

Desinent Socio-Environmental Conflict of Mineral Coal Extraction Liabilities in the Southern Carbonifera Region of Santa Catarina State

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Abstract

The objective of this work was to analyze the socio-environmental conflict that develops in the community of Rio Carvão, in the municipality of Urussanga, in the south of the State of Santa Catarina. The conflict

involves residents of the community and the company UM Urussanga Minérios Ltda. In the locality there are environmental liabilities arising from the activity of mining coal carried out in the past, currently the atmospheric pollution caused by the emission of gases from the processing of coal is directly impacting the lives of residents. The methodology used was based on historicity, temporality, characterization and context, seeking to establish a dialogue with the environmental and social sciences. It was identified that the social actors of the conflict are the Rio Carvão Community Association versus the UM company, with the involvement of the Public Ministry and the municipal government, represented by the city council of Urussanga. The conflict has historical origins in the use and appropriation of natural resources, enhanced by the increase in the emission of gases by the company that found itself in the community due to the harmful way it has been developing its activities

Keywords: Historicity; Temporality; Socio-environmental context; Community.

1. Introduction

The use and appropriation of the resources offered by nature is a condition for the development of humanity. At the same time, such actions impact the environment, causing degradation and affecting all natural elements.

From this perspective, one of the activities that most benefited the human being was the exploration of mineral resources, mainly after the Industrial Revolution in the 18th century, with a mode of production based on productivity, resulting in a more aggressive model for the environment. For HobsBawm (2001) the period of 1789-1848, called the great revolution, was the triumph of the capitalist industry model, a change that had its genesis in Great Britain and France spreading to other countries in the world.

Among the resources that transformed the aforementioned paradigm was mineral coal, which in the southern region of the state of Santa Catarina, throughout the 20th century, played an important role in the history of municipalities throughout its production chain, serving as a fundamental pillar of economic and social development. Social.

However, this activity left marks on landscapes easily perceived through environmental degradation, compromising the quality of air, soil and water in the territories of the Araranguá, Tubarão and Urussanga river basins. These environmental liabilities led the entire region to be considered the 14th National Critical Area for the purpose of Pollution Control and Environmental Quality, according to a Federal Decree 85,206 / 1980 (BRASIL, 1980).

Among the municipalities that make up the Santa Catarina Carboniferous Basin, Urussanga stood out at the beginning of the industrial exploration of coal, in which the Companhia Carbonífera de Urussanga (CCU) was one of the first companies to carry out the activity on an industrial scale (ESCARAVACO, 1984).

In the interim of the use of mineral resources that generated economic benefits to society, referring to the historical importance versus the degradation of the natural resources and environmental liabilities present here, especially in the municipalities that had directly the activities of coal extraction, a series of conflicts between the community unfolded and mining companies.

The conflict highlighted is ongoing in the community of Rio Carvão, in the municipality of Urussanga. In recent years, a collection has been taking place to recover environmental liabilities arising from coal mining. For some time, in addition to living with the legacy of the degradation of the river, soil and air, another impact is generating direct disturbances to the community. Residents are affected, and are denouncing a coke company, for the increased emission of gases into the atmosphere from coal processing. The emitted gases reach the houses, the plantations and damage the lives of the residents of this community. This panorama has been provoking a strong mobilization against this activity and the company.

In view of this scenario that differs from other socio-environmental conflicts in the region as it has air pollution as a central element, the work seeks to carry out an analysis of the conflict that occurs between residents of Rio Carvão, represented by the Rio Carvão Community Association (ACRIC) before the company UM Urussanga Minérios Ltda., Which is headquartered in the same location and is responsible for the activity that generates the mentioned impact.

2. Methodology

For the analysis of the problem, the understanding of socio-environmental conflict found in Little (2001, p. 57) was considered, which asserts “socio-environmental conflict as disputes between social groups derived from the different types of relationship they maintain with their natural environment”. Methodological support was sought in Little (2001 and 2004) and Gonçalves, Aliste and Follmann (2019), the latter based on the analysis technique that contemplates the dimensions of historicity, temporality and context. In order to think about conflict management, we tried to consider the notes made based on the aforementioned authors, seeking to establish a dialogue with the environmental and social sciences. Figure 1 is a summary of the path followed.

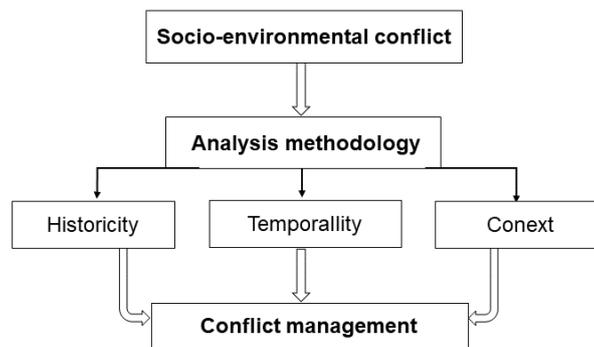


Figure 1. Synthesis of the methodological path

Source: Authors

The sources of consultation for the construction of the article started with the bibliography that addresses the topic of socio-environmental conflict. In order to get information about the conflict specifically in question, database searches were carried out, however, apart from the mention of Virtuoso's work (2019), no academic papers were found. The information was collected and investigated mainly in the media in the form of reports, interviews, on the website and in the profile of the social network of the company UM Urussanga Minérios, in sentences or manifestations of the Federal Public Ministry (MPF), minutes of the city council of Urussanga available on its homepage in profile of ACRIC's social network.

