

Environmental licenses in Colombia and Brazil. A regulatory review on environmental processing and monitoring with emphasis on the application of management measures to enhance positive impacts

Carolina Pérez-Muñoz¹

¹ Economista. Magister en Estudios Urbano-Regionales, estudiante de Doctorado en Sostenibilidad. Universidad Centro Panamericano de Estudios Superiores de México. Medellín, Colombia. carolina.perezm86@gmail.com; <https://orcid.org/0000-0002-9120-9816>

Environmental licenses in Colombia are defined as an authorization granted by an environmental authority for the execution of a project, work or activity that may cause serious damage to renewable natural resources or the environment. For their granting, an Environmental Impact Study (EIA) must be submitted that includes, among others, the economic evaluation of the positive and negative impacts of the project and its monitoring is the responsibility of the environmental authorities. Thus, it was sought to determine whether this environmental monitoring includes measures to enhance identified positive impacts and, likewise, to establish a comparison with Brazil. To do so, a qualitative methodology with an exploratory scope was addressed, using secondary information sources on the procedures, manuals, regulations and the legal and regulatory framework of Brazil and Colombia, with emphasis on the latter because it corresponds to the main country of study. It is concluded that Brazil has made progress compared to Colombia in terms of incorporating positive impact enhancement measures into environmental monitoring, which could constitute a good practice to be implemented in Colombia, in addition to others found in Colombia, which could be implemented within the terms of reference for environmental licensing.

Keywords: Environmental licenses, environmental impacts, enhancement measures, environmental authorities, environmental benefits, land use planning instruments.

1. Introduction

When we talk about environmental problems and unsustainable extraction of natural resources, we cannot ignore the interest at the international level in exposing the need to take action in this regard. Hence, the recognition of environmental rights and the consolidation of the guiding principles, including "the principle that recognizes the right of all peoples to sustainable development" and, consequently, the fact that "the conservation of the environment must not be incompatible with the raising of the standard of living of countries rich in biodiversity" (Perea, 2016, p. 28). Likewise, the Rio de Janeiro conference on environment and development of 1992 defined, in addition to the concept of sustainable development, its principles, which highlighted:

Principle 16. The authorities must encourage the internalization of environmental costs, taking into account the criterion that the polluter must bear the costs of the damage caused to the environment and natural resources with a certain economic activity.

Principle 17. An environmental impact assessment should be undertaken, as a national instrument, for any proposed activity that is likely to have a significant negative impact on the environment and that is subject to the decision of a national competent authority. (United Nations Conference on Environment and Development [UNCED], 1992, p. 4).

It is then from the Rio Declaration that an impulse is given for countries to include environmental impact assessments, as tools to prevent the damage that human activities cause to the environment. Thus, in most countries of Latin America and the Caribbean, the obligation to assess the environmental effects of certain projects has been established, and environmental impact assessment is being implemented and adopted as an instrument of preventive environmental management through rules that regulate it, as well as the inclusion of community participation through instances of participation (Economic Commission for Latin America and the Caribbean [ECLAC], 2017).

In Colombia, particularly with the issuance of Law 99 of 1993 "By which the Ministry of the Environment is created, the Public Sector in charge of the management and conservation of the environment and renewable natural resources is reorganized, the National Environmental System, SINA, is organized, and other provisions are issued", the concept of sustainable development is accepted as the first general environmental principle defined in the first article as follows: "1. The process of economic and social development of the country shall be guided by the universal principles of sustainable development contained in the Declaration of Rio de Janeiro of June 1992 on Environment and Development" (Congress of the Republic, Law 99 of 1993).

And, with respect to principles 16 and 17, Law 99 includes the obligation of the environmental license in Article 49. To be granted, an Environmental Impact Study (EIA) must be submitted that includes, among others, an evaluation of positive and negative impacts and, subsequently, in the monitoring and control stage, an Environmental Compliance Report (ICA) on the attention to environmental impacts. At this stage, according to the "Manual for monitoring

environmental projects issued by the Ministry of the Environment" (2002),² although it presents the evaluation of actions for the prevention, correction, mitigation and compensation of negative environmental impacts, a gap is created when it comes to measuring actions to enhance positive environmental impacts that measure compliance with the responsibility acquired by projects to enhance well-being social.

