resident of the city and directly affected by the disaster. The text analyzes the social and emotional damages to displaced populations and residents in areas impacted by land subsidence caused by the underground collapse of the mines. Numerous social impacts were identified, including the loss of property and income, the closure of public facilities, the disruption of social bonds, and the emergence of emotional problems. The case should be considered a socio-environmental crime of significant impact, raising questions about possible forms of economic and social reparations involving the Maceió population, both directly and indirectly.

KEYWORDS: Braskem. Disaster. Maceió. Socio-environmental. Subsidence.

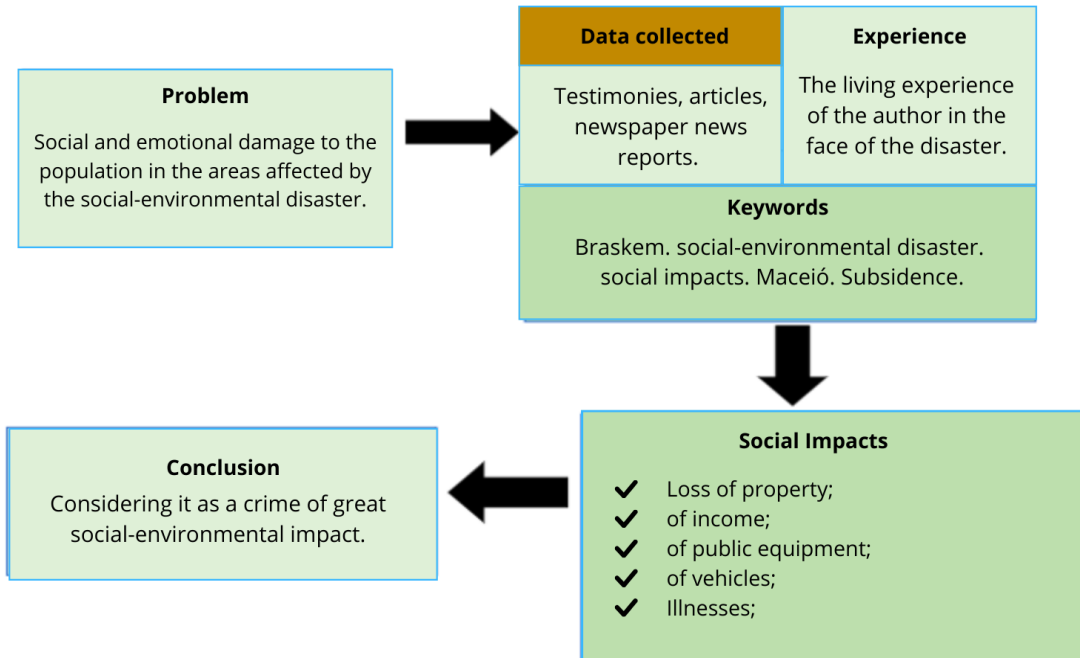
Impactos Sociales del Desastre Socioambiental Provocado por BRASKEM S.A. en Maceió, Alagoas

RESUMEN

Este artículo tiene como objetivo discutir los impactos sociales del desastre socioambiental causado por las actividades de extracción de sal gema de la empresa Braskem S.A. en Maceió, AL. El estudio se realizó a partir de una revisión de la literatura. Se identificaron testimonios de residentes en informes, artículos y trabajos académicos, además de reportajes de periódicos (medios impresos y electrónicos, tanto escritos como en video). El artículo también incluye la experiencia directa de la primera autora, residente de la ciudad y afectada directamente por el desastre. El texto analiza los daños sociales y afectivos sufridos por la población desplazada y por los residentes en áreas impactadas por la subsidencia del suelo, provocada por el colapso subterráneo de las minas. Se identificaron numerosos impactos sociales, como la pérdida de inmuebles y de ingresos, el cierre de servicios públicos, la ruptura de vínculos sociales y la aparición de problemas emocionales. Este caso debe considerarse un crimen socioambiental de gran impacto, que suscita cuestionamientos sobre posibles formas de reparación económica y social que involucren directa o indirectamente a la población de Maceió.

PALABRAS CLAVE: Braskem. Desastre. Maceió. Socioambiental. Subsistencia.