Regarding location, the study area is in the community of Rio Carvão, in the municipality of Urussanga, south of Santa Catarina (figure 2). According to an estimate by the Brazilian Institute of Geography and Statistics, in 2020 the population of the municipality is 21,344 inhabitants, with an urban population of 56.40% and a rural population of 43.60%, its demographic density is 79.35 inhabitants / km² and territorial area of 254,954 km² (IBGE, 2010).

Rio Carvão is located in the rural area of the municipality, the community is divided into Rio Carvão, Rio Carvão Baixo and Rio Carvão Alto (SORATO, 2019). According to data from the Municipal Health Department of Urussanga, the number of inhabitants in these 3 communities is 498 people (URUSSANGA, 2020).

All communities are located in the Carvão river basin, which has an area of 30.07 km² (BACK et al., 2015). From the meeting of the Carvão river with the Maior river, the Urussanga river is formed, which will also compose the hydrographic basin of the same name (ADAMI; CUNHA, 2014). According to the authors, the Carvão river basin is located in the high valley of the Urussanga river basin. As far as vegetation is inserted in the Atlantic Forest biome classified as Dense Ombrophylous Forest with predominance of the Submontane Forest (IBGE, 2012).

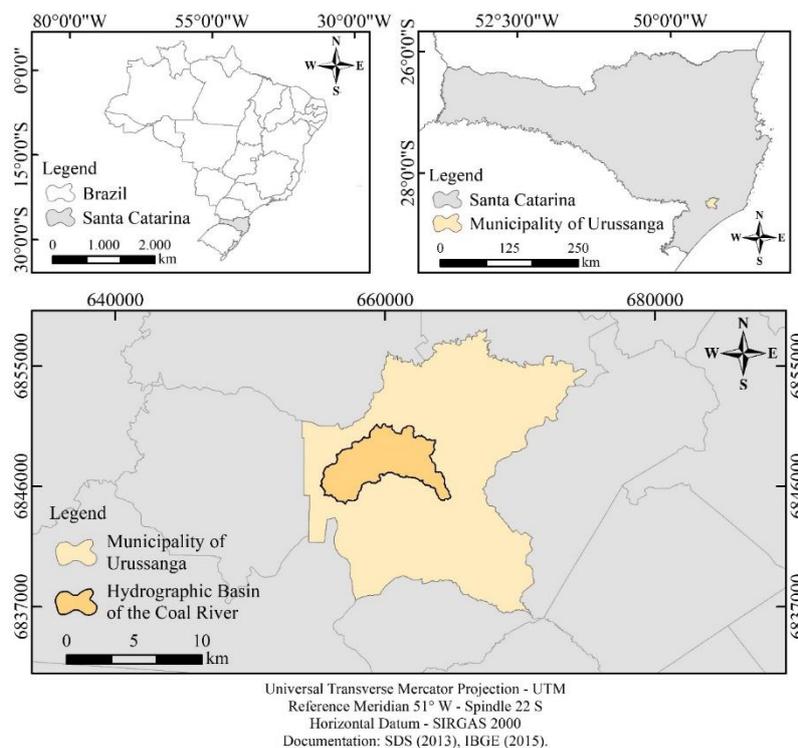


Figure 2. Location map of the Carvão river basin

Source: Authors

3. Historicity

Gonçalves, Aliste and Follmann (2019) state that historicity is of fundamental importance for bringing landmark information on conflicts and the development process, based on the capitalist production method in force since the Industrial Revolution.

Next, we will raise a brief contextualization of some points in the history of coal mining in the Santa

Catarina Carboniferous Basin. However, we sought to emphasize the records that corroborate with information about the area and object of study.

Despite the knowledge of the existence of coal before the World War I period, it is from that moment that the product comes to be exploited industrially, beginning to have significant economic and social importance for the entire south of Santa Catarina (GOULARTI FILHO, 2001; BELOLLI; QUADROS; GUIDI, 2002).

In the municipalities of Criciúma and Urussanga, from 1917 to 1922, some coal companies were founded, among which was Indústria Carbonífera Rio Deserto Ltda. (GOULARTI FILHO, 2001). Years later with a business redistribution, one of the partners retired and founded in 2013, the company UM Urussanga Minérios Ltda., Despite receiving this name, from the records found, the enterprise has been operating in the same place since 1947 (URUSSANGA MINÉRIOS, 2019) . We will see later that this company is one of the social actors in the socio-environmental conflict studied in this article.

The municipality of Urussanga appears prominently in the historical development of the coal activity. Escaravaco (1984) mentions that Companhia Carbonífera de Urussanga S.A was one of the first to operate on an industrial scale in Santa Catarina. In 1917, the company acquired lots and applied for the concession to explore the subsoil of several rural areas, among them were areas in the Rio Carvão community (ESCARAVACO, 1984).

