

# Necropolitics of winds: social determination of mental health in the face of exposure to wind power enterprises in rural communities of Pernambuco

*Necropolítica dos ventos: determinação social da saúde mental diante da exposição de empreendimentos eólicos em comunidades camponesas de Pernambuco*

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## ABSTRACT

The implementation of wind farms produces transformations in and around communities, causing diverse impacts in multiple areas, revealing vulnerability processes. This research aimed to understand these processes in rural communities in Pernambuco, Brazil, due to these projects. This quantitative and qualitative action research was conducted through semi-structured interviews, with health assessments using instruments, tests, and audiometry. We adopted content analysis to analyse the data and strengthen the struggle of these communities. To understand this persistent backdrop of violence, the research employs necropolitics as per Achille Mbembe (2020) and the social determination of health, as per Jaime Breilh (2006, 2013). We observed that the arrival and operation of wind turbines coincided with the emergence and deterioration of health signs and symptoms, especially mental health. Therefore, caution is urgently needed when planning and building wind farms, as such health problems can be temporary or permanent, leading the local community to constant distress and even a lack of will to live.

**Keywords:** Wind Energy. Mental Health. Peasants. Necropolitics. Social Determination of Health.

## RESUMO

*A implantação dos empreendimentos eólicos produz transformações nas comunidades e em seu entorno, causando diferentes impactos em múltiplas áreas, desvelando processos de vulnerabilização. Objetivou-se compreender, nesta pesquisa, os processos de vulnerabilização em comunidades camponesas de Pernambuco diante da implantação de usinas eólicas. Trata-se de uma pesquisa-ação de abordagem quali-quantitativa realizada mediante entrevista semiestruturada com avaliações em saúde a partir de instrumentos, teste e audiometrias, utilizando a análise de conteúdo para interpretar os dados e fortalecer a luta dessas comunidades. Para entender a persistência desse cenário de violência, a pesquisa utiliza-se das categorias de necropolítica, conforme Achille Mbembe (2020), e determinação social da saúde, de Jaime Breilh (2006, 2013). Observou-se que a chegada e o funcionamento dos aerogeradores coincidiram com o surgimento e o agravamento de sinais e sintomas em relação à saúde, especialmente à saúde mental. Assim, é urgente a prudência no planejamento e construção de complexos eólicos, uma vez que tais agravos à saúde podem se demonstrar como temporários ou permanentes, levando a comunidade local a um sofrimento constante e, até mesmo, à falta de vontade de viver.*

**Palavras-chaves:** Energia Eólica. Saúde Mental. Camponeses. Necropolítica. Determinação Social da Saúde.

## 1 INTRODUCTION

In the contemporary Brazilian and global reality, traversed by the urgency of technological innovations that can generate energy through “clean” equipment, wind energy is captured by wind turbines. Wind energy has been gaining more and more visibility and investment. It is the second largest source of electrical energy in the Northeast, second only to hydroelectric power (Barra; Teixeira, 2022). Given this situation, Bezerra (2021, p. 1) affirms that the Northeast was the region with the largest installation of these wind turbines, housing “[...] 88.4% of the wind farms in operation in the country, totalling 16.2 GW installed, emphasising the states of Rio Grande do Norte (27.6%) and Bahia (27.2%)” and attracting the interest of public and private sectors.

However, no information on the impacts of wind farms on the health of communities in Pernambuco, where wind farms are located, is available in the Environmental Impact Study and Environmental Impact Report (EIA/Rima) of the State Environmental Agency (CPRH) and the data published by ABEEólica (Brazilian Wind Energy Association).

Conversely, the literature by Santana and Silva (2022) contrasts the advancement of this type of energy by considering the social, environmental, and economic impacts on communities living near wind farms, highlighting their harmful effects on human, animal, and environmental life; that is, on health in general. Furthermore, the study by Castelo, Marquesan, and Silva (2021) shows that the problem is exacerbated by the lack of contextualised and effective environmental public policies and the scant national activism in preserving the environment and its people, victimised by actions and omissions that prioritise capital over human dignity.

