



FREE SECTION

Water Protection and Development in Debate in Southern Brazil: the Environmental Conflict Involving the Triunfo Petrochemical Complex (1975-1982)^{1,2}

Proteção das águas e desenvolvimento em debate no sul do Brasil: o conflito ambiental no Polo Petroquímico de Triunfo (1975-1982)

Protección de las aguas y desarrollo en debate en el sur de Brasil: el conflicto ambiental en el Polo Petroquímico de Triunfo (1975-1982)

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Abstract: During the transition from the 1970s to 1980s, a period marked by the resurgence of collective movements in Brazil, the populations of several municipalities located on the banks of the Guaíba-Patos lagoon system found ways to express and assert their concerns regarding the potential pollution produced by a large industrial complex, through activities held right from the first public announcements of its construction. This article is made possible due to more comprehensive interdisciplinary research, which recounts the first phase of the environmental history of this development in Rio Grande do Sul, through interviews, consultation of public and private archives and field work: the 3rd Petrochemical Pole. The major features of the heated public debate the project generated are outlined within the scope of the II National Development Plan (in force during the civil-military dictatorship, and seeks to better understand the debate and clash of ideas manifested during this project, the forerunner of a complex of chemical plants that have now been in operation since 1982 in the cities of *Triunfo* and *Montenegro*. It is argued that at a time when environmental standards were scarce throughout the world, the actions and discourse of environmentalists, politicians, technicians, and the population in general were able to push for rigorous protection of the water needed to, among other uses, supply the population of Porto Alegre. These struggles led to the establishment of pragmatic milestones in national environmental protection measures: the pioneering environmental impact study and the resulting method for treating liquid effluents from the Pole.

Keywords: Rio Grande do Sul waters. Industrial development. Environmental struggles. Civil-Military dictatorship. Environmental history.

Resumo: Na transição entre as décadas de 1970 e 1980, época marcada pelo ressurgimento de movimentos coletivos no Brasil, as populações de várias cidades sulinas situadas às margens do complexo lagunar Guaíba-Lagoa dos Patos encontraram caminhos para manifestar e fazer valer a sua preocupação a respeito do potencial poluidor de um grande complexo industrial, em ações verificadas desde os seus primeiros anúncios públicos. Pesquisa interdisciplinar mais abrangente torna possível este artigo, o qual recupera a primeira fase da história ambiental de ação de desenvolvimento efetivada no Rio Grande do Sul, a partir de entrevistas, consulta de arquivos públicos e privados e trabalho de campo: o III Polo Petroquímico. No âmbito do II Plano Nacional de Desenvolvimento,



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vigente durante a ditadura civil-militar, delineiam-se as grandes linhas do entrelaçamento público que o empreendimento causou, buscando compreender como aconteceu o debate e embate de ideias na condução desse projeto, antecessor de conjunto de plantas químicas operando ininterruptamente desde 1982 nos municípios de Triunfo e Montenegro. Defende-se que, em uma época em que as normatizações ambientais eram rarefeitas no mundo todo, as ações e discursos de ambientalistas, políticos, técnicos e população em geral conseguiram proteger com mais rigor as águas necessárias, dentre outros usos, ao abastecimento da população de Porto Alegre. Mostra-se como dessas lutas resultam marcos pragmáticos nas medidas de proteção ambiental nacional: o pioneiro estudo de impacto ambiental e o enfim resultante modo de tratamento dos efluentes líquidos do complexo.

Palavras-chave: Águas no Rio Grande do Sul. Desenvolvimento industrial. Lutas ambientais. Ditadura Civil-Militar. História Ambiental.

Resumen: En la transición entre las décadas de 1970 y 1980, época marcada por el resurgimiento de movimientos colectivos en Brasil, las poblaciones de diversos municipios del sur situadas a las orillas del complejo lagunar Guaíba-Lagoa dos Patos encontraron caminos para manifestar y hacer valer su preocupación con relación al potencial contaminador de un gran complejo industrial, en acciones verificadas desde sus primeros anuncios públicos. Este artículo ha sido elaborado gracias a una investigación interdisciplinaria más amplia, que recupera la primera etapa de la historia ambiental de acción de desarrollo realizada en Rio Grande do Sul, a partir de entrevistas, consultas de archivos públicos y privados y trabajo de campo: el III Polo Petroquímico. En el ámbito del II Plan Nacional de Desarrollo, vigente durante la dictadura civil-militar, se definen las grandes líneas del entrelaçamento público que el emprendimiento causó, buscando comprender cómo ocurrió el debate y el embate de ideas en la conducción de ese proyecto, antecesor del conjunto de plantas químicas que operan sin interrupción desde 1982 en las municipalidades de Triunfo y Montenegro. Se defiende aquí que, en épocas aún carenciadas de normativas ambientales en todo el mundo, las acciones y discursos de ambientalistas, políticos, técnicos y población en general consiguieron proteger con más rigor las aguas necesarias, entre otros usos, para el suministro de agua a la población de Porto Alegre. Se demuestra cómo de esas luchas resultaron marcos pragmáticos en las medidas de protección ambiental nacional: el estudio pionero de impacto ambiental y el modo de tratamiento resultante de los efluentes líquidos del complejo.

Palabras-claves: Aguas en Rio Grande do Sul. Desarrollo industrial. Luchas ambientales. Dictadura Civil-Militar. Historia Ambiental.

Introduction

On August 26, 1975, at the meeting of the Economic Development Council, the installation of the 3rd Petrochemical Pole in Rio Grande do Sul (RS) was confirmed. The then President of the Federative Republic of Brazil, General Ernesto Geisel, was committed to ensuring his home state would receive the investment. The country was governed by a civil-military dictatorship⁵ and such a *modus operandi* was part of the context of building the Pole, constituted, it can be said, in amidst a fierce public debate between groups that were for or against its construction in RS.

The Southern Petrochemical Pole, commonly known as the 3rd Petrochemical Pole, was to be built in Brazil, following the construction of similar industrial complexes in *São Paulo* (SP) and *Bahia* (BA)⁷. It is located on the right bank of the *River Cai*, in the municipality of *Triunfo*, in Rio Grande do Sul. This undertaking originated in 1974 when a study by the Institute of Applied Economic Research (IPEA), foresaw a national supply deficit "for almost all the most important basic and intermediate petrochemical products" given the then existing petrochemical plants. Hence, there was a need for "a considerable increase in installed capacity" (SILVA FILHO; RIBEIRO, 1974, p. 98). This view eventually incorporated into the 2nd National Development Plan, which was greatly influenced by General Ernesto Geisel who was head of *Petróleo Brasileiro SA (Petrobrás)* from 1969 to 1974, a position from which he was directly appointed to the country's presidency (SUAREZ, 1985, p. 88-89).