GRAPHIC SUMMARY



1 INTRODUCTION

Maceió, the capital of Alagoas, is a coastal city surrounded by lagoons and an immense coastline. It is located in a sandbank area between The Mundaú lagoon and the Atlantic Ocean. The Brazilian Institute of Geography and Statistics (IBGE) (Brazil, 2021) estimates a population of just over 1 million inhabitants. The city is subdivided into 51 neighborhoods, with different urban contexts. One of the neighborhoods that stands out in the city is Pontal da Barra, both for its environmental characteristics, as it is served by a beach of great beauty, as well as for the installation of one of the largest chemical companies in Brazil, Braskem S.A, previously called de Salgema Ltda. Its installation took place in 1976, causing strong negative impacts on the population and the environment. The largest geological disaster in an ongoing urban area in the world was recently recorded in Maceió due to Braskem's mining activities in the region.

The company extracts the mineral rock salt, which in turn is a "sodium chloride taken from rocks more than a thousand meters deep", the mineral serves as raw material for the production of Polyvinyl Chloride (PVC), which is a synthetic plastic, well used in civil construction (Oliveira; Abreu Netto, 2024).

The signs of the disaster initially appeared in 2018, as, with the heavy rains at the beginning of the year in the capital of Alagoas, residents of the Pinheiro neighborhood called the Civil Defense due to the appearance of cracks, fissures, and clefts in properties and also on public roads. This was the initial perception of the anomalous situation, which had been happening in the region for a long time. On March 3rd of the same year, an earthquake, registered at 2.5 magnitude on the Richter scale, was felt in several neighborhoods, including Pinheiro, which scared the local population even more, as it increased the cracks, causing an alert that something had happened, leading the Municipal Civil Defense to call the National Civil Defense.¹

At the time of the incident, the government was unable to explain with any certainty what was happening. Residents of the Pinheiro neighborhood continued to report cracks and sinking in their homes, and from then on, public authorities began to act more effectively to accurately identify the phenomenon (Santos et al., 2021).

In 2019, the Geological Survey of Brazil released a technical report, indicating that the reason for the damage to properties and roads was soil subsidence, due to the destabilization of the land as a result of rock salt extraction². Such a situation caused the neighborhoods of Pinheiro, Mutange, Bebedouro, and Bom Parto to begin to sink. The report appointed as responsible for the disaster³, the company Braskem, an explorer of rock salt mining. Six years after the disaster, the affected areas are deserted and without adequate urban facilities. However, on the Damage Sectorization map (Federal Public Ministry - MPF/AL, 2020), there were indicated residences "that were not at risk of collapsing" and whose residents did not receive

¹ Check, for example, <https://agenciabrasil.ebc.com.br/radioagencia-nacional/acervo/geral/audio/2018-03/laboratorio-registra-tremor-de-terra-de-25-na-escala-ritcher-em-maceio/>.

² The subsidence process corresponds to the relatively slow movement of land sinking, due to the deformation or displacement of essentially vertical downward direction. Collapse, in turn, presents the same definition, but it is a sudden movement of the ground. See at: <http://www1.rc.unesp.br/igce/aplicada/ead/interacao/inter12.html> (accessed July 2024).

³ This article is based on the work of Normal Valencio and Enrico Quarantelli on the Sociology of Disasters. Among the works of these authors, see, for example: Valencio (2009); Quarantelli (2015).

compensation. Even places that were apparently not at risk remained deserted, as they lost population and the people who remained there became afraid due to the feeling of insecurity. This process has caused various damages to the residents of these locations, both psychologically and economically.

The socio-environmental disaster occurred in the urban area of Maceió. It was also nominated as one of the largest in the country. Therefore, it is quite evident that in the case of an urban area, the impact, in practice, is very significant for the population, as it damaged the dynamics of the city, seeing that the affected areas were highly populated, with intense economic, social, and cultural dynamics.

By evicting the population from their place of coexistence and origin – making them environmental refugees⁴, The emotional bond remains, to the point that, even in the face of adversity, some do not want to leave their place of residence. However, some took the opposite decision and left the site, despite claims from the Braskem Company and public agencies saying that they were not in an area of actual risk. They did so, either for fear of being affected by new ground movements, as well as for the impossibility of having a normal life in neighborhoods that were partially in ruins. Therefore, it is relevant to discuss the social impacts set off by Braskem, with the population expelled from their homes, as well as with those who remained.

This article aims to discuss the social developments that occurred among the displaced, as well as those who were not relocated, but who we also consider here as victims of the disaster. It is initially intended to describe the earthquake and its dynamics; subsequently, the importance of the place for individuals affected by the disaster will be highlighted, and the last two parts will bring reports from relocated residents and those who feel socially isolated by staying in neighborhoods and surrounding areas directly or indirectly affected by the disaster. As it will be analyzed throughout the article, we understand that the loss of a place to live causes various damages to those affected, generating irreparable consequences for the population.