Regarding impacts, Filho and Azevedo (2013, p. 9) state that low-frequency noises emitted by turbines cause people to experience “headaches; ringing in the ears; pressure in the ears; nausea; dizziness; tachycardia; irritability; concentration and memory problems; panic episodes with a feeling of internal pulsation or trembling that arise when awake or asleep”, causing daily discomfort not experienced before the installations. Such noises can cause the symptoms described and more severe disorders such as Wind Turbine Syndrome (WTS) and Vibroacoustic Disease (VAD). Regarding Vibroacoustic Disease, Magalhães (2020) explains that:

Vibroacoustic disease is a systemic illness caused by prolonged exposure (>10 years) to high-amplitude (90 dB) and low-frequency (<500 Hz, including infrasound) noise. It is a systemic pathology with an insidious progression. It can affect several organs and tissues, such as the nervous system, the immune system, the cardiovascular system, and the respiratory system (2010, p.11).

Besides being characterised by tissue or organ damage, VAD can cause some bodily changes, such as neurological and endocrine disorders, changes in blood pressure, and changes in respiratory function. These effects result from prolonged exposure to low-frequency noise, which interferes with the normal functioning of the body’s systems. Therefore, continued exposure to noise emitted by wind turbines can pose a significant health risk, especially for people living near these structures.

Wind Turbine Syndrome (WTS) was a term coined by researcher Nina Pierpont (2009), who analysed symptoms in individuals in contact with wind farms. Symptoms include sleep disorders; increased frequency or severity of headaches; dizziness, instability, and nausea; exhaustion and mood swings; problems with concentration and learning; and ringing in the ears. However, not all individuals who live near wind farms have the same susceptibility to WTS, as individuals with a history of migraines or hearing problems prior to contact with wind farms and older adults are examples of more susceptible groups (Pardal, 2013).

Convergently, Farias *et al.* (2021), when studying a community in the Agreste region of Pernambuco, prove that the damage exceeds the physical sphere, leading to psychological illness, developing common mental disorders (CMD) and, consequently, impacting the increased use of psychiatric medications as if only a short-term solution.

This topic addresses the scarce published material on the impacts of wind turbines on the lives of those exposed to them. However, a quick search we conducted on SciELO revealed that nine of the 11 articles found addressed the controversial nature of sustainable development from a political ecology perspective and the damage caused to communities in the states of Pernambuco (Maciel *et al.*, 2024; Santana; Silva, 2021), Rio Grande do Norte (Pereira; Vital; Fonseca, 2024), and Ceará (Costa *et al.*, 2019).

Despite efforts to bring visibility to the Brazilian setting, this issue remains largely unnoticed. The literature reviewed confronts this “clean” energy matrix, which, based on capitalism, produces green extractivism, highlighting impacts on human life and socioeconomic, environmental, and technological aspects. This calls for a debate and paving the way for participatory management of energy resources to manage better wind farm implementation policies (Furtado; Paim, 2024; Gorayeb; Brannstrom, 2016).

Wind energy has been the fastest-growing alternative source in the country in recent years. However, large-scale projects sometimes trigger irreversible traumas that characterise vulnerability processes, as already highlighted (Porto, 2011), producing material and symbolic losses, and psychological distress that can lead to rights violations, producing environmental and social injustices.

Bullard (1990) characterises “sacrifice zones” as areas of large-scale construction that cause environmental damage. The “environmental racism” concept is employed when these projects operate in more impoverished and Black communities, highlighting the adverse and disproportionate impacts faced by Indigenous, Quilombola, riverside, and peripheral Brazilian communities, as if in a necropolitics (Mbembe, 2018). The damage caused by large-scale projects, such as wind farms, restricts the use of natural resources and alters ways of life, causing illness.

Furthermore, Acserald (2013) points out an asymmetry of power between companies and subjects in the territories, unassisted by the Brazilian State, producing distributive environmental conflicts, resulting from the dispute over natural resources (Porto; Martínez-Alier, 2007).