It is essential to mention that in relation to human activities, throughout the region over time, the uses of natural resources have changed, also changing landscapes following the transformations of the economy. First, activities linked to land lose importance and give way to commercial activities, then coal exploration spreads, making the activity the main product of the regional economy (ADAMI; CUNHA, 2014). For Carola (2004), the colonial nuclei were found on one side, with agricultural activities and the traditional rural landscape, on the other side in the same physical space, the coal economy developed. Gradually, the coal industry expanded and occupied new areas in the territory, causing, above all, small rural owners to sell their land (CAROLA, 2004).

In the 1940s, with the advent of the Second World War, the ban on coal imports, a series of government incentives and the creation of the Companhia Siderúrgica Nacional (CSN), in 1942, in the State of Rio de Janeiro, were decisive for the increase the number of coal companies in Santa Catarina (BELOLLI; QUADROS; GUIDI, 2002). According to the authors, the implementation of CSN resulted in the installation of the coal processing plant in Capivari de Baixo, then in the municipality of Tubarão, in the southern region of Santa Catarina. The processing was done to obtain steel and energy coal, later turned into a thermoelectric plant, which still works. These factors have a direct impact on the region's coal economy and will also reach the Rio Carvão community. In mid 1940 the company Mineração Geral do Brasil (MINERASIL) installed its first coke industry in this community, with six ovens, and doubling that number at the end of that decade (BELOLLI; QUADROS; GUIDI, 2002).

Still in the study area, Costa (2012) explains that between the years 1952-1954, the company acquires equipment to transport coal. The cableway was used to transport the Santana - Rio Carvão - Estação community. Deactivated in 1977, the aerial cable became one of the symbols of the municipality, but almost nothing remained of this historical landmark (COSTA, 2012).

Since the beginning, coal activity has gone through some economic phases, according to Goularti Filho

(2001, p.171) “until 1973, the sector followed a path of slow and continuous growth. With the oil crisis, the last, and biggest coal boom in Santa Catarina came on the scene”. According to Goularti Filho (2001), Ladwig and Dagostim (2017) the peak of production and economy came in the mid-1980s, but it was also in this period when environmental degradation was reaching its limit, so much so that the Federal Decree is issued No. 85,206 of 1980, considering the Carboniferous Region as the 14th most critical national area, for the purpose of pollution control and conservation of environmental quality. (BRASIL, 1980).

A phase of decay then begins, while environmental awareness and the organization of environmental movements grew (LADWIG; DAGOSTIM, 2017). The authors reported that coal was mined in underground mines or in open skies, affecting the soil, air and water in the Araranguá, Urussanga and Tubarão basins, compromising natural resources. The exploration resulted in large areas covered by deposits of coal tailings that radically altered the landscapes, leaving marks still visible in many locations in the region, as well as in areas in the Rio Carvão community (figure 3).



Figure 3. Area impacted by coal mining, Rio Carvão community, Urussanga

Source: Authors

The coal exploration activity continues to be developed in the region, although with less economic emphasis. The concern of society with public health and the attention given to the environment, practically nonexistent in past times, are now on the agenda in the various spheres of society.

With regard to environmental liabilities, coal companies (many declared bankrupt), the State of Santa Catarina and the Federal Union, were ordered, in 1993, in a public civil action by the Federal Public Ministry, to present environmental recovery projects that have been developed since 2000 (LADWIG; DAGOSTIM, 2017).

In this way, the coal mining activity characterized and marked several municipalities and communities, among them is Urussanga and the community that has coal in its name. This community is called Rio Carvão, where a socio-environmental conflict based on the economic exploitation of this product is currently unfolding.

4. Mining conflicts in the Santa Catarina Carboniferous Basin

The records of conflicts that occurred in the region between communities and mining companies seem recent, if we establish that activities began on an industrial scale more than a century ago. Scotto (2011) states that in recent years we are witnessing an increase in the number of social conflicts involving mining, mainly in Latin America, with the participation of several organized collective actors. This collective force of civil society, in Brazil, gained a lot of impetus and representativeness as we see explicit in our Citizen Constitution of 1988, in its article 225 that deals with the Environment: Everyone has the right to an ecologically balanced environment, a common use of the people it is essential to a healthy quality of life, imposing on the Public Power and the community the duty to defend and preserve it for present and future generations (BRASIL, 1988, Art. 225).

However, in the case of conflicts in the coal region, more broadly, there were not many works related to quantity, and which socio-environmental conflicts occurred involving companies and communities. However, Nascimento (2010) cites studies, locations, involved and the date of socio-environmental conflicts until 2010.

In order to compose table 1, in addition to the work cited, a bibliographic search was performed on digital platforms, in order to search for other records. It should be noted that other socio-environmental conflicts involving companies and communities may have occurred, but these were not found registered by the media, state agencies or were not researched.

Table 1. Synthesis of records of socio-environmental conflicts in the Santa Catarina Carboniferous Basin.