Based on the above, and in order to identify whether the absence of this monitoring and control is a Colombian situation or, on the contrary, persists in other countries, it is taken as an example to be compared to Brazil, in order to establish differences and similarities with Colombia, more specifically in the identification of the environmental benefits for the granting of licenses and their subsequent monitoring and control. To this end, an exploration was carried out on the granting process, the monitoring process and, finally, a review of possible methodologies adopted to identify, implement and manage positive environmental impacts. Finally, the conclusions on the results obtained are presented.

2. Methodology

This article addressed a qualitative methodology with exploratory scope through the use of secondary information sources on the procedures, regulations, manuals and legal and normative framework of Brazil and Colombia, with emphasis on the latter because it corresponds to the main country of study. Its comparison with Brazil is due to the fact that in the Colombian case the boom in environmental licenses began with Law 99 of 1993 as a result of the Rio Summit, so it is expected, with this analysis, that the host country of one of the most important summits in environmental matters will have the tools with which Colombia still needs to implement.

Additionally, its exploratory scope was due to the fact that in the terms of reference issued by the Ministry of Environment and Sustainable Development (MADS) and the National Environmental Licensing Authority (ANLA) in Colombia, institutional guidelines were not observed to carry out this monitoring, so an exploration was carried out through the Brazilian experience. to expand the conclusions on the positive impacts. The review had two perspectives: first, from the perspective of Brazil, where the consultation was carried out on the main pages of the competent public entities, in charge of granting environmental licenses, and second, from the academic production on the positive impacts, using the databases of scientific journals. At the same time, a comparative analysis of the information obtained was carried out, in order to establish if there are methods for monitoring the licenses with respect to the positive impacts and to compile the good practices found in those where it is presented.

3. Results and discussion

3.1 General context of environmental licensing

² From now on, an environmental monitoring manual.

Environmental licenses in Colombia are defined as an authorization granted by an environmental authority for the execution of a project, work, or activity that may cause serious deterioration to renewable natural resources or the environment. To obtain it, an EIA must be submitted which, in accordance with article 2.2.2.3.5.1 of the Single Decree Regulation 1076 of 2015 "On the environment and sustainable development sector", is the instrument that allows decision-making for the granting or not by the competent authorities, which correspond to the ANLA or the Regional Autonomous Corporations (CARs). This study must be submitted following the "General Methodology for the Preparation and Presentation of Environmental Studies" (MGEPEA), issued by Resolution 1402 of 2018 by the MADS and its terms of reference must include, among other elements, information related to the evaluation of environmental impacts and the economic evaluation of the positive and negative impacts of the project.

With regard to the economic evaluation of the positive and negative impacts of the project, they correspond to an economic analysis of the environmental impacts that they may produce, the procedure for which is defined in the "Manual of technical criteria for the use of economic tools in projects, works or activities subject to environmental licensing" issued in Resolution 1669 (MADS and ANLA, 2017).³ Thus, adverse environmental impacts are part of the costs of the project and positive environmental impacts are part of its benefits (Dixon and Pagiola, 1998).

In this evaluation, the internalization analysis that contains the cash flow of the so-called internalizable impacts must be applied. In this way, the internalizable impacts are those controllable by the project and their quantification corresponds to the costs of implementing prevention and correction management measures. Now, the internalization analysis covers exclusively negative environmental impacts, since they are expected to be prevented or corrected by the environmental license, through the Environmental Management Plans (EMP). Consequently, the items associated with the MAP are constituted, first, in an information bank to develop the traceability of the behavior of the impacts during the different stages of licensing, and second, as a commitment of the applicant for the license, for its environmental monitoring.

For those impacts that generate a residual effect on the environment and require to be addressed through mitigation or compensation management measures, a Benefit-Cost Analysis (ABC) must be applied and its quantification is also the baseline for environmental follow-up and monitoring by environmental authorities in monetary terms (**Figure 1**). However, in this monitoring, the authorities focus only on negative impacts, without considering the positive impacts, which correspond to the final result of the generation of well-being due to the presence of a project.

³ From here on: manual of technical criteria.