On October 9, 1975, the State Parliament's Special Committee for the implantation of the 3rd Petrochemical Pole recommended its precise location, thus requiring the expropriation of an area between the municipalities of Triunfo

⁵ This term has emerged from the study of the historiographic debate on how to name the government regime that existed in Brazil between 1964-1985. Daniel Aarão Reis affirms that the name "civil-military dictatorship" reasonably emphasizes the "civil dimension of the dictatorial regime, even if the top of the power pyramid was occupied by military leaders" (REIS FILHO, 2014, p. 62, our free translation). Virginia Fontes (2010), who reinforces Dreifuss' option (in his book '1964: the conquest of the State', 1981), uses the expression "military-business dictatorship". A third position is adopted by some authors who prefer the more commonly used expression, "military dictatorship", such as Marcos Napolitano (2014) and Carlos Fico (2017, p. 53), who, however, proposes a differentiation in this use: "The coup was effectively delivered (not just supported) by civilians and military and, therefore, it is possible to call it civil-military". According to his view, however, the "subsequent regime was entirely controlled by the military, so that to term it military, but also civil, or business or whatever is superfluous and imprecise".

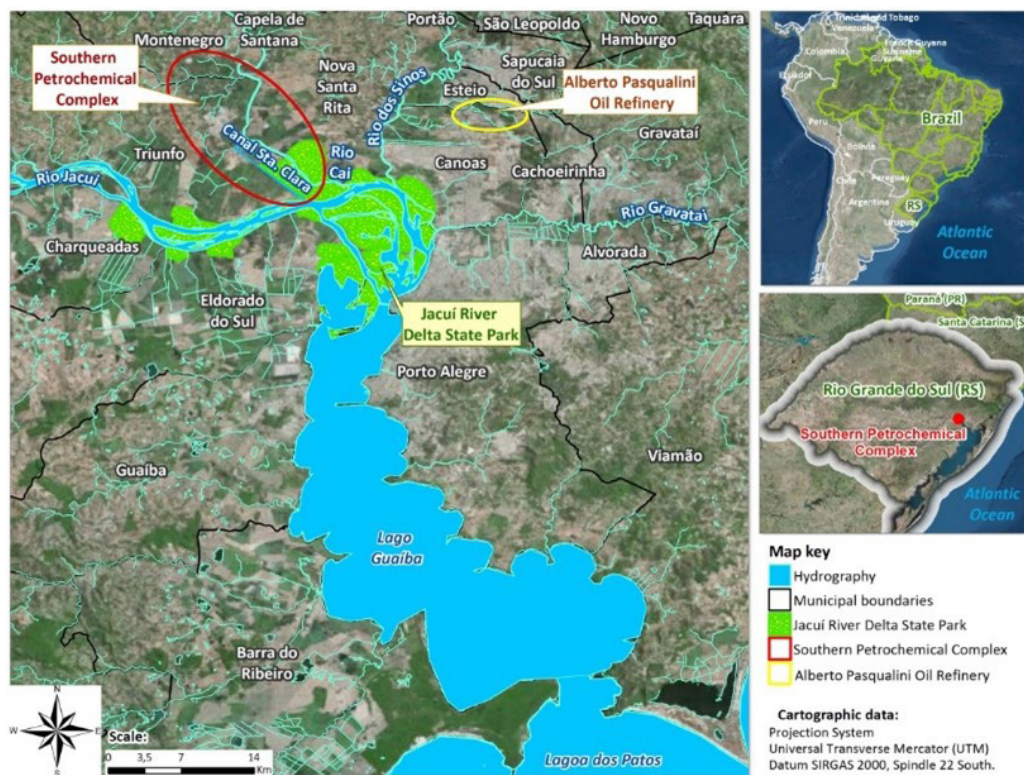
⁶ As above in REIS FILHO, all the citations originally made in Portuguese have been freely translated into English.

⁷ The first was built in and around the municipality of Cubatão in the early 1950s and the second in 1970 in the municipality of Camaçari (SUAREZ, 1985; TORRES, 1997).

and Montenegro, 30 km from Porto Alegre⁸, as shown in Map 1. The project was coordinated by the Rio Grande do Sul State Petrochemical Pole Implementation Council (CONPETRO) and Companhia Petroquímica do Sul (COPESUL), which were created, respectively, on January 15, 1976 (RIO GRANDE DO SUL, 1976b) and on June 8, 1976 (TORRES, 1997, p. 51). The definition of the construction site, located upstream of the water catchment area for the metropolitan

region of Porto Alegre, led to the first instance of public commotion regarding the project. Several sectors of civil society immediately questioned the feasibility of the project, very much focused on the possibility that the undertaking could compromise the water supply of the state capital. Subsequently, public questions were asked in public regarding the effluent treatment and disposal system that would be adopted in the intended industrial Pole.

Map 1 – Location of the study area



Source: authorship Claudia Ribeiro, cartographic elaboration by Sílvia Aurélio (2019)

Observing this panorama, we understand that the construction of the Southern Petrochemical Pole is source of an environmental conflict, here understood according to Henri Acselrad (2015, p. 65) as occurring “when the discriminatory locational distribution of harmful space practices is the object of criticism in the public space and the symbiotic agreement between different practices proves impossible, urban environmental conflicts unfold”. In the second half of the 1970s, the specific features of this environmental conflict described

herein constitute part of the fight against water pollution, giving rise to the Brazilian environmental movement. According to Acselrad (2008, p. 75), this struggle can be fully understood over the course of the two stages proposed by the author for the development of such a movement: both “an initial phase of protest and construction of public concern” (1970s), and a “subsequent phase of greater institutionalization and involvement in the public policy debate” (the 1980s onwards).

⁸ The next day, October 10th, 1975, Decree 24,113, 1975 was published, authorising the appropriation of the site (RIO GRANDE DO SUL 1975).

We highlight the phenomenon by which, in this context, a “generic environmental discourse emerges from the different social groups [...] legitimizing institutional, political, scientific practices [...]” (ACSELRAD, 2010, p. 103). According to Gerhardt and Almeida (2005, p. 6), it is an insurgency that is not fortuitous, since it comes from a specific historical context. The *Associação Gaúcha de Proteção ao Ambiente Natural – AGAPAN* (Gaúcho⁹ Association for the Protection of the Natural Environment) which, among other campaigns, postulated defending the waters, had been in existence since April 1971. Subsequently, a number of environmental entities were founded in Rio Grande do Sul, such as the *União Protetora do Ambiente Natural – UPAN* (Union Protecting the Natural Environment), the *Movimento Roessler* (Roessler Movement) and the *Associação Ijuense de Proteção ao Ambiente Natural – AIPAN*, (The Ijuí Association for the Protection of the Natural Environment), among others. In the early 1980s, members of these associations and young students would join the *Comissão de Luta Contra o Polo Petroquímico - CLCP* (Committee for the Fight Against the Petrochemical Pole) and the group, *Em Nome do Amor à Natureza* (In the Name of the Love for Nature), which would organize protests and publish material between 1981 and 1982.

The general objective of this article is to contextualize the constitution of the Pole within a scenario of disputes between groups that defended its installation - propagating it as a project that would bring economic development to the state, and the groups opposing its installation, which denounced the pollution that the enterprise could cause, in that case, expressing special concern with protecting the waters. We therefore propose to map the complexity of this conflict and its effective results, in the political context

within the time frame of 1975, when the location of the industrial Pole was confirmed, and 1982, the year it entered into operation.¹⁰

To this end, following this brief introduction, the body of the text is divided into four parts: the next section provides a brief contextualization of the petrochemical industry; then, we present a historiographical discussion on the notion of development, placing the article in the field of environmental history; after which, we analyse some of the sources collected in order to situate the conflicts regarding the Pole, especially journalistic sources; and, finally, we offer our more comprehensive interpretation of the historical process.