The study was carried out based on a Literature Review. Testimonies from residents were identified in reports, articles, and academic works, as well as newspaper reports (printed and electronic media in written format or videos). Finally, the experience of the first author was also of great importance, as she lives in Maceió and was also directly affected by the disaster.

2 DESCRIPTION REGARDING THE EARTHQUAKE - A BRIEF TIMELINE

Rock salt is the term used to describe rocks that contain the mineral halite, whose majority element is sodium chloride (NaCl). This ore is found in the soil layers, normally alternating between gypsum, clay, and dolomite. To extract it, wells are excavated over the rock salt strip, as well as in vertical or inclined planes. Water is injected into the well and dissolves the salt, forming the brine (Contieri, 2021).

As highlighted by Professor Galindo (2022, p. 46), the mining project that determines a

⁴ Prognosis of environmental refugees around the world indicate that the majority are, in fact, migrants internal and not international migrants. This article understands that “environmental refugees” refer to those who were forced to leave their places of residence due to events caused by natural causes, anthropogenic or a combination of both. Such events threatened its existence and affected its quality of life. About the concept, see: Carolina de Abreu Batista Claro (2012).

safe diameter is of caves with a maximum diameter of 50 meters (D), the dimension of the pillar (distance from wall to wall, I) of 75 meters and the distance between the axles (L) of 125 meters. These measures guarantee a good safety factor to ensure that the mines do not interconnect and there are collapses. However, this requirement was not respected in many mines in Maceió and it caused cavities to join together, causing ceilings to collapse, pillars to break, and forming even larger caves. Therefore, the tremor felt on March 3rd was probably caused by the rupture of a pillar.

Braskem's thirty-five wells used to exploit the rock salt in Alagoas are all licensed and operational by the Environmental Institute (IMA) and the National Mining Agency (ANM). The rock salt reserve is found in deep layers, more than 1000 meters deep; Therefore, it is impossible for people to access it, using the dilution extraction method (Contieri, 2021).

According to a German report, published in December 2019, 15 mines collapsed, they rose and left the saline layer. Leaving this layer is very dangerous, as there is a total lack of control over the stability of the mine and the pressurization condition of the cave is eliminated (Galindo, 2022).

Without pressurization, the halite rock softens, beginning to expand inside the cave, and the soil above it starts to sink, generating deformations that reach the surface. In this way, subsidence occurs, resulting in the appearance of cracks on the surface and in buildings, which is what occurred in Maceió (Galindo, 2022).

Thus, over time, residents of the Pinheiro neighborhood began to observe some problems in the area, such as cracks and sinking of the soil in houses and public roads. Around 2010, some residents called engineers to investigate this situation. Thus, theories emerged about what was happening at the site, including that a possible cause would be the mining activity carried out by Braskem, a thesis defended early on, for example, by engineer Abel Galindo. The Pinheiro neighborhood had a large occupation (residential and commercial) and is one of the areas affected by Braskem's mineral exploration (Pílulas de Geotechnia, Youtube, 2021).

The earthquake on March 3, 2018, was recorded by stations of the Brazilian Seismographic Network (RSBR), and its epicenter was precisely in the Pinheiro neighborhood. The tremor was felt in other neighborhoods of the city, including the neighborhoods of Serraria, Cruz das Almas, Farol, and Jatiúca (MPF, 2019). In a report by The Newspaper Gazeta de Alagoas, residents described the fear they felt that day. The population of Pinheiro, for example, took to the streets in terror. Videos about damage to houses resulting from the earthquakes began to be posted by residents on social media⁵. The Maceió Civil Defense was called and, understanding that this was an atypical event, the National Civil Defense, the Federal University of Alagoas (UFAL) and the Federal University of Rio Grande do Norte (UFRN) were also called to discover the causes of the tremors, as well as the size of the risk (Cólen, 2018).