County	Involved	Causes / Impacts / Results	Year
Siderópolis	Companhia Siderúrgica Nacional (CSN) and residents of the Monthões community.	Coal exploration.	1988
Siderópolis	Companhia Carbonífera Belluno and about 200 farmers.	Opening of a mine in an agricultural area. Transformation of the area into APA.	1994
Urussanga	Mining Company Treviso and Community Association of Alto Rio Molha (ACARIMO).	Against the silting up of rivers and areas degraded by coal mining.	1995
Criciúma	Installation of mining companies and residents of the Morro Albino and Morro communities Stephen.	Articulation for the creation of an APA and creation of the APA.	1996
Siderópolis	Carbonífera Rio Deserto and community in the vicinity of Mina Trevo.	Lowering of the water table, with a decrease in the water level in some streams and wells in the rural area. Vibrations felt with the detonations.	1999
Urussanga	SETEP Company and Rio Maior Community Association.	Impacts on water resources, people's health and constructions, mainly in centenary houses (historical heritage).	2002

Içara	Carbonífera Rio Deserto and the agricultural communities of Santa Cruz and Esperança.	Against the installation of exploiting coal underground in the agricultural area. Residents fear environmental, economic, social and public health impacts.	2004
Orleans	Union of the Industry of Coal Extraction of the State of Santa Catarina (SIECESC) and Popular movement in defense of natural goods and against the exploitation of coal in Orleans (MOV).	No opening of mines in the municipality of Orleans.	2018
Urussanga	UM Urussanga Minérios Ltda and Rio Carvão Community Association (ACRIC).	Emission of gases causing atmospheric pollution. Community mobilization	2019

Source: Authors

Regarding table 1, it is worth noting that perhaps the dates are not exact, but they were the ones that were arrived at after conducting the research. It is likely that many started before the year registered, as will be the case in this work, because to mine any area, it takes time and a process with several stages. To corroborate, Little (2004) observes that, over time, a conflict can last for years and between that period there are different moments, some more intense with greater prominence, and others, with less visibility.

In the case of the conflict studied, it appears that despite the complaints and manifestations already indicating occurrences for some time, the tie has a more direct record as of July 2010 with two reports giving voice to the complaints of residents and 2011 with the participation and speech of the president of ACRIC in the Ordinary Session of the City Council of Urussanga. In 2019, the conflict is showing signs of intensification with greater denunciations and demands by the residents, providing greater visibility to the case. However, attention is drawn to the heart of the matter in this item, which is to demonstrate that there were, and still are, conflicts involving mining communities and companies in the Santa Catarina Carboniferous Basin.

In view of the analysis in Table 1, it is concluded that the conflict in Urussanga, in the Rio Carvão community, is not something new in the region or in the municipality. What is new, compared to the other conflicts, is that it is characterized as the only one that has as its main problem the inconvenience of the generation of gases that cause air pollution, directly impacting the lives of residents.

5. Temporality

For Milton Santos (1987) the temporalities vary in relation to the different social agents and any other phenomena that occur in the same space, however it is important to emphasize that they occur in a successive and simultaneous manner. In this sense for Saquet (2011, p.79) “the temporalities also mean historical proceduralities that are found in the present. We live past, present / coexisting and future temporalities ”.

Moving towards the analysis of socio-environmental conflicts, it is understood that it is essential to observe the temporal aspects. From this perspective Gonçalves, Aliste and Follmann (2019) reinforce that temporality is linked to the context and the moment in which the conflict emerges. It is best able to determine who are the actors most directly involved, their values and their interests (GONÇALVES; ALISTE; FOLLMANN, 2019, p. 158).

In the 21st century, socioenvironmental conflicts become fundamental for bringing in their analyzes the discussion of the conditions of sustainability of humanity on Earth (BRITO et al, 2011). For the authors, it is essential to create an economic matrix that would enable environmental, economic and social sustainability. In Brazilian history, mining has great relevance, but it also brought many environmental impacts and several socio-environmental conflicts that have been established throughout the country's historical process (ARAÚJO; FERNANDES, 2016).

Environmental conflicts and injustices in Brazil are mainly related to the path adopted by environmental policies in recent years, which reflect the situation of the Brazilian economy. According to Zhouri et al. (2018), this dynamic has a global impact and demonstrates legislative limits and jurisprudence decisions that reflect practices, which are not democratic.

Passing through the world and national historicity of the economy of the exploitation of natural resources activities until reaching the current paradigms, one can situate the temporality of the socio-environmental conflict underway in the Rio Carvão community. That said, we understand that, on the one hand, the trajectory of using mineral resources that generated economic benefits and characterized society, reminding us of historical importance, on the other, is the degradation of natural resources with environmental liabilities that impact people's lives and your way of living.

In this context, the case of the Rio Carvão reflects the history that occurred throughout the region of the Catarinense Carbon Basin. For Carola (2010), the exploitation of coal changed the economic base from agriculture and guaranteed industrial progress, but did not account for the socio-environmental impacts at first. This issue only began to receive more attention from the 1980s, when the spread of greater environmental sensitivity in the region began (CAROLA, 2010). As already shown in Table 1, this is the period when socio-environmental conflicts involving mining companies and communities begin.

Virtuoso (2019), when researching the appropriation of common resources with a focus on water use in the Urussanga River basin, cites some socio-environmental conflicts, among them the case of the Rio Carvão. He verified in his thesis that when impacts advance on nature and involve communities that mobilize in defense of common interests, a socio-environmental conflict ends up. This is what has happened in the Rio Carvão community in recent years. Its residents live the drama of environmental imbalance, caused by the exploitation of coal from the beginning of their activities on an industrial scale and are now mobilizing to defend a better quality of life.