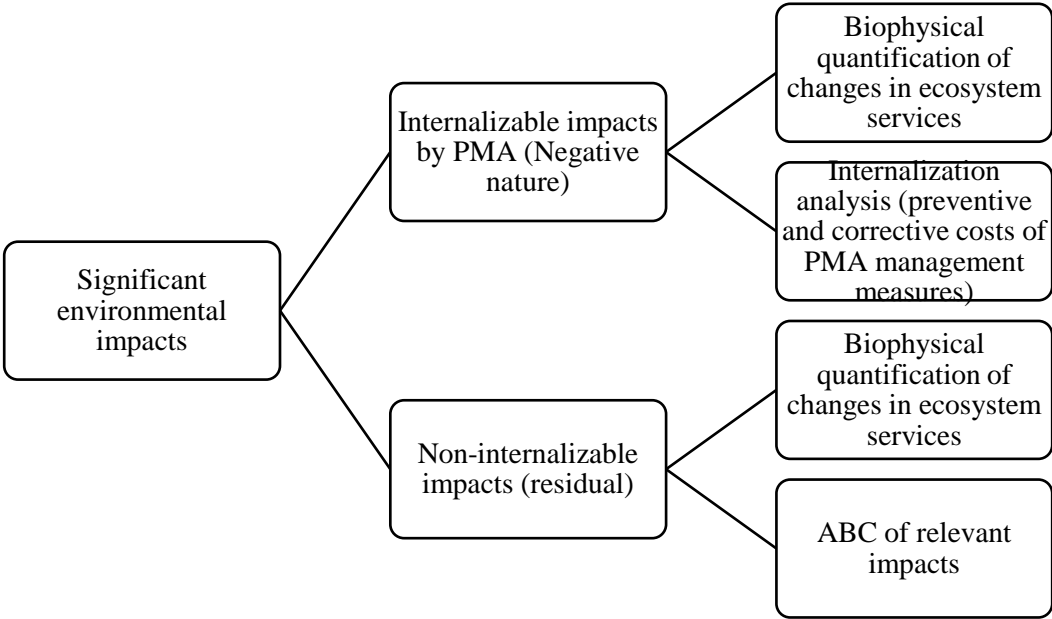


Figure 1. Synthesis of the environmental economic assessment in the environmental licensing process in Colombia.

Figure 1. Summary of the environmental economic assessment in the environmental licensing process in Colombia.

This can be corroborated in the monitoring and control stage defined in the manual of technical criteria (p. 70), which focuses on internalizable impacts and non-internalizable impacts (negative costs or externalities), whose monetary values were defined in the prevention, correction, mitigation and compensation measures of the WFP, but, with regard to the well-being previously identified in the EIAs (benefits or positive externalities), there are no monetary orientations or indicators of these externalities.

The absence of control and monitoring of positive impacts is also evident in the "Manual for monitoring environmental projects issued by the Ministry of the Environment" (2002) since, although it clearly explains the evaluation of actions for the prevention, correction, mitigation and compensation of negative environmental impacts, a gap is created when it comes to measuring actions to enhance positive environmental impacts that measure compliance of the responsibility acquired by the projects to enhance social welfare (**Figure 2**).

However, it is important to note that a large part of the environmental licenses granted in the country bring a benefit in itself, but the immediate effects are generated within the area of

influence and not exclusively in the ecological environment, but also in the social environment, which, ultimately, is the second part that makes up the environment intervened by a project and in which the environmental authorities, they are also the calls to promote the fulfillment of the development opportunities that the most affected communities may have.