In 2018, with the heavy summer rains, cracks in the Pinheiro neighborhood and neighboring neighborhoods (such as Mutange and Bebedouro) intensified, with new fissures, clefts, and holes appearing in buildings, houses, streets, and sidewalks. With these incidents, it was necessary to close some homes. During this period, several hypotheses emerged, however,

⁵ See, for example: <https://www.youtube.com/watch?v=JSnFARsJqZc>; <https://www.youtube.com/watch?v=hdrAY6uPO-M>; <https://www.youtube.com/watch?v=nGbzeRSazrl>.

the only one accepted was that it was the impact of rock salt mining in the area. This is the hypothesis highlighted by the CPRM's conclusive report on the causes of subsidence in the neighborhoods of Pinheiro, Mutange, and Bebedouro (Letras Ambientais, 2019; Serviços Geológico do Brasil (CPRM), 2019). Given the hypotheses and after studies carried out in the Pinheiro neighborhood and nearby areas, with the intent of analyzing the underground structure, they indicated that the cause of the shock was rock salt mining (Letras Ambientais, 2019).

As the event caused significant damage and fear among the population, there was a movement in the sense of clarifying the problem. Residents called the Civil Defense of the capital of Alagoas, which, in turn, went to the most critical locations and realized the need to restrict and isolate several streets and properties, as the features observed caused a weakening, putting the lives of residents at risk. Therefore, the CPRM was called in to carry out a technical assessment of the area and investigate the problem (Barros Filho; Luedemann, 2021). In June 2018, a map of the features was created; in October 2018, resources were released for the purchase of equipment and contracts for “geological, geotechnical, geophysical and hydrogeological” investigation (CPRM, 2019, p. 12).

The recognition of the situation by The Federal Government only happened on December 28, 2018, certifying that it was an emergency situation. Actions to identify the phenomenon were restarted on January 7th, 2019. However, the conclusion regarding the cause only occurred on May 7th, 2019, and, on June 7th, the first risk map was presented by Civil Defense. In there the areas that would be evacuated were indicated, involving the Pinheiro and Mutange neighborhoods, and delimiting the sectors of the Bebedouro neighborhood, where the population could continue to live, but with the monitoring of risk areas. It was from then on that ANM and the Geological Survey of Brazil (SGB/CPRM) began to carry out a study in the Pinheiro neighborhood to identify the causes of subsidence (Letras Ambientais, 2019).

It was established based on Ordinance No. 20, of January 11th, 2019, of the Ministry of Mines and Energy, so that, through CPRM guidance and guidelines, the causes of soil instability in the Pinheiro neighborhood could be identified. A schedule of CGB/CPRM activities was created in 2019. One of the first topics in the schedule deals with the preparation and updating of the map of instability features on the ground, followed by the acquisition of data among other important items (SGB/CPRM, 2019).

One year after the first earthquake, 2,480 properties in the Pinheiro neighborhood had already been affected, with the need to close hundreds of properties, as they were at risk of sinking, measures that were taken by The Civil Defense. The houses began to be gradually abandoned by their residents, making the affected neighborhoods practically deserted, as, since 2018, around 14 thousand properties have been unoccupied, with the migration of around 60 thousand people to other regions (Brazil, 2024).

3 THE DISASTER AND THE IMPORTANCE OF THE PLACE FOR THE INDIVIDUALS

Based on Cartaxo's reflection; and Shiota (2020), we understand disaster as a social

expression of vulnerability, triggered by eminently external phenomena. However, disasters are the result of social relations, that is, it is a structural social relationship. It is observed that in the case of Maceió, the occupied area presented no risk and the disaster was triggered by negligent exploitation of the subsoil. From the point of view of Moura et al. (2023), the notion of vulnerability refers to the exposure of places and people to risk:

[...] They are characterized by the focus on the distribution of dangerous conditions to human occupation in areas considered at risk (seismic zones, coastal areas, floodplains) and the degree of loss (of life, property) associated with the occurrence of a particular event (flood, hurricane, earthquake).[...] What actually is identified are areas of exposure to risk and/or danger and that, if there is occupation there, they would be vulnerable to the occurrence of a certain event of flood, or landslide, among others. The delimitation of areas in which a phenomenon is configured as a disaster for the population is represented, most of the time, through mapping (Moura et al., 2023, p. 13).

As Cartaxo states; Shiota (2020), nature and society are not separate entities in the production of space, that is, risks are increasingly present and diffuse, as a consequence of the productive forces also advancing at greater speed, ignoring the importance of an environmentally sustainable space:

The Risks generate situations of social danger that affect the different layers of society unequally: such as water and air pollution that have a different impact on people's lives, with a tendency to harm the economically disadvantaged (Cartaxo; Shiota, 2020, p. 304).