A petrochemical pole for Rio Grande do Sul

An abundance of good quality water is one of the factors considered when determining where to locate this type of industrial plant (MCMICHAEL, 1961, p. 83-86). It is a unique aspect, which in the 1970s led to the Petrochemical Pole being installed in the municipality of Triunfo, as extolled by one of the important agents in the conception of the endeavour, the engineer Percy Louzada de Abreu. According to him, the region around Porto Alegre, “bathed by five perennial rivers, all navigable all year round”, was “an exemplary condition for a system of [industrial] plants of this nature”. In addition, the Petrobras technocrats involved in the project wanted to avoid the errors they recognized had been made in the Cubatão industrial complex (São Paulo) and in Rio Grande do Sul itself, when the Alberto Pasqualini Oil Refinery was built, in the municipality of Esteio: namely, the project for these industrial installations did not foresee the growth of cities, the proximity of the population led caused “conflicts with the surrounding urban area” or represented a “limiting factor for future

⁹ The term used to refer to a person/thing originating from the Brazilian state of Rio Grande do Sul.

¹⁰ This paper is based on broader research involving oral sources and access to documents from public and private archives (newspapers, magazines, reports and documents on the Pole, technical and scientific articles, photographs, etc.): *Acervo Privado da Agapan - APAG* (AGAPAN'S Private Archive), *Acervo Pessoal de José Lutzenberger- APJL* (José Lutzenberger's Personal Archive), *Acervo Pessoal de Cicero Franco - APCF* (Cicero Franco's Personal Archive), *Acervo do Sistema de Tratamento de Efluentes Líquidos do Polo-Companhia Riograndense de Saneamento - ASITEL-CORSAN* (Archives of the Liquid Effluent Treatment System of the Pole-Companhia Riograndense Sanitation Company), *Biblioteca da Fepam - BFEPAM*, (Fepam's Library), and the *Memorial da Assembleia Legislativa do Rio Grande do Sul - MALRS* (the Memorial of the Legislative Assembly of Rio Grande do Sul).

expansion" (ABREU, 2007, p. 66 and 67).¹¹ The existence of the rivers was precisely one of the points of divergence for the group opposed to the Pole, which pointed out the criticality of the chosen location: the targeted area, on the right bank of the final stretch of the River Cai (just before it joins the River Jacuí), was situated upstream of the points from which water was collected for treatment and distribution to the population of Porto Alegre.

Only in the 19th century did petroleum come to be used in the way we know today, to become the basis of the energy matrix of the majority of the population of the globe and the starting point of an extensive industrial chain. Thus, the petrochemical industry has become the branch of chemistry that transforms raw materials consisting predominantly of mixtures rich in hydrogen and carbon compounds (hydrocarbons), through industrial processes consisting of several stages, which result both in final and intermediate products.

If at the end of the 19th century, a rudimentary trial of this industrial activity was already underway, the petrochemical industry really came into its own due to the two world wars. In 1908, the Germans used a fraction of the gasoline in the production of paints, and the process was soon modified for the chemical synthesis of explosives. The American chemical industry was consolidated in 1919-1920, as a result of research initiated in World War I. At that time, the production of chemical fertilizers started and the imperative need for synthetic rubber production arose with World War II. In the 1940s, important technological innovations (the thermal cracking of naphtha) allowed the expansion of the activity in Europe and Japan in the following decade, such that together with the United States, at the end of the 1960s, these are the three main petrochemical production references in the world. From that moment on, the manufacture of synthetic polymer and an infinity of other products expanded

dramatically, so that today, there are petrochemical plants on all five continents. Principally and generally, the production of plastics, resins, fibres, synthetic rubbers, nitrogen detergents and fertilizers, as well as paints, adhesives, aerosols, pesticides and medicines depend, totally or partially, on petrochemical compounds. More recently, it is worth mentioning the efforts to create supposedly more "sustainable" paths for this industry, using vegetable-based raw materials (GLOYNA, FORD, 1970; MATAR, HATCH, 2000, BASTOS, 2009, TAJIMA, 2016).

The production chain of the petrochemical sector is characterized by 1st, 2nd and 3rd generation industries. First generation industries (centred on raw materials or basic products), use some stream of hydrocarbons, usually from oil and natural gas refineries, to produce so-called basic petrochemicals - substances such as ethylene, propylene, butadiene, benzene and methanol. Second generation companies source the products generated in the first and produce thermoplastic resins, elastomers, among other polymers and substances. From these, the third generation manufacturers conceive the final products to be consumed and used by the different markets and populations - they are the transformed products: fertilizers and solvents, detergents, synthetic fibres, packaging and disposable products in general, housewares, toys, electronic components and for the automobile industry, various materials for civil construction and for the replacement of conventional engineering materials (metals, glass, cement, wood, cement, leather, natural fibres and rubber), among other examples (SCHUCK, 2002, p. 21-32).

As initially proposed, the facility in Triunfo would only house only companies from the first and second generations of the petrochemical chain, which was a point raised by its critics, because they demand less labour and provide

¹¹ In addition to commenting on the unsuitable proximity of residential neighbourhoods to the industrial facilities, in the case of São Paulo, in the interview we held with the engineer Percy Louzada de Abreu, he also admitted another mistake was made in the case of Triunfo: "[...] we concluded that it was feasible to treat all the effluents from the Pole without causing problems in the occupation of the Rio Jacuí delta, but we were very concerned about the technical aspects and less concerned with the psychological aspects, that was our mistake, because the people were particularly motivated by... by that guy, a German with a special interest in environmental issues, who was... what was his name? [...] and the people didn't give it much thought, you know, didn't give it much thought to these things, and he exaggerated it to such an extent that it generated a movement against the instalment of the Pole here" (ABREU, Interview, 2018). In this case, the interviewee was referring to José Lutzenberger, one of the greatest critics of the enterprise, and the president of AGAPAN at the time.

less state tax revenue than those manufacturing final consumer products. For the sectors opposed to the Pole, that concept would provide few jobs (the main justification for its construction) and little economic and social development, as compensation for the pollution it could cause (VIEIRA, 1982; MENDES RIBEIRO, 1982).

Disputed by several states in the Brazilian Federation, the political mobilization in Rio Grande do Sul ended up bringing the industrial hub to the state. According to its design, it was an exclusively petrochemical Pole, with its original products generated basically from naphtha (and/or other hydrocarbon streams), incorporating the following manufacturing units: a raw material plant (producing ethylene, propene, butadiene and benzene and other aromatic compounds), a utilities centre (water, electricity and steam), a unit producing industrial gases and several second generation units (thermoplastic resins, elastomers and fuels).