It is in view of this situation that the challenge of the conflict that comes into focus arises, since socioenvironmental conflicts are present in various ways today. For Acselrad (2004), these conflicts are more evident in the world, while the process of economic and social transformation of the territories deepens, showing the different conceptions about the forms of appropriation and use of natural resources.

6. Context

In order to understand the context of the researched conflict, it is essential to follow what we have outlined so far, historicity and temporality. To complete the triggering of exposed ideas, it is now based on Little's methodology (2001; 2004).

In this regard, through the analysis of socio-environmental conflicts, the aim is to expose the conflict with records of the manifestations, the identification of the type of conflict, an identification of the main actors and their positions throughout the process.

Currently, the community, through its ACRIC association, is claiming from the competent bodies the recovery of areas degraded by coal exploitation in the community (figure 4). In addition to being fighting harder to solve the problem, a recurrent emission of gases by burning coal carried out by the UM Urussanga Minérios Ltda.

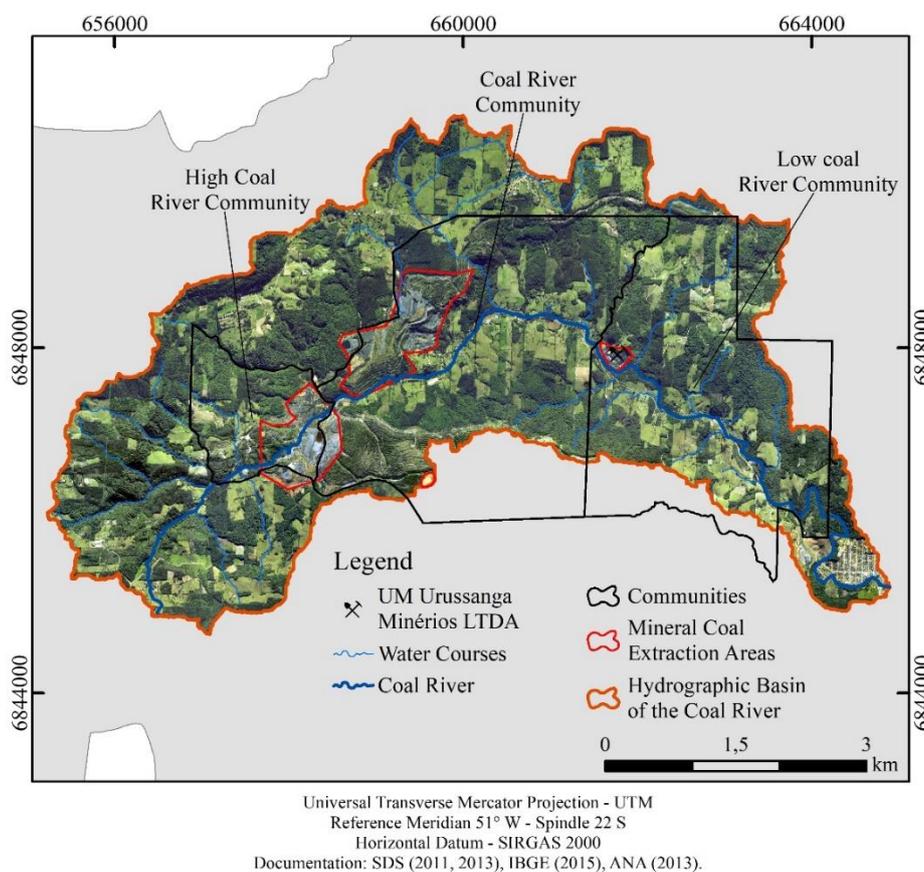


Figure 4. River basin and Rio Carvão communities

Source: Authors

It is imperative to stress that the entire Catarinense Carbon Basin, since 1980, is considered one of the most critical in the country regarding environmental degradation. The history refers to the year 1993, in Public Civil Action n. 93.8000533-4, when via MPF those responsible were sentenced to submit environmental recovery projects (LADWIG; DAGOSTIM, 2017). Among the degraded areas that must be recovered are areas in the municipality of Urussanga, one of which is in the community of Rio Carvão.

As of the sentence (n. 2000.72.04.002543-9), a series of environmental recovery projects should have been carried out, but many have not been and the outcome of what will happen in the future is still uncertain.

Several areas, such as the Rio Carvão community, continue to be destroyed by the degradation caused by coal mining, hoping that damage to the environment, and to the community, will be at least minimized.

Among the various actions that ACRIC seeks to promote in order to raise awareness and demand from the authorities the recovery of environmental liabilities and for the current problem of gas emissions, are the dissemination on its social network of videos and images, the participation in meetings in the Chamber of Councilors of the municipality of Urussanga, public hearings, reports linked in the local and even national media. When researching the history, it was found that since 2010 there are records in the press (ECHEVENGUÁ, 2010; MORETTI, 2010) and it is from that date that the community exposes with greater emphasis the problem of the emission of gases that cause atmospheric pollution, this being the issue that most directly bothers residents at present.