The ideology of development at any cost, in a context of competition to attract international investment, usually associated with the acceptance of flexible legislation and rights, the reproduction of environmental inequality and the penalisation of the most disadvantaged social groups is justified, also creating constraints on the exercise of critical activity in the scientific field itself (Acserald, 2013, p. 121).

Shepherd *et al.* (2011) compared the quality of life in areas close to the noise (up to 2 km) and areas far from the towers, with significant statistical differences. They found that the shadow effect of the propellers on houses and the ground “*can be highly harmful to the health of populations, and may trigger photosensitive seizures caused by flickering sunlight*” (Harding *et al.*, 2008 *apud* Almeida, 2018, p. 218-219).

Thus, this article consists of presenting relevant data from a study by Fiocruz (Oswaldo Cruz Foundation) in partnership with UPE (University of Pernambuco), Garanhuns campus, which aimed to analyse and understand how vulnerability processes and socio-environmental conflicts resulting from the implementation and operation of wind projects occur in peasant communities in Pernambuco based on two analytical categories: Necropolitics and Social Determination of Health. Furthermore, it seeks to understand the relationship between these processes and their impacts on health and analyse mental health issues resulting from exposure to wind turbines and some solutions developed with the community.

## 2 METHODS

In 2014, power generation projects were installed in the rural communities of Sítio Sobradinho in Caetés, Pernambuco, Brazil, as shown in Fig. 1, which shows the distance from a house to a wind turbine. The distances measured by the team ranged from 100 to 900 meters from a tower to a house in this area. It is known that the traditional way of life is based on commons, a characteristic of community life, centred on autonomy.



**Figure 1** – Distance from a house to a wind turbine, at the São Clemente Wind Complex, in Caetés (PE).

*Source: Cáritas (2023).*

Thus, this study is nested in a larger research project entitled “Vulnerability processes and socio-environmental conflicts resulting from the implementation and operation of wind farms in peasant communities in the Southern Agreste of Pernambuco”, approved by the Research Ethics Committee (CEP) of the Aggeu Magalhães Institute, Fiocruz/PE, under Opinion N°6.569.829/CAAE 73626423.8.0000.5190 and financed by the INOVA Fiocruz 2022 call.

This umbrella action quantitative and qualitative research project employs literature review and data collection and analysis using specific instruments such as the World Health Organisation (WHO) SRQ-20. The study aimed to analyse the socioenvironmental impacts, general health problems, and vulnerability processes resulting from the operation of wind turbines in rural communities in the southern Agreste region of Pernambuco.

The research involved more than 30 people, including professors, researchers, undergraduate, master’s, and doctoral students, and health residents. As an action research project, this group conducted research and organised health outreach programs and responded to needs that arose during visits to the territories, such as psychological appointments, medical and oral health care, cupping therapy, and audiometric testing, bringing significant health impacts to this underserved population.

Thus, this study focuses on mental health, which was investigated in rural communities living alongside wind farms, specifically in Caetés (Sítio Sobradinho). Interviews, assessments, and the SRQ-20 (WHO) test were adopted to screen for Mild Mental Disorders (MMD). The instrument has a cut-off point of 7 for psychological distress. Notably, this test is not intended for diagnosis and contains objective questions with “yes” or “no” answers.

All research was conducted by convenience sampling, with participants signing an Informed Consent Form. Those unable to write did so by taking a fingerprint. During the research process, participants received support, listening, and guidance to ease tension from the lead researcher, who is also a psychologist, as well as from the Scientific Initiation (SI) students, who are psychology majors. These

students were also trained to provide psychological support during data collection, showing the ethical nature of the research in working alongside participants to promote health.