The petrochemical industry and development in the history of Brazil

We must first make an effort to better understand the discourses that permeated the construction of the 3rd Petrochemical Pole within the research possibilities of the historiographical field of environmental history, which appeared in the United States and France, in the 1960s. In its beginnings, when there was no specialization in environmental studies, the prevailing views were reflected in the works of Donald Worster (1991), who coined three levels of analysis for this field of study, and Alfred Crosby (2011), who suggested that colonization had forged "NeoEuropes" in the Americas. In the 1990s, William Cronon (1992) and Richard White (2004) defended a kind of "cultural history of the environment", criticizing Worster and Crosby's approaches as being materialistic. This debate, mapped in Isenberg (2014), remains unresolved. The author argues that the heart of the critical apparatus of environmental history lies in a view of the environment and interconnected human societies, as Arthur McEvoy had already pondered in the late 1980s (ISENBERG, 2014, p. 14).

It is, therefore, this conception that permeates

our research. Here the environment is neither deterministic nor inherently stable. We understand that society and nature are domains that interpenetrate in the visions built as from the announcement of the installation of the Pole in Triunfo. It is seen as an economic undertaking, which would have political, social and environmental consequences for Rio Grande do Sul.

One of the most important features of environmental history is interdisciplinarity. For Pádua (2010, p. 95) it is "fundamental, because, without the dialogue with the physical and natural sciences, such an effort to reconstitute [the relations between humans and nature in the past] would become unfeasible".

The case described here, in addition to demanding a certain understanding of the specificities and problems of the industrial sector involved, poses a fundamental need to minimally understand the notion of development, in the sense that it is used to justify various government attitudes and measures throughout the history of Brazil in the 20th century. We believe it is particularly important to focus on this issue during the period of the military regime, in which the petrochemical industry received an enormous boost from the state, based on the justification that it would contribute to economic development and job creation.

Almeida (1997, p. 34) asserts "the term development has replaced the notion of *progress*, which prevailed until the 1930s, associated with another idea of *growth* [italics in the original]". According to the author, if the former term basically referred to economic growth, the latter encompasses the structural transformation of society, and by 1950 it became more appropriate to highlight the socio-cultural transformations of the 20th century (ALMEIDA, 1997, p. 36).

An equally comprehensive context for discussing development is provided by Rist (2008), who, while viewing the notion of the emergence of modernity in the 18th century a myth, argues that the discourse regarding that supposed developmental trajectory became consolidated in the agenda of the Western world by the American policy adopted immediately

after the Second World War, whose trajectory of argumentative transformation of the policy, reaches, today, the sustainable development and even theories of degrowth. Regarding this point of view, Celso Furtado was one of the first to highlight two very important points in Brazil's trajectory that are highly relevant to our proposed discussion about the petrochemical plant in the South of the country. In 1974, at the height of the so-called "economic miracle", the economist rightly emphasized the mythical character of the use of the notion of development, while pointing out the problems caused to nature by purely economic development (CAVALCANTI, 2008).

Based on the work of José Luís Fiori, it is understood that, in the Brazilian case, especially in the period following the Second Great War the so-called "economic development" actions cannot be disconnected from state action, similar to what occurred throughout Latin American as a whole. According to what the author literally explains, "the 'developmentalist agenda' takes root in the 1930s, is consolidated in the 1950s, and undergoes a period of self-criticism and conceptual transformation in the 1960s, only to lose its intellectual vigour in the 1980s" (FIORI, 2013, p.2).

The four main aspects of the theoretical discussion of that agenda shared, according to Fiori (2013, p. 4), the "unwavering belief in the existence of a rational, homogeneous and functional state, capable of formulating economic growth policies, while overcoming any divisions, conflicts and contradictions that might cut through and paralyze the state itself". The author emphasizes the pragmatic prevalence, in the specific Brazilian case, of the national security theory, according to him, precisely the least elaborated of all¹². Originating within the *Escola Superior de Guerra* (Superior School of War) in the 1950s, but previously rooted in the military

movements that took part in the *Revolution of the 30s* and the *Estado Novo* (New State or Third Brazilian Republic) (1937-45), this theory gained greater historical relevance, "due to the central place occupied by the military in the construction and control of the Brazilian developmentalist state". In addition, the theory advocated the country's industrialization, in association with accelerated economic growth, in the context of a greater project of the "defence and expansion of national power" (FIORI, 2013, p. 3).

During the military regime, there was a policy favourable towards structuring efforts, expressed mainly in the I and II National Development Plans (PNDs - executed between 1972-1974 and 1975-1979, respectively). However, before these two plans, the country experienced the so-called 'Brazilian miracle', a period of high economic growth, although with high social costs, as there was a wage squeeze and an increase in the concentration of income in the country (NAPOLITANO, 2014).

The I PND, it is important to emphasize, regarding the theme of this work, had among its objectives "to place Brazil, in the space of a generation, in the category of developed nation; investments in the areas of the steel industry, petrochemistry, transportation, shipbuilding, electricity and mining" [our emphasis] (MATOS, 2002, p. 46-47). The II PND changed the priorities for Brazilian industrialization, emphasizing the sector producing the means of production (the steel industry, machinery, equipment and fertilizers), in the expectation of maintaining the annual growth rate at around 10%, which was not achieved, because the international scenario involved a crisis and the country's economy was decelerating (MATOS, 2002, p. 50).

In December 1964, *Petrobrás*, a new Brazilian company constituted by the not much older National Petroleum Council¹³, issued a reporting

¹² In this period of Brazilian history, the three other main lines of thought regarding development were, namely: the Weberian and its various modalities of modernization theory, where European and American states and their political and economic systems are seen ideally desired by societies seen as traditional; the structuralist, or 'CEPAList', with its theoretical centre-periphery framework presenting theses of economic development with a strong industrializing bias, coming from the *Comissão Econômica para a América Latina e o Caribe* - CEPAL (Economic Commission for Latin America and the Caribbean - ECLAC) and, finally, the Marxist, with its multiple possibilities of democratic-bourgeois revolution: the reformist strategies in this theoretical matrix based on the recognition of social classes and their struggles against colonial and imperialist structures (FIORI, 2013, p. 2 and 3).

¹³ Getúlio Vargas constituted the National Petroleum Council in 1938 and Petrobrás in 1953 (BRAZIL, Decree-Law No. 395, 04/29/1938; BRAZIL, Law No. 2.004, 10/3/1953).

on the "stage of development of the petrochemical industry in Brazil and its future prospects". That document was the result of the participation of the company (which presents itself as "having a monopoly on mining, refining and transporting oil in the country") in the "Seminar on the Development of the Chemical Industry in Latin America" (PETROBRÁS, 1964, p. 2).