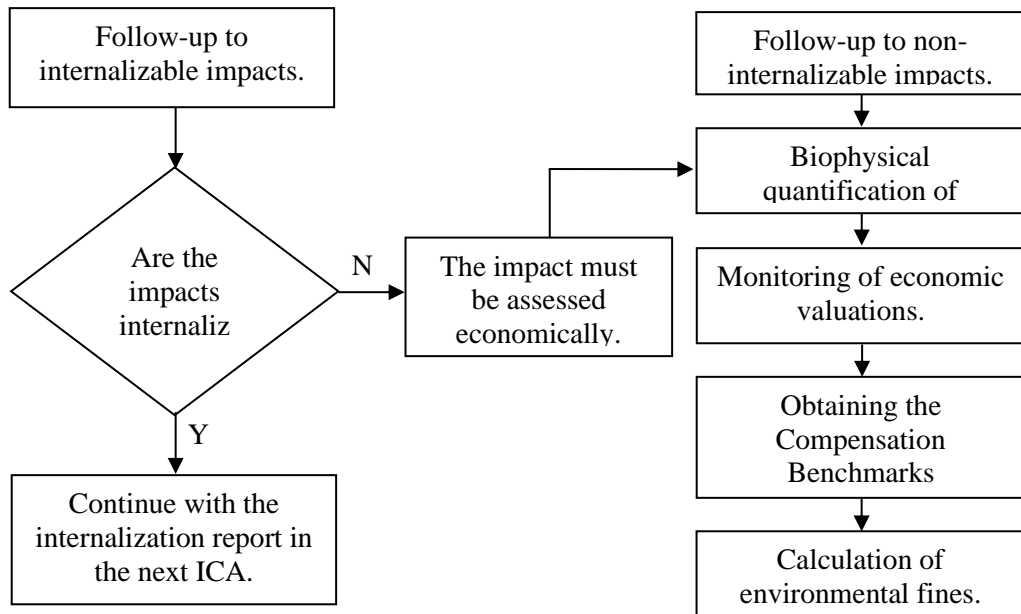


Figure 2. Follow-up to the environmental economic evaluation of environmental licenses in Colombia.

Figure 2. Monitoring of the environmental economic evaluation of environmental licenses in Colombia.

Source: (MADS and ANLA, 2017)

Licenses in Brazil, on the other hand, as defined in the National Environmental Policy, are a preventive management tool for the protection of the environment. There, the bases were contemplated so that, in the licensing, the competent entities evaluate the impacts that each project may cause to the environment through an environmental feasibility analysis, in accordance with current environmental standards (National Congress of Brazil, Law 6,938 of 1981).

The governance structure of Brazil's environmental sector is made up of the National Environmental System (SISNAMA), which is developed through the Ministry of the Environment and includes other institutions such as the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), the environmental bodies of the provinces, the environmental bodies of the provinces, the environmental bodies of the province the National

Council for the Environment (CONAMA) and the sectors involved in civil society, similar to the USIS in Colombia, which is the set of guidelines, standards, activities, resources, programs and institutions that allow the implementation of the general environmental principles defined in Law 99 of 1993.

Although there is federal regulation in Brazil, each state is free to list its procedures for issuing environmental licenses. Thus, the environmental licensing process can be carried out by three areas: Union, States or Municipalities, depending on the classification and activity and, therefore, each entity has autonomy to create its own licensing procedures, following, of course, the guidelines of the applicable legislation. However, the environmental license is granted by only one of them (Costa & Musarra, 2021). Regarding this situation, there are differences with Colombia, since the granting of the license is in charge of the CARs according to their jurisdiction or the ANLA, and their differentiation in where to carry out the procedure, lies in the magnitude of the project, which is defined in Decree 1076 of 2015.

3.2 Licensing process

To obtain an environmental license in Brazil, although the procedures adopted by each competent environmental body are autonomous, in general, according to Rusch and Krull (2015), some standard steps are presented, as described below:

- Step 1. Identification of the competent environmental agency.
- Step 2. Identify the type of environmental license to be requested. Although terminologies also vary depending on the competent body, there are basically three types of leave. First, the Prior License (LP) that corresponds to the first license that is granted after the analysis of the impacts to be generated and the management programs to be implemented, which must contain the exact location of the project and the activity to be generated. Secondly, the Installation License (LI) which could be interpreted as the license in a construction stage since the activity does not yet operate there and, finally, the Operating License (LO) that corresponds to the development of the activity itself.
- Step 3. License application form to the competent environmental authority. The interested party must request, fill out and submit an application form to the environmental body along with the documents required for it.
- Step 4. Opening of the license authorization process. Along with the documents from step 3, the Entrepreneurship Characterization Report (RCE) must be submitted. From then on, the environmental agency begins the process process, requesting from the project all the documents and environmental studies that are necessary for the granting of the license, clarifications, technical visits and other adjustments.
- Step 5. Presentation of studies and other documents requested by the authority. In Brazil, although there are common environmental studies required in most states, depending on the nature and phase of licensing, applications may vary according to their own laws and procedures.

In addition, in accordance with the provisions of CONAMA Resolution 9 of 1987, a public hearing must be held for the purpose of explaining to the interested parties the content of the EIA and resolving doubts, criticisms or suggestions in this regard, and a Neighborhood Impact Study (EIV) is also required within the process, which corresponds to those activities that could affect the quality of life of the population in the area of influence. The purpose of the EIV is to indicate the positive and negative effects of the activity on the quality of life of the population residing in the area and its surroundings.