Thus, the research documents were analysed using the content analysis technique. A preliminary analysis of the documents was conducted through a cursory reading, allowing impressions on the topic to emerge (Bardin, 2000). The analysis was structured by categories, a content analysis technique that “works by breaking down the text into units, into categories based on analogical regroupings” (Bardin, 2000, p. 153). After data categorisation, sorting, and classification, we analysed the data by establishing connections between the data obtained and the theoretical framework adopted by the study to meet the objectives. In the quantitative phase, the data were tabulated using Microsoft Excel, considering absolute data and their frequencies, as well as descriptive analysis of the data.

In the mental health research field, 50 people were interviewed, 80% women and 20% men, aged 18 to 89, mostly Black and family farmers. Thirty-four of these 50 individuals met the cut-off point for psychological distress, representing 68% of the sample. We underscore that the people living in the region have been in the area for more than 10 years, that is, before the wind farms were installed, and that many are experiencing burnout, often refusing to respond to survey questionnaires due to pressure from companies in these areas.

### 3 RESULTS

Mental health data reveal that 68% of respondents meet the SRQ-20 criteria, which identifies Mild Mental Disorders (MMD), and use medication to help them sleep. Eighteen people reported their main medications: fluoxetine, escitalopram, and amitriptyline.

In the qualitative part of the instrument, residents report the impacts on their “nerves”, leading to impatience, stress, and crying. Among the questions on the mental health assessment (SRQ-20), as shown in Table 1, the most frequently answered positively were headaches; dizziness; poor sleep; being easily startled; feeling nervous, tense, or concerned; indigestion; difficulty thinking clearly; feeling sad lately; difficulty performing daily activities with satisfaction; difficulty making decisions; loss of interest in things; feeling tired all the time or easily; and unpleasant stomach sensations.

**Table 1 – Number of SRQ-20 responses from the cut-off point 7**

Questions	Yes	Percentage
Do you have frequent headaches?	30	60%
Do you have a lack of appetite?	24	48%
Do you sleep poorly?	33	66%
Do you get scared easily?	30	60%
Do your hands shake?	22	44%
Do you feel nervous, tense, or worried?	35	70%
Do you have poor digestion?	31	62%
Do you have trouble thinking clearly?	28	56%
Have you been feeling sad lately?	28	56%
Have you been crying more than usual?	16	32%
Do you find it challenging to carry out your daily activities with satisfaction?	26	52%
Do you have trouble making decisions?	29	58%

Questions	Yes	Percentage
Do you have difficulties at work? (Is your work arduous, causing you distress?)	22	44%
Are you unable to play a helpful role in your life?	16	32%
Have you lost interest in things?	25	50%
Do you feel like a useless, worthless person?	14	28%
Have you had thoughts of ending your life?	2	4%
Do you feel tired all the time?	30	60%
Do you get tired easily?	28	56%
Do you have unpleasant sensations in your stomach?	32	64%

Source: Research data.

## 4 DISCUSSION

We should stress that most of those who reached the cut-off point were women. In this sense, when analysing gender, Leite *et al.* (2017) state that peasant women report more significant psychological distress than peasant men, which has repercussions on their work and social lives. However, studies by Miranda, Durães and Vasconcellos (2020) and by Mussi and Teixeira (2018) converge in identifying that peasant men show greater resistance in elaborating and reporting their illness processes and fewer self-care practices, traversed by the construction of a masculinity that validates men for being providers, their productivity and the secondary nature of their feelings, compromising the verbalisation of their distress (Costa *et al.*, 2019). Notably, the SRQ-20 test does not have a field for identifying name and gender, and, therefore, we were unable to measure how many men and how many women there were accurately. However, we noticed a much greater number of female respondents than their male counterparts.

During these guided visits, we could engage in dialogue with residents and observe specific gender dynamics in the community. Although we noted that, at that time, the community had more women than men in households, we managed to speak with three male residents, two adults and one senior. In this dialogue, the open-ended questions were mainly answered objectively, with “yes” and “no”, evidencing a reluctance to discuss their psychological aspects. However, significant elements emerged in the few occasions they spoke for a while: the centrality of work and God as pillars sustaining faith and hope for change in the face of this sickening situation.