By treating the disaster as the expression of an intimidating external agent, the individual does not see themselves as a contributing part of socio-environmental damage, blaming the external agent, as, for example, in the occurrence of torrential rain or a fire caused by a severe drought. Cartaxo; and Shiota (2020) describe that there is a view of the disaster that classifies it according to common sense, and this could also come from institutions and active agents, a misconception that needs to be overcome. It is cited:

Initially, the conceptions about understanding disasters tended to focus on external and natural causes, the so-called natural hazards possessed a dualistic vision, in which society and nature were separated. The study prognosis was based on possible agents (rains, snowfalls, volcanic eruptions) and their containment. The polishing and development of studies in the field of disasters made researchers recognize the interface existing in the society-nature relationship, and human action or omission became a factor of extreme relevance for understanding these events that affect more diverse populations (Cartaxo; Shiota, 2020, p.302).

Disasters force the displacement, resulting in the loss of stories, memories, and experiences. It is, therefore, violence imposed on individuals who suffer an immense feeling of loss, as they live with the pain of seeking their own acceptance, going through and facing the challenges of rebuilding their lives in other places. This is even more serious given the lack of society's participation in response to disasters, which increases doubts and uncertainties on the

part of those affected (Soriano; Valencio, 2009). The fact is seen as injustice and this is well elucidated when observing the concept of violence when it is realized that there were and there are attempts to silence and erase the victims, but also to immunize powerful individuals, as they always have the authorization, as well as the guarantee of the State itself, victimizing or re-victimizing the affected community (Silveira; França; Dias, 2023). Regarding this, it is stated:

In the dynamics of social harm practiced in the global capitalist context, the State acts together with markets and corporations, guaranteeing certain practices and protecting their accomplices, so that state interference can also be given through direct actions, however, visible, as well as through omission (Silveira; França; Dias, 2023, p.732).

The quote demonstrates that both the actions harmed residents, as well as the protection of those accomplices in any socio-environmental disaster, there is state interference that may occur from evident actions, as well as practicing omission with the community. A good example of this is the isolation of Flexais residents, causing socioeconomic islanding, with the consent of public authorities.

Beyond the economic aspects, it is necessary to highlight the symbolic impact on residents of seeing their homes and their neighborhoods crumble before their feet. The place brings emotional bonds, where relationships and memories materialize. In some cases, the collapsed site was home to families for generations. The material aspect of the risk of their homes being swallowed by poorly constructed cavities and reproduced without due care and control due to the greed of maximizing profit from exploitation also swallows dreams and stories that are lost before everyone's eyes. This feeling led some residents to resist, despite the risk, which caused another problem for them, as they insisted on living in a neighborhood that was partially abandoned and in ruins. The disaster brought other problems for local residents, such as an increased feeling of insecurity and the precariousness of public services, such as electricity, water, or transport.

The home is the nodal point, where emotional bonds are formed, not only with the family but with the neighborhood and the neighborhood itself. It is, therefore, the construction of a place full of particular meanings and human relationships. The individual begins to have a feeling of belonging to that place, involving a feeling of affection (Ledyard, 2021). Now, social relations and space are inseparable and produce spatially anchored identities. In this way, "the formation of identity is constituted from the daily experiences of the subjects." (Gonçalves; Peluso, 2022, p. 2016). From this point of view, the place is not something forgettable, since it is filled with density by each person's memory, just as the home takes each individual to a reference in life.

It is inevitable that human beings create an identity with the place, becoming familiar with it, it is there that bonds of all kinds are normally created, including emotional ones. The Braskem case left many individuals out of their place, places in which felt like they belonged and the place belonged to them. The daily lives of the population in the affected neighborhoods began to have a different dynamic, mainly due to the relocation of their neighborhoods of origin, but also of the population that remained, as they became residents isolated in a partially destroyed neighborhood. In this way, as Calandro states; Pezzato (2023, p. 17), the place is not

just about the relationship with a space, but about human life with space and time, and the individual that is linked to their daily life, which is quite representative and important in their life story. In this way: “The place, together with the narrated time, helps in telling the trajectories of life and serves to understand new spatial dynamics”.

It is necessary to consider that the neighborhoods affected by subsidence are old and carry with them not only the history of the people but also of the city's own development. There are many reports of stories from people living in the destroyed neighborhoods, pointing out emotional issues such as marriage, the birth of children, long-distance coexistence with neighbors, loss of traditional commercial enterprises, as well as the love for the place that leads some residents to not want to abandon him.

The next sections will feature speeches from residents affected by the disaster through reports and academic works on the topic.