Within this panorama of wide-ranging actions seen as "of development", we situate the emergence of the petrochemical sector in Brazil, by analysing this report from Petrobras published in 1964. The *Comissão Econômica Para a América Latina e o Caribe – CEPAL* (Economic Commission for Latin America and the Caribbean - ECLAC) and the United Nations Technical Directorate invited participants to the above-mentioned Seminar mentioned, which took place in Venezuela. CEPAL's developmentalist approach was initially seen, according to Colistete (2001, p. 21), as a proponent of the idea that "industrialization supported by State action would be the basic way of overcoming Latin American underdevelopment [...]". This line of thought appears clear in the way in which this report provides its diagnosis of the national situation - a subjective scale is used that stipulates a rule for the classification of countries (a stage of development) and soon afterwards identifies, obviously, a distance (delay) that must be overcome. Thus, the logic of this myth (of progress or development) assumes that the growing population will obviously need petrochemicals and, therefore, simply concludes that more petrochemical plants need to be provided. As Hamilton (2008, p. 117) says, the important gap between 'what you have and what you don't' in a developing country has considerable significance in relation to Brazil's national evolutive *ethos*.

At that time, the idea of progress and growth was pragmatically translated by the 2nd Development Plan from the Geisel government

(FONSECA, 2003). In this particular case, the internal production fertilizers, plastics and synthetic fibres was stimulated, which until then had been largely imported. The country's first petrochemical industrial clusters emerged against this background: "for the largest Latin American market for chemical products", which should "meet the needs of a population of around 80 million inhabitants and whose growth rate is 3.1% per year"- highlights the report - "one of the highest in the world". In addition to the existing facilities "in the President Vargas Petrochemical Pole, next to the Duque de Caxias Refinery, in Rio de Janeiro", two new undertakings were built. One in Cubatão, São Paulo, where the "new Petrobras Ethylene Plant" was under construction based on the pyrolysis¹⁴ of petroleum naphtha, and another in the city of Camaçari, in Bahia, a where a new "Petrochemical Cluster" was producing ammonia and urea from natural gas (PETROBRÁS, 1964, p. 7; 10-11).

From this point on, it is interesting to deepen the understanding of how Rio Grande do Sul entered into this scenario, with particular attention to the historical aspects loaded with environmental hues. When, in August 1975, it was announced the 3rd Petrochemical Pole would be built in the state, there were diverse reactions from different groups. The principal opponents were claiming to have environmental concern regarding the damage the Pole could cause, especially to the waters. An awareness of industrial pollution in Porto Alegre and RS already existed, due to campaigns led by AGAPAN, exemplified, among other cases, by the Borregaard episode, which mobilized the capital and metropolitan region against the air and water pollution arising from a wood pulp plant, built on the banks of the Guaíba, between 1973-74¹⁵.

To reconstruct the generated environmental conflict, we used oral sources, in semi-directed interviews, and written documents, especially newspapers. The use of newspapers as a

¹⁴ A technological option that ends up being widely adopted, pyrolysis is a chemical reaction in which a given substance decomposes into simpler ones. In this case, long chain hydrogen and carbon compounds are selectively transformed into the compounds of interest, with the aid of heat or chemical catalysts.

¹⁵ Cellulose Borregaard was a Norwegian company that built a pulp processing plant on the shores of Guaíba estuary in 1972. Its operation exuded a rotten egg smell that spread throughout the capital, Porto Alegre, and its metropolitan region. A campaign involving politicians, journalists and environmentalists led the plant to close for 100 days between 1973 and 1974. Its critics expressed concern regarding the possible contamination of the waters of the Guaíba estuary by effluent from the plants, which could contain dioxins, organochlorine particles that would be formed as a result of the use of chlorine in the bleaching of cellulose (PEREIRA, 2014; 2017).

documentary source can provide a major contribution to research on the interaction between humans and nature, a domain of environmental history. According to Stefania Gallini (2004), environmental history uses journals both as a source of empirical information on environmental dynamics in the past, as well as a record of the public discourses on nature and its manifestations. In the case of this research, the journalistic sources provide us with both the disputing public discourses, as well as the information that is indispensable for understanding the events surrounding the installation of the Pole.

Reconstructing the clashes

Once the area in Triunfo was defined, its proximity to Porto Alegre became a point of concern. The chemical engineer Heitor Silveira, in a lecture in São Paulo, had suggested the Pole should be located on the strip of land between the *Lagoa dos Patos* and the Atlantic Ocean, in the municipality of Mostardas, 140 km from Porto Alegre. When reminded that the metropolitan area had been chosen with a view to using raw materials from the Alberto Pasqualini refinery in Canoas, Heitor noted that the refinery itself was poorly located and that one error would not justify the other (FOLHA DA MANHÃ, Aug. 13th. 1976, p. 11).

The environmental movement was an important agent in criticizing the undertaking. The then president of the AGAPAN, José Lutzenberger, spoke out against the construction of the Pole in the state, noting that "progress should not be measured in the simple movement of materials and in the flow of money". His arguments were based on his previous professional experience (1957-1970) working in a petrochemical complex in Germany (BASF). Lutzenberger believed that, with the construction of the 3rd Pole in the area of greater Porto Alegre, the rivers Cai, Jacuí and Guaíba and *Lagoa dos Patos* would come to the same end as the River Rhine, in Germany (FOLHA DA MANHÃ, Aug. 13th. 1976, p. 11)¹⁶.

Not only environmentalists, but specialists in waste treatment (like the sanitary engineer Pedro Márcio Braile) and politicians also criticised the plans. However, only in relation to the planned location, due to its proximity to Porto Alegre, and not against the Pole itself. The state deputy, Adolfo Puggina, from the ARENA party: (see note 16), argued the Pole should be located in the port city of Rio Grande, on the south coast of the state. He suggested technicians from Brazil and abroad should be heard, so that errors, such as, in his opinion, the poor location of the Alberto Pasqualini refinery, would not be repeated. Puggina believed the location of the Pole "will determine the location of other industries, polluting or otherwise. It is a vicious circle that can be corrected now, when it is still opportune" (CORREIO DO POVO, Jul. 24th. 1976, p. 9). On the other hand, those responsible for the project claimed the Pole would ensure significant economic development. In 1976, the engineer Percy Louzada de Abreu presented data to show the project would bring many jobs to the local economy: 6 thousand jobs in the construction and assembly phase; 3 thousand permanent jobs at the central unit and six second generation units; and 34 thousand jobs in the associated manufacturing industries. The investments would total 1 billion and 700 million dollars, resulting in a total of 77 thousand jobs in the entire Pole (FOLHA DA MANHÃ, Sep. 10th. 1976, p.16).

At the time vice president of AGAPAN and professor of Chemistry and Genetics at the *Universidade Federal de Rio Grande do Sul* - UFRGS (Federal University of Rio Grande do Sul) Flávio Lewgoy also spoke about the Pole's consequences for the environment and human health. In his lecture "Contamination by heavy metals", for students at the university's Biosciences Institute, Lewgoy stated that "the questions are many and the certainties are few" and "what is known is that the location is not good and that catalysts based on mercury and other heavy metals will be used in the operations" (FOLHA DA TARDE, Oct. 06th. 1978, p. 19).

¹⁶ Lutzenberger was referring to the spill of the insecticide and acaricide Endosulfan, manufactured by the company Hoechst, into the River Rhine, which caused the death of millions of fish over 600 km of its course, which occurred on June 23, 1969, in Germany (PEREIRA, 2016, p. 80).