A troubling finding was triggered by the question, “Have you ever had thoughts of taking your own life?” Among those who confirmed, one responded that this occurred after the arrival of the wind turbines and reported: “I feel ‘out of control’ at times, the symptoms really disrupt my life. I feel panicked about sleeping.” Another person responded that the idea of taking their own life did not arise with the onset of the wind turbines, having previously been diagnosed with depression, but reported that suicidal ideation worsened with their onset: “Sometimes I’m afraid of myself.” Both take psychotropic medications such as amitriptyline and Depakene, respectively, but are unassisted while receiving ongoing monitoring. We should highlight that the continuous-use medications used by families were prescribed in the last eight years. In this sense, Moysés and Collares (2007, p. 165-166) bring some important reflections:

Medicalisation – which, we should emphasise, is not only practised by Medicine, but by all Health Sciences and other fields that, even unknowingly, employ the clinical method – fulfils a fundamental task in maintaining everything that is already established in the human world. By biologising a problem, transforming it into something “natural and inevitable”, all the entities involved are exempted. Society,

with its inequalities, governments, and their choices, is all obscured by the fact – perhaps it would be better to call it bad luck – that some defects occur as if randomly, without social determination—a perfect idea for keeping everything as it is.

Furthermore, we also found that the shortest distance found from a home to one of the 83 wind turbines was 100 meters, and the maximum distance found was 900 meters. Specific literature on the area suggests that damage to the surrounding area can be observed up to 2 km away (Shepherd *et al.*, 2011). Thus, we can see that the implementation of these projects does not comply with regulatory guidelines that prevent damage in their vicinity.

One of the questions asked of the participants was whether they wanted to leave the territory, and among those who answered “yes”, the main reason for wanting to leave the territory was related to the wind turbines, as living with them is hindering the traditional ways of life of these people, who are dealing with several hardships in life.

The event of rural exodus heralds one of the cruellest facets of environmental injustice produced by the forceful expansion, with public incentives, of wind power generation in our country and, in this case, specifically in the Northeast. Captured by market logic, via Clean Development Mechanisms (CDM), environmental discourse is used as a justification to lower living conditions and promote the expropriation of rural populations, besides the seizure of land for the implementation of these projects.

Given the results, it is clear that a population has experienced psychosocial trauma since the arrival of wind turbines. In this regard, Martín-Baró (1990), when studying psychosocial trauma and its resulting harm, highlights the impacts on social groups that find themselves in vulnerable and even at-risk situations. Psychosocial trauma, coined by renowned psychologist Ignacio Martín-Baró, provides insights into how trauma is experienced and addressed by individuals or larger groups who have experienced traumatic events, such as exposure to wind turbines.

Psychosocial trauma is a form of trauma that transcends the individual and affects the social and cultural dimensions. It involves experiencing events that put the life, physical integrity, and social security of a group or community at risk, as in the case of exposure to wind farms. As a dialectical dimension, trauma does not define a sick subject; instead, it defines the specificity of a relationship between society and its individuals, beyond parameters of normality and abnormality. In this sense, illness can represent an expected response, a normal reaction to an abnormal situation, such as the presence of wind farms in rural areas where this type of enterprise was not anticipated.

Martín-Baró (1990) believes psychosocial trauma reflects the dehumanising characteristics that the order of exploitation and accumulation shows in one of its most degrading forms: war. In other words, permanent violence and social inequality, structurally associated with the functioning of capitalism, herald a permanent situation of Psychosocial Trauma, especially for the less affluent and most vulnerable populations and for those directly involved in social conflicts.

Thus, the social determination of mental health is expressed even in the issue of suicidal ideation, as suicide is a complex, multifaceted event with multiple determinations, which can affect individuals of different races or ethnicities, social classes, ages, and genders. It is recognised as a severe public health problem, one of the leading causes of death worldwide, due to the significant increase in cases among the global population (World Health Organisation, 2014). Each year, approximately 800,000 deaths by suicide occur worldwide, meaning that someone dies by suicide in the general population every 40 seconds. More than 20 people are estimated to attempt suicide for every person who commits it (World Health Organisation, 2014).