4 THE SUFFERING BY LEAVING THE NEIGHBORHOOD

Disasters such as the one caused by the mining company Braskem have several characteristics, such as changing landscape, migration of population and local traders, and accumulation of large amounts of waste due to demolitions, and this not only generates economic losses but psychosocial problems in the population (Lima Verde; and Rodrigues, 2024). In the Pinheiro neighborhood, the old neighborhood of Maceió, there were many families with elderly people, including Dona Elza. She is described as an elderly woman, seamstress, and head of the family. She talks with great pain about the construction of her house, which was previously made of mud, highlighting the sadness and anger of leaving her home and feeling abandoned by public authorities:

It was zippers, hems, everything I did here. I've had all this time and it hasn't arrived yet. You have to start over, but you end up running out of gas, running out of steam, running out of everything. There is no mayor, no governor, no president, no one with the people to put an end to this Braskem. And let us die, whoever wants us to die”, Dona Elza reports with anguish (Jornal Cada Minuto, 2020, p. 1).

In addition to the loss of her home, built with great sacrifice, there are also economic impacts, as she supports herself through sewing work, and when she was removed from Pinheiro, she lost her already established clients. The economic impact was felt by the different economic activities there, such as markets, bars, clinics, schools, and bakeries, which often depend on a historically built relationship with the neighborhood's residents. One of the most traditional establishments, for example, was the Belo Horizonte bakery, with more than forty years in Bairro do Pinheiro, which, like other establishments, had to be closed due to the danger of collapse caused by soil subsidence. The owner pointed out his outrage:

We did what we could and we're going as far as we can. During these 40 years, we have never been through a period as difficult as this one, a difficult and painful battle. This battle we already know the outcome of and we could do nothing, our hands are tied at all times and through no fault of our own, but everyone knows the real culprit of this great disaster. (...) In advance, we want to thank everyone who sympathizes with our struggle and our pain. We don't have the energy yet to start everything from scratch, after all, we have been in this corner since 1980, and there are many stories and bonds created", says an excerpt from the letter posted on Instagram (Leite, 2022, p. 1).

Honorato (2021), in turn, presents the testimony of another resident who spent twenty-six years living in the neighborhood, and having a familiar relationship with his neighbors:

Last year was really bad, there weren't the same people anymore. There were people from my family who lived on the same street and ended up meeting on Christmas Eve, soon after mass. It was very good", says the young man, when narrating the exodus he witnessed since the Pinheiro, Mutange, Bebedouro, and Bom Parto neighborhoods were hit by the Tragedy caused by mining by the company Braskem (Honorato, 2021, p. 1).

The former resident's speech demonstrates an immense feeling of sadness at the loss of his bond of friendship, and that at traditional festivals they always met, that was where the bonds of friendship were strengthened. The reports bring home the longing for the place, for coexistence with the other relocated residents of the Bebedouro neighborhood:

Gustavo Santos confirms the parish priest's description and reports that Christmas will be marked by longing. "We celebrate, we try to move forward. Because Christmas is very important and, thank God, we are alive. But the conversations are around our home", reports the boy, who works as a driver for ride-hailing apps. [...] "I walk down the street and remember my mother telling me how her father said that the house was what he could leave to her, for us to take care of, so as not to sell, that for those who are poor, a house is a very important thing. My mother is a sad person after leaving their house", adds the young man (Honorato, 2021, p. 1).

Other testimonies collected by Honorato (2021) demonstrate the feeling of losing their place of residence:

Still, according to Nunes, many people also had clinical problems worsened by the situation experienced concerning Braskem's crime. "The non-pecuniary damage and, above all, the existential ones are practically irreparable. And Braskem doesn't compensate these people for damage to their physical and mental health. There are reports of people who even presented medical reports, which were not accepted by Braskem, which is absurd," he said. [...] Former resident of Pinheiro, José Rinaldo Januário said that the situation triggered several health and emotional problems. "It's been three years since I left there. I left urgently as ordered by the Public Prosecutor's Office Federal [MPF]. The property belonged to my parents, built by my father, a heritage of the family conquered with a lot of work, which was completely destroyed, the famous 'pink house', very well known, which all the media visited", he stated (Honorato, 2021, p. 1).

The loss of homes, ties, and commercial establishments brought another problem to the population: emotional suffering. Serra (2020) states that it is necessary to strengthen the emotional and identity of communities affected by violent trauma resulting from environmental disasters. Reports collected by Beder (2023) reinforce this process of residents becoming ill:

“We realized that this would raise signs that this event could be affecting the mental health of this population. Much is said about material and financial losses, but little is said about the mental suffering caused by the relocation of residents,” he said. [...] Although they are still in the collection phase, data indicate that residents believe that there was a worsening of mental health after the soil subsidence in their neighborhoods. “We also identified that there was an important increase in the number of individuals who started to get psychological/psychiatric support. Another fact that caught our attention was the number of cases of people who claimed to have presented suicidal ideation, after the occurrence of this event in their neighborhoods”, he stated (Beder, 2023, p. 1).

