

Universalization of basic sanitation versus environmental licensing and IA

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Introduction and Contextualization

In 1981, the Brazilian National Environmental Policy, Law No. 6,938, listed among its instruments Environmental Impact Assessment (EIA) and Environmental Licensing (EL), without immediate specific regulation.

In 1986, the National Environmental Council (CONAMA), through CONAMA Resolution nº 001, established criteria, definitions, responsibilities, and general guidelines for the application of EIA, to be prepared in the format of an Environmental Impact Statement (EIS) and its Report of Impacts to the Environment (RIE) for activities, undertakings or projects that modify the environment, as an integral element of its Environmental Licensing process.

In 1997, the same council, through CONAMA Resolution No. 237, sought to provide more precise guidance on Environmental Licensing, which had not been regulated until then, defining environmental studies as any study on environmental aspects that subsidizes the analysis of the required license. The Resolution emphasizes the need to prepare an EIS-RIE in the case of licensing of activities that actually or potentially cause significant degradation to the environment, which will be publicized, and a public hearing will be held, when appropriate.

In the last few years, a series of proposals for regulating Environmental Licensing were taken to the National Congress, including the General Licensing Law, PL nº3729/04, approved by the Chamber in mid-2021, which is still awaiting approval from the Senate.

Brandão and Gallardo (2023) carried out a historical documentary analysis of the proposals for regulating Environmental Licensing and the authors highlight that, regarding this version, there is the fact that the mandatory Environmental Licensing of projects related to water and sewage treatment plants has been removed, which can pose serious risks to the environment.

It is valuable to make it clear that, in Brazil, basic sanitation is related not only to sewage systems but also to drinking water systems.

In this sense, it must be recognized that water and sewage services are fundamental factors of public health and basic living standards, and their global universalization represents one of the most essential struggles of the 21st century. Sanitation prevents diseases and promotes human dignity and well-being, in addition to being fundamental for economic development.

The 2030 Agenda established by the United Nations (UN) in 2015 determines the 17 Sustainable Development Goals (SDGs), among these objectives are water and sewage, with the aim of ensuring the availability and sustainable management of water and sanitation for all until the year 2030.

In Brazil, the quality of water supply and sewage services is still deficient and unequal; the universalization of these services in the country represents a major challenge. According to the 2022 Basic Sanitation Ranking, carried out by Instituto Trata Brasil, in the 100 largest cities in the country alone, there are still around 35 million people who do not have access to treated water and 100 million who do not have sewage collection and, in practice, less than half of the sewage collected is treated.

There is another aspect to emphasize when (not) applying impact assessment to basic sanitation projects as we consider climate changes and the challenges they bring to this sector.

This work aims to highlight environmental impacts commonly identified in Environmental Impact Statements specifically for Water Treatment Plants, the mitigating and compensatory measures presented, among other relevant information and concerns regarding the projects, and thus, contribute to the discussion on the exemption of these projects from undergoing an Environmental Licensing and an Environmental Impact Assessment process.

The methodology used involved bibliographic and documentary review, in addition to analysis of Environmental Impact Statements and their reports referring to proposals for water treatment plants. Two reports were used in this stage.

Another research is being developed, doing the same analysis on sewage treatment plants studies. There will be a final paper putting both analysis together and providing a wider discussion on the topic.

Key-words: basic sanitation; drinking water; water treatment plants; Environmental Impact Statement.

Results and discussion

WTP Tanque – Itabira, Minas Gerais (MG)

The study presents locational alternatives for the installation of the project, including a list of pros and cons for each of the locational alternatives, showing data on river intake flow rates, kilometers of pipeline that would be necessary, as well as the regions through which this system would need to be built. This type of thinking is also extended to the intake alternatives, considering the terrain geometry and the pumping stations that would be necessary for transporting the water.

Another important point is the analysis of environmental interferences that should be avoided through the survey of presence of components in this region, such as indigenous peoples, traditional communities, cultural heritage sites, and others. Finally, after all these surveys, a comparative matrix is created, in which the best alternative is chosen and marked as recommended by the study. This choice reconciles both the best routes and the smallest impacts, arriving at the intersection between what is economically viable and ecologically less invasive.

The study also presents the measures that must be adopted when the treatment plant is already in operation, discussing the impacts that will occur, whether in the emission of liquid effluents, atmospheric emissions, noise, and solid waste, foreseeing that the sludge will be thickened and dewatered in geotextile bags and subsequently properly disposed of, without detailing how this disposal would be carried out.

In the EIS, information is presented about the climate, air quality, noise, rocks, terrain, water resources, soils, fauna, flora, health, education, sanitation, housing, and economy of the region.

WTP Itapoá, Santa Catarina (SC)

Regarding the EIS of the Itapoá Water Treatment Plant in SC, the document begins with the motivations that led to the proposal for the construction of the project, including production and pumping deficits, reservoir deficits, intermittence during summer periods, absence of an effective loss reduction program, and deficiencies in operation and maintenance activities.

The study describes the possible impacts generated by the activity, in addition to specific impacts, showing the areas of influence, evaluating locational alternatives, diagnosing physical, biotic, and socioeconomic aspects, as well as proposing measures for prevention, mitigation, and/or compensation of negative impacts and measures for enhancing positive impacts.