In the case of the participants, the different dimensions need to be considered, since they are people with a traditional and well-defined way of life, who were surprised by companies that invaded their

lands to settle and enjoy what the territory had to offer, without measuring the consequences of this movement for the population, subjecting the peasants to situations that caused physical and mental discomfort, affecting their quality of life.

Here, the priority is to understand social determination rather than “social determinants of health”, because these, unlike the former, follow the biomedical model design. Therefore, in “social determination”, social, historical, cultural, and economic issues are guided by the understanding of the fundamental elements for explaining health and disease processes.

Hence, we seek, as an analytical foundation, the social determination of health to understand the health inequities in these communities. We aim to overcome the biomedical model’s reductionist view and, thus, understand the process of mental illness, more specifically, of developing systemic pathologies due to exposure to wind farms. In this sense, we take as a reference Breilh’s (2006) theory of social determination and his debate on the subsumption of the biological sphere.

As a result, the relationship between health and illness is understood as a process that arises from the interaction of human beings with the environment, concluding that its unravelling requires delving into a complex of mediations and particularities in order to construct a concrete analysis. Thus, the social determination of health shows how the expression of events and their constitution influence the genesis and forms of manifestation of diseases, signs, and symptoms in health. As Breilh (2006) states, critically considering the field of (critical) epidemiology is the possibility of producing technical and scientific data as a “tool to work on the relationship between social reproduction, ways of living and ways of getting sick and dying.” (Breilh, 2013, p. 14).

[...] the concept of social determination of health, like every idea of rupture, is not an isolated product of personal speculations, but rather the expression of critical thinking that had taken hold of the Latin American Social Medicine movement (now better known as Collective Health); whose origins converged on the concerns of mobilised groups, the development of new analytical instruments and the presence of an express project of transformation of the obsolete paradigm of the old empirical-functional Public Health of the 1970s.

Correlating the illness process of these populations impacted by wind turbines with the social determination of health, therefore, points to processes that are not merely isolated and individual and break with the founding basis of analysing the pathological process only individually, reducing it either to the biological aspect of those people or to aspects intrinsic to the life history of those particular subjects. In the case of mental illnesses caused by exposure to wind turbines, both the psyche and its functioning, as well as the biological, are considered to be established in isolation from the social and historical environment in which the subject is inserted. Santana and Silva (2021, p. 248) affirm the following:

Thus, it does not seem logical that nature should adapt to the interests of companies, but rather the opposite: economic projects should be conditioned by their times and movements. This is a rather complicated equation to solve in our current stage of civilisation, when we have witnessed nature constantly needing to subordinate itself to business and enterprise, due to corporate lobbying of governments to change environmental legislation, or the lack of oversight that leads to ways to circumvent the law.

As it is action research, the *Escola dos Ventos* (Wind School) was created in partnership with the Pastoral Land Commission (CPT Nordeste II) as a community that aims to be a space based on Freirean popular knowledge, where communities began to collectively reflect on their problems and outline strategies to defend their territories and claim their rights.

The initiative is a proposal from the Oswaldo Cruz Foundation (Fiocruz), the University of Pernambuco (UPE), and the CPT. The School also holds several meetings throughout the year to broaden the debate and mobilisation against the impacts and harm caused by the centralised and concentrated model of renewable energy generation, seeking community solutions for a fair energy transition that truly respects the environment and rural populations.

An example of this is when, during the meetings, participants discuss the social and peasant formation in the Pernambuco rural region, the energy transition, the installation of wind farms in the region, and the impacts and damage caused to peasant territories, the health of the population, and the environment. This moment is also marked by mystique, peasant culture, and the exchange of experiences and testimonies about their lived reality. Sharing the hardships, pain, and rights violations experienced by communities fosters collective resistance to energy projects that threaten their territories, way of life, and relationship with nature (CPT, 2025).