In the minutes of the session of the City Council of August 2, 2011, the president of ACRIC Cleyton José Pereira, registers the problem of atmospheric pollution, faced by the residents. Pereira reports that even in 1970, “Mrs. Irene Ceron Gastaldon, tired of the black dust around the house, on the clothes and faces of her grandchildren, took the attitude of being the first resident of Rio Carvão to go to the Public Prosecutor's Office to complain about air pollution”(CITY HALL OF URUSSANGA, 2011). That, due to problems with these problems, in 1986, it was forced to withdraw from its origins. During this period, the community had 476 inhabitants, in relation to the direct mining activities there were 2 coke companies and 2 coal companies (CÂMARA MUNICIPAL DE URUSSANGA, 2011).

A 2011 survey surveyed hospital admissions for respiratory and cardiovascular problems. If compared to other communities in the municipality of Urussanga, the largest number comes from the Rio Carvão community (MONDO, 2011). This research also demonstrated that the emission of polluting gases into the atmosphere can be a problem that affects the lives of many residents.

Returning to the minutes of the session on August 2, 2011, another statement by the president of ACRIC is recorded.

From the year 2012 to 2018 few records were found, this does not mean that the community was stopped or satisfied with the situation and / or the company's activities were being less impactful. According to the records, the indicative is that the community was hoping that after the denunciations and manifestations measures would be taken.

In 2019, on July 16, in another session of the city council with the participation of the president of ACRIC, Sidinei Casagrande and chemical engineer Jorge Luís dos Santos Amaral, information about the emissions of gases into the atmosphere by the company was presented . The minutes show the report of a study based on data from the last 6 years, prior to 2019, from the expertise and audits carried out by the MPF.

On the occasion, the then president of ACRIC, stressed that it is not the objective of the community that the company closes, but that it works in accordance with the legislation and the community, providing quality of life to its residents.

Considering the minutes of the aforementioned meeting and others surveyed since the year 2000, no statement by the company was found in the city council of Urussanga. What we found were some notes in the media based on compliance with legislation based on expert sides and a photo of the MPF's letter of June 4, 2019 on the company's social network demonstrating that it is not emitting gases in violation of the

legislation (URUSSANGA MINÉRIOS, 2019).

A more extensive note was linked in the press on June 22, 2019. In this note, the company UM Urussanga Minérios Ltda., Among other issues, claims to comply with CONAMA Resolution 436, which deals with the emission of gases by burning coal for the coke. He mentions that the points collected for air quality analysis were determined by the community itself, together with the Environment Institute (IMA), without interference from the company. Finally, the company says it is open to criticism and requests, and mentions that the Public Ministry itself recognizes this conciliatory stance of the company (LUCIANO, 2019; TRIBUNA DE NOTÍCIAS, 2019).

"The request for help is stamped on the shirts of those who live here" (MORADORES ..., 2019, p. <https://recordtv.r7.com>). Thus, the reporter's speech in the linked article begins in July 2019, with more than 7 minutes of duration, shown on the program Domingo Espetacular of Rede Record de Televisão. The report presented several landscapes degraded by the exploitation of coal, recalled a serious accident that occurred in 1984 with the death of 31 workers, and highlighted, in general, the community's concern about environmental liabilities and the future of the area and people. However, the main focus of the report was to highlight the problem currently faced by residents: the emission of polluting gases into the atmosphere that has caused the deposition of soot on houses, gardens, etc. In figure 5, posted on the profile of ACRIC's social network on September 25, 2019, it is possible to view this statement. The report also shows that the residents appeared together, wearing black T-shirts with the words "S.O.S Rio Carvão, no more pollution. A neglect".

The MPF manifested itself in the matter, through the public prosecutor Demerval Ribeiro Vianna Filho, stating that due to the agency's interference, there was an improvement in the environmental conditions for the community, but recognizes that it is far from reaching the ideal.

The report also heard the company UM Urussanga Minérios Ltda., Which through the environmental manager, denied the irregularities, alleging that it monitors air quality and that all partial measurements indicate that the gas emissions are in accordance with the legislation. The manager also reported that some specific issues raised by the community were all answered.



Figure 5. Soot deposition images

Source: ACRIC, 2019

measurements are within the technical and scientific criteria. It is worth mentioning the speech of one of the residents interviewed, stressing that the community does not want to close the company. In their words, they claim that "we also want to breathe better things". Such demand is guaranteed, as already mentioned in the Federal Constitution of Brazil in 1988 in its article 225.

The Brazilian Magna Law guarantees the preservation of natural resources, even emphasizing that when a certain exploration activity causes considerable degradation, studies of environmental impacts are carried out, and that such studies are published. In the case of the Rio Carvão, the degradation of the area is notorious, and the environmental impact caused by the burning of coal has been affecting the quality of life of its residents.

Another way that ACRIC found to give voice to its desires was to use its page on a social network, where there are awareness campaigns, complaints with photos, videos and complaints from residents, participation in meetings and related press reports. In 2019, one of his cover images (figure 6) indicates the struggle that this community is waging to improve the quality of life of its residents, combating the problem of pollution and charging the authorities.

There are many other records on the social network page, in the press and in the minutes of the session of the city council of the claims of the Rio Carvão community. When ACRIC is challenged that the company's activity does not affect residents as much, including people who do not complain, the community justifies that the company has specific times when it intensifies its activities, that the emission of gases harms residents more than live close to the company and that climatic factors also influence the dispersion of gases. Despite having many complaints on the social network page, the city council and the press seem to be the place where ACRIC found the most space to emphasize and claim their wishes with the public authorities and society in general.