As noted in the descriptions, the act of leaving the neighborhood generates suffering, which can be profound and multifaceted. This is influenced not just by one factor, but others ranging from emotional issues to economic and social issues. So, leaving a neighborhood is not so simple, as it also involves the loss of social ties.

5 THE FEELING OF ABANDONMENT WITH THE SOCIAL ISOLATION

There are still around thirty-three families living in the Bebedouro neighborhood. Such residents justify their choice to resist removal, considering that the values offered for relocation do not correspond to the real value of the property. Residents indicate a loss of on average 60% of the real value. The fact that they resist, as we have already mentioned, means that they start to live with various problems, especially social isolation (Jornal AL TV, 2023). The following statements report this feeling: “Mr. Jorge Pontual said that he does not accept leaving the property without receiving the fair value: ‘The Engineer who carried out our assessment arrived at a value, but he only wants to pay practically sixty percent. So, it’s not worth it for us’” (Jornal AL TV, 2023, p. 1).

In addition to the people who decided to resist, there are those whose homes are not on the resettlement maps, although a large part of the area around their homes has already been destroyed. Several residents of the Flexais neighborhood, for example, demand to leave the area, as they feel abandoned due to the precariousness of the neighborhood's public services. Thus, the emptying is frightening, since the surrounding area has become empty of population, making residents feel isolated (Beder, 2023). They therefore request resettlement, given the lack of conditions to stay in the location. A fact ratified by the General Public Defender, Carlos Eduardo Monteiro, considering that social isolation is a sufficient reason for relocation (Jornal Extra, 2022). Among the problems encountered, insecurity is mentioned:

In January 2021, the Federal Public Ministry (MPF), the State Public Ministry (MP/AL), and the Federal Public Defender's Office (DPU) received representatives from Flexal, region of Bebedouro, one of the neighborhoods affected by the subsidence of the soil, due to mining. The residents' demand was for them to be removed from their homes and compensated by Braskem and as an argument, they brought the lack of security caused by the evacuation of neighboring neighborhoods, carried out in 2020, after the agreement signed with the petrochemical company. According to them, as the affected houses were being abandoned, the situation of isolation was worsened by the loss of neighborhood and public and private facilities that garnished the region (Jornal Extra, 2022).

There are varied impacts caused by environmental disasters, Braskem also caused direct and indirect impacts, since even communities located in places that did not experience soil subsidence, had several losses, such as roads, and urban and cultural equipment. The Flexais case is seen as emblematic, because, as the borders of the disaster are broader than we see, they need to be understood in their complexity. It is clearly visible that the emptying of certain neighborhoods caused the isolation of entire communities, also causing economic and social losses in adjacent neighborhoods:

Given the situation, public bodies obtained confirmation of the reported situation based on technical studies carried out by the Social Directorate of Municipal Civil Defense (DCM); the expert anthropological report, prepared by the MPF technical staff; and the diagnosis produced by the company Diagonal, paid for by Braskem. Your documents pointed out that the region, is in fact, affected by what happened to be understood as "socioeconomic islanding" (Cadete, 2022, p. 1).

Even with this survey, relocations in this neighborhood have not yet been planned. The subject is a constant topic since the population living there is still waiting for a solution to the problem. On November 26, 2022, the "Term of Agreement for the Implementation of Socioeconomic Measures Aimed at the Requalification of the Flexal Area" was signed (Brasil, 2022, p. 1), which sought to guarantee urban integration in the Flexais region. The document foresees improvement actions for this population:

Planned actions – The agreement establishes which actions must be prioritized — within the deadline maximum of 24 months — in the execution of the integration and development project in areas of economy and work; education, sport, leisure, and environment; health and social assistance; community service and safety; and mobility.[...]Financial compensation – With the signing of the agreement, it is guaranteed residents and merchants in the region to be paid a single installment worth R\$ 25 thousand per family and business; and R\$30 thousand, in the case of mixed property, as compensation for pecuniary and non-pecuniary damages. It is worth highlighting that, According to clause five, the agreement does not bind or generate any obligations for citizens who do not agree with the proposed measures, ceasing to adhere to the agreement, remaining free to adopt the measures they deem appropriate (Brazil, MPF, 2022, p. 1).