In view of the various criticisms of the project, the state government¹⁷ had to face the problem of water pollution, mainly because the waters involved bathed and supplied Porto Alegre. In 1977, an international tender was organized for the execution of a comprehensive study – *Relatório Técnico Preliminar* – RTP (Preliminary Technical Report) on the environmental consequences of the Pole, which was won by the *Conselho Nacional de Engenheiros Consultores S. A.* – CNEC (National Council of Engineers Consultants LTD) (ABREU, Interview, 2018), with the contract being signed on April 18, 1978 (RIO GRANDE DO SUL, 1980, p. II.1). To monitor the work and examine the proposals contained in the RTP, a Working Group was created consisting of specialists representing the bodies directly interested in the problem: CONPETRO, *Companhia Riograndense de Saneamento* – CORSAN (Rio Grande Sanitary Company), COPESUL, *Departamento de Meio-Ambiente* – DMA (Department of Environment) and the *Departamento Municipal de Água e Esgotos* – DMAE (Municipal Department of Water and Sewage). Although it included representatives of the State, it is interesting to note there were no members of the existing civil society environmental organizations, such as AGAPAN, for example.

The RTP, delivered to the state government in 1979, provided guidelines for implementing the Pole's effluent treatment system, divided into three major areas: Water, Air and Soil. In this study, the feasibility of building an outfall that would take the effluents to a final, as yet undetermined, destination should be assessed. According to the chemical engineer and then CORSAN employee Ellen Pritsch, the report was "the first EIA/RIMA made in Brazil without this

denomination and without this obligation: was, without a shadow of a doubt, that of the Rio Grande do Sul Pole" (PRITSCH, Interview, 2018)¹⁸. Similarly, the chemical engineer André Milanez confirms the important referential use he made of this "first EIA", during his time at the *Fundação Estadual de Proteção Ambiental Henrique Luiz Roessler* – RS – FEPAM (Henrique Luiz Roessler State Environmental Protection Foundation - RS) (MILANEZ; TOMAZ, Interview, Dec. 28th. 2017).

In volume II of that study we found the analysis of two alternatives for the final disposal of the effluents: The Atlantic Ocean (in the vicinity of Tramandaí-RS and the south of the *Lagoa do Quintão*); and the *Lagoa dos Patos*. According to the contents of this report from the CNEC, "the recommendation of the most appropriate alternative is made based on the criteria of the greater operational and environmental security and of proven technology, which prevail over those of an economic nature. Attention is also paid to the feasibility of the works being completed within a period compatible with the entry of the Pole into operation" (CNEC, 1979B, p. 2). However, in the final decision taken, economic factors played an important role. The document also clarifies why the hypothesis of discharging effluents into the waters of the Guaíba would not be analysed:

[...] the analysis of any possibility of discharging effluents into Guaíba and its tributaries is excluded, given the direct harmful effects that could result from such an action on the capture of water for public supply in some cities within the Metropolitan Region of Porto Alegre. In addition, any such discharge would represent another potentially polluting component in water courses that are already quite degraded and that have been the target of repeated efforts by municipal and state leaders to improve their quality ratings (CNEC, 1979B, p. 3).

¹⁷ Here it is important to mention that, during much of the period of the civil-military dictatorship, state governors were appointed by the presidents of the republic, and not democratically elected. With Institutional Act No. 2, emitted on October 27, 1965, political parties were dissolved and a two-party system was introduced, with an official government party, the *Aliança Renovadora Nacional* – ARENA (National Renovating Alliance) and the authorised, moderate opposition, the *Movimento Democrático Brasileiro* – MDB (Brazilian Democratic Movement). On December 20, 1979, this two-party system was extinguished, the MDB became a party, the PMDB and in 1980 several parties were created, such as the *Partido dos Trabalhadores* – PT (Workers' Party) and the *Partido Democrático Trabalhista* – PDT (Democratic Labour Party). The *Partido Democrático Social* – PDS (Social Democratic Party) was founded on January 31, 1980, from members of ARENA, and continued as such until 1993, when it was reformulated and became the basis for the foundation of the current *Democratas* – DEM (Democrats) and *Progressistas* – PP (Progressives).

¹⁸ The *Estudo de Impacto ambiental e Relatório de Impacto Ambiental* – EIA/RIMA (Environmental Impact Study and Environmental Impact Report) appears within the context of the National Environmental Policy, established by Law No. 6.938, of August 31, 1981, in the context of the environmental licensing instruments for activities, thus created. Subsequently regulated by CONAMA Resolution 01/1986, (article 2 through article 225, § 1, item IV to be part of the Federal Constitution of 1988 (BRAZIL, 1981; 1986; 1988).

As a result of these studies developed under the direction of CONPETRO, the state government issued a report on the treatment and final destination of the liquid effluents from the Pole, in which it stated that, due to the complexity of the problem and the deadline for resolution (a relatively short time, as the Pole was scheduled into enter into operation in 1982) "[...] responsibility for the development of complementary studies and the execution of the system" would be transferred "to CORSAN, a company with extensive experience in the implementation of sanitation works" (RIO GRANDE DO SUL, 1980, p. 22). This decision was taken, because at the time, PLANASA¹⁹, was in force, by which the entity's role was facilitated: "then CORSAN is asked to participate in the project, let's say in the most environmental part of the Petrochemical Pole, because it would necessarily be the financial channel through which the BNH (see note 18) would be able to finance this part of the enterprise" (PRITSCH, Interview, 2018).

The state government made several announcements about the disposal of liquid effluents, in different locations, between 1980 and 1981. In February 1980, vice-governor Octávio Germano (ARENA), who was also president of CONPETRO, announced the final destination of the effluents: "After being treated, they will even be channelled through an outfall directly into the ocean, where they will be discharged far from the coast, with a constant flow of 1000 litres per second" (ZERO HORA, Feb. 14th. 1980, p. 26). On the same date, Germano announced that CORSAN, a public company in RS, would be responsible for building "treatment plants for both sewage and the outfall". This outfall became popularly known as "the *tubão* (big tube)", and could extend for more than one hundred kilometres according to the locational alternatives considered for the final destination of the effluents.

When the decision was made public, voices were raised in opposition. Professor Eliezer Carvalho Rios, the then director of the oceanographic museum in Rio Grande, claimed to be "astonished that a working group that alleges to be 'for the preservation of water resources' concludes that waste from the Pole should be dumped in the sea. This is funny, because the sea is also a water resource, which they are making no effort to preserve. Water resources are not only freshwater" (ZERO HORA, Feb. 14th. 1980, p. 26).