Figure 6. 2019 ACRIC social network cover image (Image translation: Coal river; no more pollution; It's a neglect; How will our future look? Gentlemen!!!)

Source: ACRIC, 2019

Another relevant point to be observed is that when the community expresses itself, it aims to establish dialogue and to seek solutions, whether for the problems left by the exploitation of coal in the past, either with the representatives of the State or with the company UM Urussanga Minérios Ltda. which burns the coal, emitting the gases that most directly affect residents.

Until the beginning of the year 2020, the impasse still persisted and it seems that it was taking shape for a dispute that will drag on for a certain period with the same notes and elements evidenced here.

For Little (2001), the classification of socio-environmental conflicts is a way of aiming to understand him better, with the aim of a possible resolution. Little (2001, p. 57) listed in: “1) conflicts over control over natural resources; 2) conflicts over the environmental and social impacts generated by human and natural action; and 3) conflicts over the use of environmental knowledge”. However, the author warns that this typology cannot be understood in an uncompromising way, but as a heuristic tool and with flexibility in the analysis of socio-environmental conflicts.

In this interpretation, the conflict analyzed here in relation to its typology, we fit in a "conflict around the environmental and social impacts generated by human and natural action". What is identified in the present case is that the environmental and social impacts generated are only due to human action.

Little (2001) assesses that in this type of intervention, the impacts are sustained in economic development, affecting both nature and humans. While one group benefits directly, others suffer only negative impacts. From this perspective, the situation, in addition to impacting the health of residents, represents a social and environmental injustice. In this process Little (2001) classifies it into three subtypes of negative impacts (table 2), when trying to transpose these negative impacts to the conflict analyzed here, it is possible to state that these occur as follows.

Table 2. Analysis of negative impacts

Little's classification (2001)	Conflict analysis
a) The cases of contamination of the environment are many and generate differentiated negative impacts on the populations of the environment where it occurs;	The impacts are diverse. However, not the entire community area is being impacted in the same way. Residents and areas closest to the industry are most affected.
b) Depletion of natural resources also generates different impacts on social groups, which are not easy to quantify because the depth of the impact will only become evident in the future;	The depletion of natural resources directly impacts many residents of the community, but other groups will suffer in the future due to the abusive use and pollution of water, soil and air.
c) The degradation of ecosystems is linked to the processes of contamination and depletion, but it has some peculiarities.	The degradation of ecosystems linked to contamination and depletion processes, when prolonged, has the potential to reach entire ecosystems in such a way that natural cycles will break.

Source: Adapted from Little (2001).

Little's definition of socio-environmental conflict (2004, p.1) is about “clashes between social groups due to their different modes of ecological interrelationship, that is, with their respective social and natural means”. He emphasizes the importance of identifying and analyzing the main social actors involved when studying socio-environmental conflicts, since: Since it tries to explain the specific interests at stake in the conflict, followed by a survey of the interactions between each of these social actors. To understand a conflict in its entirety, the researcher has an obligation to understand the intentions and positions of all the

social actors involved, even if he has a preference for one of the groups involved (LITTLE, 2004, p.4).

Little (2004) also warns that in a socio-environmental conflict, each social actor involved has his own way of adapting. Thus, in view of this reasoning and based on the research, we sought to identify and indicate the performance of each social actor involved in Table 3.

Table 3. Identified actors and their performance

Social Actors	Performance
ACRIC	<ul style="list-style-type: none"> - Represents the residents of the Rio Carvão community; - Claims through manifestations on its social network, in the press, with the legislative, executive and judicial powers, answers to the problem of air pollution.
EMPRESA UM (Urussanga Minérios Ltda)	<ul style="list-style-type: none"> - Responsible for the emission of gases and dust that affects the residents of the community of Rio Carvão; - It claims to comply with current legislation and measure gas emissions according to the required protocols; - It is said to be open to negotiations with the community.
Federal Public Ministry	<ul style="list-style-type: none"> - Receive complaints from the community; - Promotes public hearings; - Acts in the inspection of compliance with the monitoring of gas emissions by the company; - Seeks to establish dialogue and conciliation between the parties.
City council of Urussanga	<ul style="list-style-type: none"> - Opens space for complaints; - Forward requests from the community; - Expresses support for the community. - Request clarification from the company.

Source: Authors

Although it does not fit as an actor acting in direct participation, we put the press as a fundamental instrument of research source and tool that the community found to highlight and draw attention to their problems, trying to pressure the authorities and the company to speak up. Another contribution fostered with the dissemination process, was regarding the expansion of the debate with local, regional and even national public opinion. In this sense, Little (2001) warns that, in order to understand the conjuncture in which conflicts develop, it is necessary to observe the political, social and cultural changes suffered over time and also the role played by the media in this context.

7. Conflict Management

Officially Brazilian historiography teaches in its narrative that the formation process of the Brazilian people was colonized, that it lived and still lives resilient, through the nation's socio-political trajectory. However, the factors that determine the need for changes in this neutrality in relation to the tensions of private companies towards the progress of the region, are in the question of the unsustainability of natural resources, as well as economic credit for the community. It is necessary to understand the extent to which progress towards development can be considered, when natural resources are being altered / contaminated by human actions. These issues are understood by the residents of the Rio Carvão community, but which seek from the State representatives a rigid stance in relation to compliance with environmental laws and without burden to any party involved.