- Step 6. Analysis of the process by the competent authority. After the analysis of all the documents and studies presented, the environmental agency may schedule a technical inspection in the project area, in order to verify the veracity of the information presented and gather an additional one to establish the environmental conditions, which will be part of the license. These correspond to the commitments established by the projects to address environmental impacts. According to Balsamão (2023), environmental conditioning factors can be divided into three types: Preventive, whose function is to prevent or prevent the project from causing environmental damage; mitigators that aim to reduce some environmental and compensatory damages whose objective is to compensate for some damage that cannot or could not be prevented or mitigated.
- Step 7. Granting of the environmental license. After the inspection, in case it is not necessary to review the studies or modify the project, the environmental license is issued by the competent environmental entity.

The steps for the licensing process in Colombia before the ANLA have a greater number of steps, unlike the Brazilian case, such as:

- Registration in VITAL. This corresponds to an application that must be filled out by the interested party that contains the basic information.
- Request for DAA pronouncement. Unlike the Brazilian case, in Colombia, the environmental authority must be requested, in accordance with article 2.2.2.3.4.2 of Decree 1076 of 2015, for a pronouncement on the need to present an Environmental Diagnosis of Alternatives (DAA), whose requirements are also defined in the aforementioned decree.
- Preparation of environmental study. The environmental study is presented based on what is defined in the MGEPEA.
- Request for payment settlement, which corresponds to the value of the procedure.
- Completion of the Preliminary Verification of Documentation (VPD) form and license. It corresponds to the checklist in the VITAL application in order to preliminarily verify the documentation.
- Communication of the Initiation Order.

- Start of the evaluation. It consists of carrying out the environmental assessment to determine the viability or not of the project, which is done in a documentary manner and with a field visit.
- Gathering additional information. It consists of a meeting where the authority requests additional information in order to complete the analysis of the required procedure.
- Adjustment of the environmental study. After the meeting, the applicant must adjust the EIA in order to determine the environmental viability of the project.
- Notification of the administrative act of the decision. Once the evaluation process has been completed by the Environmental Authority, an administrative act is issued granting the license.

It is important to note that in the environmental licensing process, the public hearing is held in the Brazilian case as an obligation to expose the content of the EIA to the interested parties, which can be carried out more than once and, if it is not done, the license granted would not be valid; unlike the Colombian case which, in accordance with the definition of Article 2.2.2.4.1.5 of Decree 1076 of 2015, only one hearing is held, regardless of the plaintiff requesting it and only in the event that it is requested as mentioned below.

Article 2.2.2.4.1.5. Application. The holding of an environmental public hearing may be requested by the Attorney General of the Nation or the delegate for Environmental and Agrarian Affairs, the Ombudsman, the Minister of Environment and Sustainable Development, the general directors of the other environmental authorities, governors, mayors or at least one hundred (100) persons or three (3) non-profit entities... The request must be made to the environmental authority and contain the name and identification of the applicants, the address, the identification of the project, work or activity in respect of which the holding of the environmental public hearing is requested and the reasons for this... If two or more requests for environmental public hearings are received, relating to the same licence or permit, they will be processed together and the same public hearing will be convened, in which the signatories of the different applications may intervene.

3.3 Environmental Follow-up and Monitoring Process for the License

Regarding monitoring and control in Colombia, the environmental monitoring manual defines that the presentation of the EIA "implies measures for the prevention, correction, compensation and mitigation of impacts and negative effects of a project, work or activity" (p. 159) and, likewise, defines the MAP as the plan that in detail "establishes the actions that are required to prevent, mitigate, control, compensate and correct the possible negative environmental effects or impacts caused in the development of a project, work or activity and also includes follow-up, evaluation and monitoring plans and contingency plans" (p. 160) and, although elements associated with positive impacts are not included, a series of files are presented as inputs to incorporate the monitoring of negative impacts with actions, indicators and supports, which allows a standardization for the presentation of the ICA.

In Brazil, on the other hand, control and monitoring is carried out at each stage of the project, in such a way that it meets the requirements of the previous license to be able to access the next one (Sánchez & Calderón, 2014). Although, according to Milanetto (2005), the programs of accompaniment and monitoring of the impacts are treated partially and without depth, reaching the point of becoming only recommendations and, in some cases, the mitigating measures are confused with the execution of works that are of direct interest to the project.