Among environmentalists, the news dropped like a bomb. The core representatives of AGAPAN in Rio Grande, Luis Felipe Pinheiro Guerra and Adelino Mendes, considered "the working group's conclusion terrifying", accusing "its members of being so alienated from the environmental reality, that they acted in favour of approving the whimsical and pharaonic project of the *tubão*", as the 120 km conductor that will throw the liquid effluent from the 3rd Petrochemical Pole into the sea became known" (ZERO HORA, Feb. 15th. 1980, p. 35). In Porto Alegre, the *Associação Democrática Feminina Gaúcha* – ADFG (*Gaúcha Women's Democratic Association*) expressed concern, in a letter to the Governor Amaral de Souza (ARENA), signed by the president of the entity, Magda Renner: "Information on the final disposal of the effluents from the Petrochemical Pole, reported by the press to the general public, do not satisfy and much less reassure the people and entities engaged in the struggle for the very survival of children and young people today" (CORREIO DO POVO, Mar. 7th. 1980, unpagged). The AGAPAN President, Lutzenberger used strong language: he considered the government's assertion that the Pole would not pollute rivers and the environment in general "cynical and absurd". For him, the construction of an oceanic outfall "150 km in length already surpasses cynicism, as they admit that they will sweep

¹⁹ According to Saiani and Toneto Júnior (2010, p. 99), "the *Plano Nacional de Saneamento* – PLANASA (National Sanitation Plan) was, roughly speaking, a centralized model for financing investments in basic sanitation. It was based on municipal authorities granting the rights to exploit the services to the *Companhias Estaduais de Saneamento Básico* – CESBs (State Basic Sanitation Companies) of their respective states, that would then responsible for the execution of works and the operation of the systems. The *Banco Nacional de Habitação* – BNH (National Housing Bank), the body responsible for administering the *Sistema Financeiro de Saneamento* – SFS (System Financial for Sanitation), was responsible for, among other things, making loans with resources from the *Fundo de Garantia por Tempo de Serviço* – FGTS (Guarantee Fund for Length of Service) to finance part of the investments. Until the mid-1980s, only the CESBs benefited from this line of finance".

the garbage under the carpet". In his view, the population needed to be aware of "this dangerous problem for their health and that of their children" (CORREIO DO POVO, May. 29th. 1980, unpagged).

Thus, in March 1980, a Special Superintendency was created in CORSAN, directly linked to the Chief Executive Officer, the *Superintendência Para Programas Especiais - SUPE* (Superintendency for Special Programs), which became responsible for designing the effluent treatment system for the Pole²⁰. Among its first measures was the drafting of a call for tenders for companies to apply to build the final outfall for discharging effluent into the ocean, as well consultancy to define the "best disposal point". With the assistance of international consultants, the group concluded that "the most appropriate solution that meets all aspects of the problem is TERTIARY TREATMENT AND DISCHARGE INTO THE LAGOA DOS PATOS NEXT TO THE PONTA DA FORMIGA [original emphasis]" (RIO GRANDE DO SUL, 1980, p. IV, 16).

In January 1981, promising news was announced, the state government promised to support the city of Porto Alegre in the "*Rio Guaíba Project*", the first initiative to recover the waters that bordered the city (CORREIO DO POVO, Jan. 11th. 1981, cover). However, in the following month, February 1981, Octávio Germano announced a proposal to discharge the effluents from the Pole into the River Guaíba. It would require the *Assembleia Legislativa - AL* (Legislative Assembly) to revoke a decree from 1976 that prohibited the release of industrial effluents into its waters²¹. For Corsan's Chief Executive Officer, Edson Molina Belo, the Guaíba receiving all the effluents from the Pole was a source of pride, because the waters that would come out of this system "will be very well treated. There is nothing like it in the whole world. Not even the Americans have it" (ZERO HORA, Feb. 11th. 1981, p. centre pages).

Leaders of AGAPAN expressed their indignation: for Lutzenberger, it was "inadmissible, it would be to risk contaminating the quality of the water that remains in the *Guaíba-Lagoa dos Patos* system" (FOLHA DA TARDE, Feb. 11th. 1981, unpagged). Caio Lustosa, then vice-president of the entity, stated that "if this treatment is going to be the first in the world, we will be the guinea pigs (...) the world is waiting for the miraculous solution of putting a Petrochemical Pole into operation without discharging pollutants. The eyes of the world are on the technicians at Triunfo" (ZERO HORA, Feb. 11th. 1981, p. centre pages). Flávio Lewgoy suggested, if "after treatment, the effluents from the Pole will be cleaner than the river water ... why don't they use that water, then?" (ZERO HORA, Feb. 11th. 1981, centre pages.).

Opposition politicians also took a stand against the announcement, such as the then-senator Pedro Simon, for whom "this decision could not be dictated by the higher or lower cost of one milieu or another. It is a public health problem. The healthiness of the water that the population of Porto Alegre drinks. The health of the river and the food products it provides. So, there is no way to merely balance higher and lower costs, deciding on the lowest" (ZERO HORA, Feb. 11th. 1981, centre pages).

The oceanographer Adelino Mendes (AGAPAN-Rio Grande delegate) noted the contradiction in the government's actions, "at the same time it proposes to spend money trying to recover the Guaíba, the government approves the idea of dumping the waste from the Pole in the same place, an attitude that must be fought by all entities directly linked to the subject" (ZERO HORA, Feb. 12th. 1981, p. 31). With various manifestations against, the impasse continued.

Even with the destination of the effluents uncertain, in April 1981, Octávio Germano reported that the work on the *Sistema de Tratamento de*

²⁰ This group arose from the previous *Núcleo de Tecnologia Aplicada a Preservação dos Recursos Hídricos - NTRH* (Nucleus of Technology Applied to the Preservation of Water Resources), which according to interviews with Millos Stringhini, Luiz Antonio Timm Grassi, Lígia Würth Simon and Ellen Pritsch, was created in 1975 at the *Companhia Riograndense de Saneamento* (CORSAN). According to Ellen, who was a member in 1976, "[...] it was an embryo within CORSAN of an attempt to discuss the environmental issue a little more within the company" (PRITSCH, Interview, 2018).

²¹ This is Legislative Decree No. 3,601, of 12/30/1976. Authored by then state deputy Lélío Souza: (MDB), the decree stipulated that "the industrial waste from the 3rd Petrochemical Pole, whatever the treatment process adopted, will be taken to a final point of discharge from which the waters of the delta and the Guaíba estuary, as well as those of its tributaries or sources will be inaccessible" (RIO GRANDE DO SUL, 1976a).

Efluentes Líquidos do Polo Petroquímico do Sul - SITEL (Integrated System for the Treatment of Liquid Effluents of the Southern Petrochemical) had begun. As the official government representative, he pointed out that 1 billion Cruzeiros (Brazilian currency at the time) would be spent on the undertaking and that CORSAN was investing in training the personnel in charge. One of them was doing an internship in Europe - in this case, the chemical engineer Zeno Simon. As the decision was in the hands of the Legislative Assembly, the state deputy Carlos Giacomazzi (PMDB) requested the establishment of a special commission to deal with the matter (CORREIO DO POVO, Apr. 3rd. 1981, p. 19).

To worsen the deadlock, on June 15, the state government again announced that the effluents would be discharged into *Lagoa dos Patos*. The following day, the deputy Aldo Pinto (PDT) stated: "the legislature's only remaining resource is to seek an impeachment mandate, requiring the removal of Governor Amaral de Souza" (CORREIO DO POVO, Jun. 16th. 1981, p. 10). Other parliamentarians also spoke out, for example, the statement by Rospide Neto (PMDB): "our government seems to be totally insensitive in relation to ecology". The leader of the Social Democratic Party (PDS) was going to propose to the government bench that the governor refrain from presenting the project to the AL, as it would be defeated by the opposition (PDT and PMDB).