Regarding locational alternatives, the study demonstrates concern regarding the Ombrófila forest areas in the region, which limit the locational implementation possibilities of the plant. The location was chosen considering the insufficient quality of soil on the banks of the Saí-Mirim

River (alternative 1), being the defined location strategically well-positioned from a water distribution perspective.

Regarding fauna and flora, concerning birds, some species found in the region are threatened of extinction; therefore, as a mitigation measure, plans for the recovery of the riparian forest near the WTP site were proposed, as well as the annotation of areas with native forest for environmental compensation, accompanied by a two-year environmental monitoring program of wildlife species.

Table 1 presents some of the negative impacts highlighted from the two reports and the mitigation/compensation actions and programs listed to each of them.

Table 1 - Main environmental impacts and mitigation/compensation actions listed in EIS-RIE's of water treatment plants.

IMPACT	MITIGATING, COMPENSATORY AND/OR CONTROL
Disturbance/driving away/death of animals	Assist employees with how to proceed in the presence of native species
	Adoption of measures that seek to reduce noise levels, control and organize the traffic of trucks, people and machinery
	Implement an Environmental Education Program, aiming to raise environmental awareness of workers and the surrounding population
Suppression of vegetation cover	An area of the same size as the one removed, in the same region, will be compensated with forest replacement
Change in air quality	Measures to minimize or even avoid the occurrence of this impact involve: controlling emissions in land preparation and cleaning activities, in the movement of materials, equipment and cargo vehicles, through moistening work areas, washing truck tires when exiting the project onto public roads, and regulating vehicles in accordance with standards, which must be detailed in the Environmental Management Program
Increased noise and vibration levels	As a way of minimizing impacts related to noise, it is suggested to monitor the sound propagation of the flow of vehicles around the WTP to neighboring residential areas. It is also important that periodic maintenance is carried out on transport equipment
	The operation of the equipment responsible for capture and flocculation takes place in a closed environment and during the daytime
Change in soil quality	Mitigating measures relate to controlling the generation and adequate final disposal of solid waste and effluents. For this purpose, it is suggested to use areas containing designed waterproofing and drainage systems, to prevent waste generated by civil construction, handling of products for supply and maintenance of vehicles and equipment from reaching the ground. In addition, periodic maintenance must be carried out on machines and equipment to prevent oil and grease spills

Change in the landscape	There are no mitigating measures in relation to the impacts on the landscape resulting from the implementation of the project
Soil erosion/instability	The project must be implemented in progressive stages, in order to reduce soil exposure to the erosion process
	Minimization of soil movements during rainy seasons or times
	Implement environmental protection devices that prevent silting
	Promote the maintenance and cleaning of watercourses and natural drainage
	Implement Erosive Process Control Program
Change in the quality of water resources	Control of the generation and adequate final disposal of solid waste and effluents arising from activities carried out on the construction site. It is suggested to use areas containing designed waterproofing and drainage systems. In addition, periodic maintenance must be carried out on machines and equipment to prevent oil and grease spills
	Carry out periodic maintenance on the operational system, in order to maintain the characteristics of the effluents within permissible standards (CONAMA Resolution 357/05 and CONAMA Resolution 430/2011)
Risks of work accidents	It will be necessary to implement a Social Communication Plan, aimed at disseminating information about the project to the population of the region, enabling the insertion of criticisms, expectations, suggestions and local demands
	Employees must be required to use PPE (Personal Protective Equipment)
	Machines, equipment, systems and other installations that operate automatically must contain devices that interrupt their operation when safety limits are reached
	Access to machine and equipment operating areas will be permitted only to authorized people
	Each machine or equipment that operates on electricity must have an emergency key or stop button
	All electrical installations must be adequately protected against occasional impacts from water, dust, animals and the influence of chemical agents
	Starter keys for machines and equipment must be stored and protected against accidental activation
Generating expectations in the community	It will be necessary to implement a Social Communication Plan, with the same goals of the one mentioned previously

Conclusion

Thinking about contributing to the debate on the possibility of exemption for water treatment plants in the Environmental Licensing with Environmental Impact Statement, when analyzing the EIS-RIE's of the WTP Tanque and WTP Itapoá, it is possible to highlight:

- the concern with the locational alternatives of the project. Considering the longitudinal extension of the water bodies, there are many possibilities for the location of the WTP itself and the point of water intake to capture river water. Speculating on a project in which there is no need to conduct these studies, the chosen alternative will be the most financially favorable.
- also regarding location, another concern is with peoples, villages and protected areas near these locations. The studies listed locational possibilities and selected the one that presented the lowest number of environmental impacts, demonstrating that the non-performance of these studies would most likely result in (avoidable) environmental degradation.
- another important factor is the counter proposals for mitigation and control of the predicted environmental impacts.

There is another thing that is, it was expected that there would be a greater concern regarding the sludge generated by the plants, which was scarcely commented on in both studies. Treatment plants sludge has been a topic of discussion but rarely treated with attention. If Environmental licensing and impact reports are dropped out, this topic might be even more neglected in new projects.

By the end, with the proposals of monitoring programs and mitigating measures, WTP's can fulfill their role of treating and providing better quality water to the population while also not negatively impacting the environment.

Universalization is an urgent need in basic sanitation services, but putting the environment in risk just because of distributing treated water is not a valuable argument, mainly when we see all the climate and global changes impacting on the availability and quality of water, at the same time we see heavy rains bringing so many damages and even diseases to people, reinforcing the role that Environmental Licensing and Impact Statements must play.

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