Part of this gap is explained by the lack of post-license support for effective control, the absence of standardization of procedures, and the lack of social participation in decision-making processes (National Association of Municipalities and the Environment [ANAMMA], 2009; Viana, 2007; Viana, 2013; Ribeiro, 2006), which is why Bursztyn and Bursztyn (2013) emphasize the need to incorporate technical quality for the construction and implementation of guidelines and adequate manuals with standardized procedures in environmental licensing, since the absence of specific federal laws that regulate this instrument has led to the resolutions issued by CONAMA, generate uncertainty in their application as they are rules of local application and do not fill the gap in the need for federal law to regulate the instrument in its granting and monitoring and control.

In summary, in the process of environmental follow-up and monitoring for Brazil, it calls environmental conditioning factors, if a parallel is established with Colombia, it corresponds to environmental management measures. Although, if we focus on the procedures related to the environmental monitoring process, unlike the Colombian case that has the project monitoring manual, based on the references cited, there is a generalized conclusion associated with the absence or real accompaniment by the competent authority and the standardization of procedures in Brazil.

3.4 Methodologies identified for the enhancement of positive environmental impacts

Although there are no guidelines that oblige licenses to enhance positive impacts for the Colombian case, it is important to note that licenses also invest resources in some cases associated with empowerment, although not related to monitoring and control. The first of them focuses on the obligations that must be fulfilled by hydrocarbon exploration and exploitation licenses, defined in Decree 1760 of 2003 "By which the Colombian Petroleum Company, Ecopetrol, is spun off, its organic structure is modified and the National Hydrocarbons Agency and the company Promotora de Energía de Colombia S. A", since, in the case of these licenses, in addition to the obligations derived from the environmental authority, those defined by the mining authority corresponding to the National Hydrocarbons Agency (ANH) must be complied with. Thus, Article 5 contains, among other aspects, the following:

5.7 Agree in exploration and exploitation contracts on the terms and conditions subject to which the contractor companies, as part of their social responsibility, will carry out programs for the benefit of the communities located in the areas of influence of the corresponding contracts.

Picture 1. Investment lines of the PBCs.

Table 1. Investment lines of the PBCs.

Type of projects	Examples
Eligible projects because they promote the improvement of the quality of life of the communities	<ul style="list-style-type: none">• Construction and adaptation of educational and health infrastructure for communities.• Provision of medical, hospital and health elements for the communities.• Construction and provision of sports, recreational, cultural and community facilities.• Improvement of formal and non-formal education in communities.• Maintenance, adaptation and construction of roads of community interest.• Training for communities according to local and regional needs.• Housing improvement programs.• Community programs for the management, protection and conservation of the environment.
Eligible projects because they strengthen the economic capacities and food security of communities	<ul style="list-style-type: none">• Employment generation projects.• Productive projects of community benefit.• Food safety projects.• Technological improvement projects of production• Community business creation programs.• Irrigation and soil adaptation projects.• Programs for the improvement, adaptation or acquisition of productive lands for the collective benefit of the communities.
Eligible projects for institutional strengthening and anti-corruption.	<ul style="list-style-type: none">• Projects that strengthen transparency and the fight against corruption.• Training and education projects for community leaders and leaders.• Programs to improve group capacities for dialogue with the State and companies.• Programs for the formulation and community management of projects.• Tours and programs for the exchange of community experiences.

These Programs for the Benefit of Communities (PBCs) have terms of reference defined by the mining authority and define the lines of investment: projects that promote the improvement of the quality of life of the communities, projects that strengthen economic capacities and food security, and projects for institutional strengthening and anti-corruption. Likewise, it is defined that "the Programs for the Benefit of the Communities must be in harmony with the

Environmental Management Plans, Social Management Plans, Territorial Planning Plans, Life Plans and the Municipal and Departmental Development Plans, of the Area of Direct Influence of the operation" (ANH, 2020, p. 4) (**Picture 1**).

In accordance with the above, the interest of this type of license to incorporate empowerment actions is observed. Even within the guiding principles of the PBCs there is that of positive impact, which seeks to "promote the improvement of the quality of life of the target population" (ANH, 2020, p. 3). However, this situation occurs only with hydrocarbon licenses since, with the licenses of other economic activities, similar guidelines that can contribute to the well-being of the territories are unknown.