Recognizing the demands caused by disastrous mining, even though it does not seem to affect the population more seriously, to the point of being forced to leave their homes, the population demands to leave, due to isolation. Financial compensation is welcome, but still insufficient to face economic challenges, as one of the residents below:

"I had students in the morning, afternoon, and evening. Sometimes there were so many that I forwarded to colleagues. Today I only have five in the morning and three at night", says the elementary school teacher Ana Lúcia da Silva, 52, who has lived there since she was born at Flexal and has a classroom at home for tutoring." [...] "With the greater poverty that took over the neighborhood here, I had to lower the price of the class, which was R\$80, and now it is between R\$40 and R\$50 [per month]. I took out R\$1,400 per month before the problem, until 2019, and today I get R\$500. It's my only income" (Madeiro, 2023, p. 1).

Isolation brought economic impacts, especially for those who work on their own. In 2020, as mentioned by Pimentel (2020), there were properties in Flexais with fissures, as well as the ground was also giving way. There were around fifty properties, but the Municipal Civil Defense claimed that they were poorly constructed houses. In 2022, the Civil Defense continued to confirm that the cracks in the Flexais houses were not related to the sinking of the soil, and, therefore, the families would continue to be excluded from the relocation map, as reported by Albuquerque (2022):

"The field monitoring stages continue to be essential tools, important for monitoring the area in question, where the characterization and interpretation of the damage at the site does not show evidence that could be associated. The technicians inform that "maintaining the criteria used for the preparation of the maps, the Flexal area does not currently suffer from deformations that justify its inclusion in the Map of Priority Action Lines" [...] ". Thus, it is concluded that the regions called Flexal de Cima and Flexal de Baixo, do not meet the criteria that have been adopted for addition to the map of Line of Priority Actions, however, it is clear that the population present there is affected by social and economic effects", concludes the note" (Albuquerque, 2022, p. 1).

In this context, on May 8th, 2023, the Foreign Relations and National Defense Commission (CRE) held a Public Hearing, the discussion of which revolved around the problems caused by Braskem's Mining in Maceió, pointing out that those impacted by the socio-environmental disaster would not be being adequately compensated (Brasil, Agência Senado, 2023). In November 2023, the city of Maceió declared a state of emergency, because there was a risk of the mine collapsing. Other people were involved in the problem, such as people who derive their livelihood from the lagoon, who in turn were removed from the site, due to the risk of the ground collapsing under the water mirror. Finally, on November 10th, 2023, mine 18 ruptured, and the area was invaded by the waters of the lagoon (Cralde, 2023; Terra, 2023).

Even with the recognition of environmental crime, this issue seems to be far from over. In December 2023, a Parliamentary Commission of Inquiry (CPI) was established to deal with this environmental crime. On May 21st, 2024, the CPI issued a report pointing out that several crimes were committed by Braskem through the company's omission and negligence. Furthermore, ambitious mining was highlighted, as they extracted more rock salt than was allowed so that the mines would not give way (León, 2024). They also indicated the importance of rethinking the risk map and compensation values, as well as the importance of considering residents located in isolated neighborhoods, as well (Stropasolas, 2024).

6 CONCLUSION

The displaced, as we analyzed, were deeply impacted by the loss of their homes and places of residence. Those who remained forced or not, suffered from social isolation, the loss of urban equipment and economic activities. Over the last six years, residents and former residents have been fighting for their rights, and, in 2024, a CPI was installed, which found Braskem to be responsible for the environmental crime, attesting that this is not a simple tragedy. The CPI's final report also requested that the risk map be restructured and that compensation agreements for affected families be reviewed, as well as considering the risk of socioeconomic islanding of many neighborhoods.

The Braskem case is probably one of the biggest urban socio-environmental disasters in the country's history. The Socio-environmental crime caused harm to residents, forcibly displacing them and socially isolating many other residents in neighborhoods not directly at risk of collapse, but indirectly impacted by the social consequences of the disaster. By preventing the movement of vehicles and people in neighborhoods affected by environmental crime, caused direct or indirect impacts on the population of Maceió as a whole and should be an example so that this does not happen again in other places.

It is worth noting that there was a certain limitation in the selection of subsidies for the preparation of the work, considering that it is a topic that is still being explored more frequently and the data is still little available, and therefore it is important that in future work the analysis of the governance failures and the lack of participation effective community in resettlement and compensation decisions, aspects that are central to socio-environmental justice.

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