As an example of the impact of this collaboration with research, the peasant movement managed to stop wind turbines for three days starting on February 18, 2025. This was the first time that a mobilisation ensured the shutdown of a wind project in the country. Together with the Kapinawá Indigenous community, members of the movement occupied the headquarters of the Pernambuco Economic Development Agency (Adepe) in Recife, after several unsuccessful public hearings at the Pernambuco State Legislative Assembly (Alepe). However, the occupation did yield some agreements to mitigate damages related to wind farm projects, but they did not last long. A few days later, things seemed to have returned to normal, that is, the interests of large corporations were once again placed above all else, and Judge Antenor Cardoso Soares Júnior, of the Pernambuco Court of Justice (TJPE), granted an injunction that allowed the wind turbines to be restarted (Brasil de Fato, 2025).

Understanding the health of rural people made vulnerable by wind farms means understanding health in its complexity, and the intimate relationship between health and the territory where they live, work, and reproduce their ways of life (Gomes; Gurgel; Fernandes, 2021). By moving beyond the understanding of rural space as a concrete territory with palpable transformations, the space of representation and the subjective elements that comprise rural life also imply subjectivation (Pizzinato *et al.*, 2016). Given the imposing presence of wind turbines, symbolic relations can be equally affected, interfering with how individuals relate to the territory, which is understood as a space of production and a space of belonging, affection, and subjective constitution. These ruptures, in turn, can reverberate in the community's mental health.

Suffering in large-scale projects is rendered invisible in favour of a discourse that proclaims it a "necessary evil" for economic development (Marques *et al.*, 2018), grounded in necropolitics, as previously highlighted (Mbembe, 2018). The uniqueness of how affected humans experience loss, change, and the meaning of territory, such as mental health, must be understood more broadly, linked to the guarantee of rights and dignified living and working conditions. The loss of these elements is linked to existential displacement, hopelessness, distress, mental illness, and death (Marques *et al.*, 2018).

This dehumanising process is intrinsically linked to the concept of necropolitics, which explores how the power to decide on life and death is exercised selectively and racially. In the Brazilian context, necropolitics operates to privilege the lives of some over the deaths of others and, in this specific context, relegates communities impacted by wind farms to a position of extreme precariousness and marginalisation. The violence these communities face is thus legitimised by a social structure that considers them less worthy of protection and care, perpetuating a cycle of violence and psychosocial trauma that is constantly renewed in the name of sustainability in this capitalist system.

Despite this, the issue has begun to gain visibility in mainstream media. During fieldwork in 2025, the team from the program *Fantástico* (Estrela Globo) contacted the research team to record a report on

this issue. The interview also aired on *Jornal Hoje*<sup>1</sup> and *Bom Dia PE*<sup>2</sup>, regional newspapers with high media visibility in the state of Pernambuco. The documentary “Vento Agreste” (Agreste region wind) was also produced, which portrays the difficulties in this region (available on YouTube).

This necropolitics (Mbembe, 2018) experienced by the community is evident in the fact that the peasants did not receive any economic benefits, and in the fact that the companies did not negotiate the implementation of the towers, forcing the signing of the contract without giving it the chance to be read. This resembles a coercive and exploitative practice, as most residents of Sítio Sobradinho have only incomplete elementary education and are Black people with health issues such as Wind Turbine Syndrome (WTS) and Vibroacoustic Disease (VAD), which brings back the discussion of environmental racism.

Companies commonly access land through (confidential) lease agreements. It is well known that wind energy companies, when leasing rural properties, include in the contract the possibility of installing photovoltaic panels in the future. This is precisely why land fencing involves road changes, altering mobility within the area.

Thus, the impacts began during the construction of these wind farms, such as through changes to the landscape, the filling of lagoons, the destruction of dunes, and other changes that modified the social and cultural way of life in the communities. One of the respondents reported that the community used to live with birds that crossed the region, but they are practically non-existent today.