In addition to state deputies, mayors and councillors of the cities bordering the *Lagoa dos Patos* also opposed the state government's plan. From that moment, the manifestations against the project intensified, culminating in the activities of the CLCP, between June 1981 and the beginning of 1982. On international environment day in 1981, a public protest against the Petrochemical Pole was held - and also in repudiation of the Angra dos Reis nuclear power plant - which brought together 500 people. The demonstration was severely repressed by the state police, "that beat and arrested several protesters, who were later released following a march and vigil by [other] demonstrators that reorganised themselves" (EM TEMPO, Jun. 11th to 24th. 1981, 1981, p. 7).

In the midst of this scenario, the state government attempted to convince the population that discharging the waste into the *Lagoa dos Patos* would be the best means of disposal, with advertisements in newspapers, radio and TV stations, something that would be contested by the leader of the PDT in the Porto Alegre City Council Chambers, Councillor Glênio Peres, because, according to him, it was "an untruth, there is no petrochemical complex in the world that does not have effects on the environment" (ZERO HORA, Jun. 20th. 1981, unpagged). One of these advertising pieces said, on two full pages in the newspaper *Correio do Povo*: "The Pole will not pollute" (CORREIO DO POVO, Jun. 14th. 1981, p. 8-9).

The debate about the Pole would also affect the fishermen of the *Lagoa dos Patos*, who would be directly affected by the effluents. The *Correio do Povo* reported that the Colony Z-2 in *São José do Norte* intended to hold a symposium to study the discharge issue. The colony was opposed to having the discharge into the lagoon or seashore: it could be a "death blow" to fishing, an activity on which 20,000 families depended in the lagoon and oceanic coastal areas (CORREIO DO POVO, Aug. 28th. 1981, unpagged).

The solution to the heated debate came at the end of 1981. In the legislative session of December 23, 1981, the state deputies of Rio Grande do Sul considered Bill 169/81, from deputy Roberto Cardona (PDS), which provided for the disposal of liquid effluents from the Triunfo Petrochemical Pole. In article 1, the bill stipulated: "The Executive Branch is obliged to dispose of the liquid effluents from the Southern Petrochemical Pole in the area after carrying out primary, secondary and tertiary treatment, observing the legal and constitutional provisions in force, which prohibit their direct discharge into local natural water courses or lakes". The bill was approved and became law the following year (RIO GRANDE DO SUL, 1982).

From that moment, the role of CORSAN technicians in implementing the SITEL was decisive. It involved an intricate and challenging operational, due to the practically unprecedented characteristics of the project and the tight

deadlines for its achievement, as well as the constant need for public disclosure.

With national and international technical assistance, a centralized treatment plant was designed and built, which receives the pre-treated effluents from the chemical plants, subjecting them, in accordance with the environmental standards defined for that purpose, to successive treatment phases to remove pollutants. In the most critical case, involving organic effluents, the removal consists of three levels of treatment, as required by law²², to which a final polishing stage is added: the final disposal of the treated effluents into the soil.

For a healthier and more democratic environment: the solution to the conflict

State Law No. 7,691 of July 7, 1982, which requires tertiary treatment and prohibits the final disposal of effluents from the Southern Petrochemical Pole into watercourses, ended the controversy and was one of the determining factors of the solution adopted, the deposit of the treated effluents into the ground below the Pole itself (RIO GRANDE DO SUL, 1982).

From its conception until it effectively entered into operation, the Southern Petrochemical Pole was inserted in the context of the civil-military dictatorship that ruled Brazil. The initial model of decision-making by state agents, in order to achieve the goals determined in the National Development Plans, had to be revised. In this analysed context, ecology had already entered the public arena: the pioneering struggles led by AGAPAN and other entities had already raised environmental awareness in Rio Grande do Sul and Brazil. As a result, the critical nature of the public debate, with its ecological background, was much greater than the military regime and its managerial apparatus had foreseen.

The resistance to the project went beyond the conflict between the dictatorial government (federal and state) and civil society, with contrasting

positions within the governmental sphere itself. Opposition politicians, who initially supported bringing the Pole to RS, due to the debate arising out of the possibility of water pollution, changed 'side' and began to condemn the venture. Mayors from municipalities on the shores of the *Lagoa dos Patos* only declared their opposition to the Pole when the plan to discharge the resulting effluents into its waters was disclosed.

When mapping the political clashes over the pollution caused by the Pole, it can be argued that they occurred, primarily, in the reaction of leaders of environmental organizations that opposed the Pole in Rio Grande do Sul: José Lutzenberger, Caio Lustosa and Flávio Lewgoy from AGAPAN, Magda Renner from ADFG, professors and university researchers (from the Biological Sciences area especially), and some opposition state deputies. For them, the jobs that would be created would not compensate for the water pollution. From 1981 onwards, with the disclosure that the effluents would be discharged, after only secondary treatment, into the *Lagoa dos Patos*, various types of demonstrations were held: in addition to the protests from the mayors, the *Comissão de Luta Contra o Polo* (Committee to Fight Against the Pole) organised street demonstrations and protest shows, as well as setting up ecological camps in defence of *Lagoa dos Patos*.

On the part of the State, the main agents involved in the conflict over the Southern Petrochemical Pole were the members of CONPETRO and COPESUL, in the coordination of the project; the state government and ARENA politicians - who supported the interests of the existing military regime -, in defence of its feasibility in generating jobs and development in RS; and CORSAN, whose employees participated in the technical debate and in the final solution for solid effluents, materialized in the creation of SITEL. The State tried to ignore the Decree of 1976, which prohibited the discharge of liquid effluents into the waters of the Guaíba delta and estuary -

²² The primary treatment phase removes coarse materials, sand, oils and greases (in water/oil separators); in the secondary phase, biological treatment with activated sludge reduces the organic matter and the suspended solids of these effluents, so that, in the tertiary phase, the final removal of the organic load takes place in the polishing ponds. The sludge removed in the secondary treatment of this effluent is equally later treated in the soil, in sludge farms (FLORES, SIMON, GOETTEMES, 1983, p. 7 and 8).

attempted politically manoeuvres, but, thanks to the mobilization of civil society, it was defeated.

In the end, in order to carry out its desired development action, the government needed to find a viable solution for the disposal of liquid effluents, without dumping them into water bodies and without building gigantic pipelines. In addition, this battle led to the development of a more thorough treatment, which produced an effluent less harmful to the environment. However, this only came about due to the efforts of technicians from CORSAN, who felt the need to respond to the popular outcry, coming from environmental organizations, opposition deputies, newspapers columnists and young students eager for political participation. In the context of the opening and the transition to a democratic regime, between the late 1970s and early 1980s, the struggle awakened by the announcement of the 3rd Petrochemical Pole in Rio Grande do Sul gave rise to other feelings and perceptions: in addition to the fight against the pollution of the waters, the combat against the arbitrariness of a development project planned out in offices isolated from the population was frankly favoured a healthier and more politicized atmosphere, in undoubtedly social movements born in this environmental conflict that occurred during the civil-military dictatorship.

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