Knowledge of the functioning of community resources, linked to researchers of environmental policies, can contribute positively to overcome this ethics of the modern world, of crime without punishment. For the mining company, it is an act that converges to benefit the economic progress of the community and the municipality, as it contributes to the goals of the private company. According to Almeida, Nothing guarantees that a good intention does not degenerate into future atrocities. Good deeds can generate bad results and the other way around. Like complex thinking, complex ethics does not escape the problem of contradiction. There is always uncertainty hidden under the unambiguous appearance of good and evil (ALMEIDA, 2005, p. 141).

Through an ecological ethical perspective, one can think about how to balance the conflicts and contradictions constituted by the difference over what is relevant for the survival of individuals or not. The concept of development itself, in an etymological analysis of the word, suggests its opposite: des (without) + involvement. However, in an ethical perspective of diversity (D'Ambrósio, 1999), it is possible to think of an activity that today already supplies the community's need for a new posture, in the following points: Respect for the other with all its differences; solidarity with the other in meeting survival needs and transcendence and cooperation with the other in the preservation of the common natural and cultural heritage (D'AMBRÓSIO, 1999, p. 642).

In the search to manage and find resolutions for socio-environmental conflicts, it is essential to have a base to guide the analysis and the paths to be followed. For Nascimento (2010, p. 34) "conflict analysis presents analytical schemes that help in understanding the actions of the actors, their positions, the dynamics and the crucial relationships inherent in the dispute process". The author emphasizes that with this perspective the problems will not be solved, since there are other variables involved, however it is essential to look for the fundamental elements of the dispute in order to arrive at a more balanced resolution.

The fundamental elements here are based mainly on what Gonçalves, Aliste and Follmann (2019, p. 158) suggest, "taking into account the aspects of historicity, temporality and context and the identification of the social actors involved as well as their interests". In addition to Little's view (2001, p.61) "the treatment, and possible resolution, of conflicts needs to be preceded by a stage of research and analysis of the roots and causes of the same". Thus, for the author: To resolve a conflict permanently, the multiple causes that gave rise to it would have to be eliminated and the existing differences between the parties resolved peacefully, voluntarily and by consensus. Furthermore, the degradation processes of the natural

world would need to be stopped for the solution to be social and environmental. These requirements, while achievable, rarely occur in practice. Therefore, it is more realistic to talk about treating socio-environmental conflicts instead of resolving them (LITTLE, 2001, p. 63)

In this sense, Leff (2006, p. 217) corroborates “the environmental issue emerges from an economic, social, political, ecological issue, as a new worldview that transforms the paradigms of theoretical knowledge and practical knowledge”. For the author, a methodology is necessary to build an environmental rationality based on the dialogue of knowledge in a transdisciplinary practice, “epistemological conditions are necessary to articulate social, ecological and technological development processes” (LEFF, 2004, p. 21).

And even considering these conditions, harmonic management will not be guaranteed. Well, it is known that people in the locality need means to survive, however, limiting the possibility of survival and development to just one activity, which due to its characteristics of extraction and processing of coal, affect and unbalance the environment, is at least unwise and foolish. Continue with activities related to coal so that the community / region can develop without the perception that even with the supposed development, everyone will lose irrecoverable natural resources, characterizing a crime against the environment and against humanity.

Due to the situation analyzed, this situation will be defined and will take place directly in the State's legal bodies, through the MPF, as verified in the fine imposed on the company in September 2019. Regarding environmental liabilities, the entire community expects the legal processes have an effect, and that the recovery of the environmental liabilities left by inheritance by coal mining begins as soon as possible.

Anyway, the actions related to the conflicts listed in this article are not watertight, and need to be monitored and discussed, aiming at better procedures in search of the balance between quality of life and the maintenance of economic activities can contribute to the well-being of those involved.

8. Conclusion

The human awareness that natural resources, nature itself, deserves to be where it is, and to remain alive, has been part of the anguish of men and women since ancient times. However, it can be said that this awareness continues, as knowledge and social politicization advance, springing up in regional and local society, as it happens in Rio Carvão. In the southern region of the state of Santa Catarina, in the municipality of Urussanga, more precisely in the locality of Rio Carvão, this ethical stance generated in the face of environmental conflicts has expanded in the awareness of the preservation of natural resources.

The environmental conflicts debated in the locality of Rio Carvão are noteworthy, since it generated a cohesive organization of the community's residents through ACRIC, also a social commotion of non-governmental and governmental organizations in support of the local public power, mainly in the City Council, Public Ministry and the local media in favor of the community and environmental preservation.

The induced or instigated awareness that nature deserves to remain alive, also understands the need for the production of means of survival, and comes up with projects, such as rural tourism and exploration of activities that do not affect local integrity through the cultivation of fruits, colonial products and other items

that, receiving encouragement from public agencies, will also bring income streams to the community, thus deconstructing the need to submit to risky private interests.

Therefore, it seems that the order established in the Rio Carvão community and in the rest of the planet, remains the depletion of natural resources and impacts on local populations. As of the end of this article, there have been no significant changes in relation to the conflict in the Rio Carvão community..

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