In this sense, because there is no procedural justice in Sobradinho as in the study by Araújo and Gorayeb (2023) in Piauí communities, the participation of residents in wind energy planning was not shared, so that justice in these processes is considered fair, with inaccessible meetings and, often, mandatory visits being held. Resident participation is essential, as they will live alongside the wind turbines. An exclusionary process violates the principles of social and procedural justice, stripping the community of its autonomy in decision-making processes.

The problem of the Sobradinho site shows that by not intervening in these dimensions, the State of Pernambuco is applying this form of necropolitical violence, dividing between those who can and have the conditions to live and those who will be left out to die (Foucault, 1999). Necropolitics is applied because the current government’s neoliberal project tends to authorise the harmful operations of these companies while reducing social policies, increasing poverty, and, consequently, death. Moreover, isn’t this a matter for health and human rights? For the sake of sustainable economic development of international interest, peasants, family farmers, Black people, and the less affluent are falling ill and dying because of a society that, based on Capitalism, defines what it means to be, suffer, and die for the “sustainable common good.”

## 5 FINAL CONSIDERATIONS

The results of this study point to illness and vulnerability processes resulting from exposure to wind turbines, generating consequences for human health, the environment, the houses’ structure, the means of production, and the lives of peasants in the rural region of Pernambuco, and, mainly, mental health problems.

Given the above, we must continue to reaffirm human rights, as they have always been the starting point for actions and responses within the framework of climate justice, given that it is a component of citizenship, for the life and health of people through the collective actions being undertaken. Furthermore, it is necessary to ground it in a politics of life against necropolitics that, consistent with neoliberalism, minimises the public dimension of responsibility for individual health.

At the last United Nations Climate Change Conference (COP-27), representatives of Indigenous peoples from several nations emphasised the need to not only listen to, but also share and implement the knowledge of those on the frontlines. These people, who directly experience the impacts of the climate crisis and have been dealing with them for years, if not decades, could share their expanded understanding of how to mitigate these effects from their source if they were heard.

In this sense, when we point to the Social Determination of Health as a break with the biomedical model in its essence, we understand that this implies, precisely, breaking with the idea that the event of illness is predetermined, given by the biological conditions inherited from the subject and that the external environment only triggers processes for which there was already a predisposition inscribed in the biological substrate. However, what we see is the opposite! Unfortunately, this is the idea that underpins the biomedical model, even in interpretations that attempt to include social, environmental, cultural, and epidemic factors in understanding the disease.

The critical perspective adopted in this analysis helped reveal how capital structures contribute to marginalised and dehumanised communities impacted by wind farms, explaining how violence is legitimised and naturalised within this territory in the Brazilian context. On the other hand, the qualitative approach was essential to understanding the complex social and cultural dynamics that are not evident through statistical numbers alone. It allowed us to explore the underlying reasons behind the social and political forces that perpetuate these disparities.

The combination of these approaches provided an analysis of the complexity of this invisible problem in the Brazilian landscape: while the quantitative data highlights the extent of the problem, albeit in a limited way, the qualitative analysis explores the deep causes and implications. Together, they offered an integrated vision, which is fundamental for formulating public policies and promoting a deeper understanding of the agencies that sustain violence against family farmers and peasant communities in Brazil. The knowledge of these communities is fundamental and can generate significant transformations. It should be shared comprehensively to highlight the problems faced in the studied territories and strengthen the search for reparations, and to prevent the repetition of the errors that led to the vulnerability of peasants.

This issue is important for renewable energy to be regulated and for public policies to be formulated to mitigate the social, economic, and environmental problems caused by these types of renewable energy projects.

## NOTES

1 | Jornal Hoje. *Moradores protestam contra parques de energia eólica no semiárido pernambucano*. Disponível em: <https://globoplay.globo.com/v/13496497/>

2 | Bom Dia PE. *Turbinas eólicas: energia renovável x prejuízo à saúde*. Disponível em: <https://globoplay.globo.com/v/13498379/>

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