The second advance identified does not have a direct relationship with the obligations derived from the licenses, although they are developed by companies that have licenses. This corresponds to the investments associated under the Works for Taxes (OpI) mechanism. The OpI regime is a tax mechanism, through which companies have the possibility of paying up to 50% of their income tax and complementary taxes, through the direct execution of investment projects in the areas most affected by violence and poverty.

Income tax taxpayers have the possibility of partially paying the value of their income tax, and with the execution of works they can pay up to 50% of their tax charged. The execution of these projects must be developed through investment in the Areas Most Affected by the Armed Conflict (ZOMAC), within which it seeks to prioritize the PDET territories (Development Programs with a Territorial Approach) that correspond to the territories most affected by violence, poverty, illicit economies and institutional weakness.

Finally, the advances in corporate social responsibility (SR) are also highlighted. According to Giraud and Durán (2022), SR in organizations is a measure of the impacts that their decisions and activities cause on society and the environment, through transparent and ethical behavior and, although it is not an activity of licensed companies, these actions focus on positive impacts. Even the so-called B corporations (BCorp) have been emerging, which are characterized by being triple impact companies (environmental, social and economic), since they seek the creation of integral and verifiable value with social and environmental problems.

The certification of a B corporation is obtained through the non-profit organization B Lab and companies that seek this type of certification do it in order to fulfill their mission and vision, generate networks, build relationships, improve their reputation, attract talent and improve positive impacts. In the Colombian case, this type of companies have been promoted since the creation of Law 1901 of 2018, known as the BIC Law, which creates the Commercial Companies of Benefit and Collective Interest (BIC), where companies voluntarily take advantage of this legal form and commit to comply with the stipulations. reporting its reports based on the guidelines of the ISO 26000 standard, so this is an alternative for the development of many territories where companies are located.

In the case of Brazil, although there is an absence of methodologies for environmental monitoring or guidelines on them explained above, IBAMA recently issued Ordinance 1729 of 2020 that contains the "Structure of the environmental management plan of federal environmental licensing" (PGA), which corresponds to a technical document for the accompaniment of the environmental impact assessment of projects. The PGA systematizes the actions and activities contained in the measures for the prevention and treatment of environmental impacts and monitoring, including the guidelines for the adoption of the measures. In addition, it aims to inform all interested parties about the environmental performance of the project.

An element to highlight is that the licensee within the structure of the PGA, must inform the objective that is intended to be executed with said plan, be consistent with the impacts and the respective environmental measures, specifically defining the intention to avoid, reduce, correct and compensate the negative impacts and enhance the positive impacts, which accounts for, that the PGA includes the monitoring of positive impacts in environmental licensing, which is not presented with the monitoring manual for projects in Colombia.

Likewise, with regard to the description of environmental measures, it is again mentioned that the measures envisaged to avoid, reduce, remedy or compensate for negative impacts and enhance positive impacts must be detailed, describing: methods, techniques and technologies adopted, degree of dependence on other environmental measures, necessary resources, implementation period, those responsible, expected effectiveness and other relevant information.

To comply with the above, the project must submit to the environmental body a series of forms that summarize the environmental impacts, measures and indicators, which contain the impact to be addressed, its significance, the corresponding environmental measures, the goals, indicators and the program if any. Additional information is also included, highlighting the budget planned for the execution of the measures, as well as the financial execution for the periods of duration of the license. This element can be compared with the Colombian case regarding the internalization analysis, since the environmental authority requires compliance with the costs associated with the internalizable impacts which, although in this case, only includes the negative ones, is similar in terms of monitoring the resources to be allocated.

There is also the methodology called "Guide for the development of environmental education programs in environmental licensing" issued by the Ministry of Environment of Brazil (2019), which establishes the guidelines for the development, implementation, execution and evaluation of Environmental Education Programs (PEA) aimed at groups, individuals or social segments in the area of influence of the activity in the federal environmental licensing process. However, although environmental education contributes to promoting social participation and could constitute an environmental additionality due to the appropriation and transfer of knowledge to society, there is no evidence of the enhancement of positive impacts.

4. Conclusions

The analysis of both countries made it possible to establish similarities regarding the environmental system they have, the conception of environmental licenses, their authorities and the required environmental assessments. Also, some differences such as the types of licenses, the binding nature of public hearings and the environmental monitoring manual that Colombia has unlike Brazil. Now, if we focus exclusively on the positive impacts, here there is progress for Brazil unlike Colombia, in accordance with what is defined in ordinance 1729 of 2020 that incorporates the monitoring of environmental measures, including the enhancement of positive impacts and the budget planned for their execution. In this way, templates are presented for the incorporation of the measures and related information, including indicators, reference values, location, etc., for impacts of both natures that can be considered as good practice for their implementation in Colombia, as a methodology to incorporate or complement in the project monitoring manual. **Table 2** presents the synthesis of the examples presented.

Picture 2. Summary of the examples presented

Table 2. Summary of the examples presented.

Considerations	Colombia	Brazil
Associated standard	Law 99 of 1993. Decree 1076 of 2015	Law 6,938 of 1981
Environmental system	SINA	SISNAMA
Name of the environmental study required to grant a license/permit	EIA	EIA
	PMA	Structure of the environmental management plan of the federal environmental licensing
Methodologies for monitoring negative impacts	ICA	PGA
Methodologies for monitoring positive impacts	N/A	PGA
Competent authority granting permission/licence	ANLA	IBAMA
Mandatory public hearings or consultations	It is convened by the community or interested actor	It is convened by the environmental entity

This absence of incorporation of measures to enhance positive impacts does not exempt the environmental authorities or companies from their management, since the intervention of a project in the territory, beyond generating a private financial return, must promote the

environmental benefit for the use of natural resources, a situation that should persist in the useful life of the project. in articulation with an ABC presented in a processing phase. In the event that a follow-up of these is not presented, such analysis will not cease to be a purposeless documentary requirement for the affected communities in the territories.

The above conclusion is justified by the aforementioned authors, who emphasize that when an impact assessment is carried out, such as the environmental economic assessment, for example, what is most interesting are not the specific results achieved immediately after the conclusion of the action, but the benefits or lasting effects of these. These results are decisive for decision-making by the actors involved in the territories and, through concrete empowerment actions, can contribute to territorial transformation.

5. References

- National Hydrocarbons Agency [ANH]. 2020. Annex F. Programs for the Benefit of Communities - PBC-. Bogota, Colombia.
https://anh.gov.co/documents/3818/ANEXO_UNICO__Resolucion_lineamientos_terminos_y_condiciones_PBC_areas_continental.pdf
- Associação Nacional de Órgãos Municipais de Meio Ambiente [ANAMMA]. 2009. Final report of systematization: decentralization of environmental policies and strengthening of municipalities to combat the effects of climate change. Encontro Nacional da Anamma, 19, Rio de Janeiro, Brazil.
- Balsamão, J (2023). Environmental Conditioning Factors. <https://iusnatura.com.br/condicionantes-ambientais/>
- Burztyn, M. A. & Bursztyn, M. (2013). Fundamentals of environmental policy and management: paths for sustainability. Brazil: Garamond.
- Economic Commission for Latin America and the Caribbean [ECLAC]. 2017. Access to information, participation and justice in environmental matters in Latin America and the Caribbean. <https://repositorio.cepal.org/server/api/core/bitstreams/4719deaf-0702-4fed-838d-264fe70b01ef/content>
- United Nations Conference on the Human Environment [UNCED]. 1992. Stockholm Declaration on the Human Environment.
<http://www.ordenjuridico.gob.mx/TratInt/Derechos%20Humanos/INST%2005.pdf>
- Congress of the Republic of Colombia. (December 22, 1993). Law 99. By which the Ministry of the Environment is created, the Public Sector in charge of the management and conservation of the environment and renewable natural resources is reorganized, the National Environmental System (SINA) is organized, and other provisions are issued. DO. 41.146.
http://www.secretariassenado.gov.co/senado/basedoc/ley_0099_1993.html
- Congress of the Republic of Colombia. (June 18, 2018). By means of which commercial companies of collective benefit and interest (BIC) are created and developed. [Law 1901 of 2018]. DO. 50,628.
<https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=86982>
- Conselho Nacional do Meio Ambiente. (January 23, 1986). Resolução 009. Dispõe sobre a alteração da Resolução nº 7/88. DOU. 217, of 11/08/1989, p 13.660.
https://urbanismoemioambiente.fortaleza.ce.gov.br/images/urbanismo-e-meio-ambiente/resolucao/resolucao_conama_009_de_1988.pdf

- Costa, H. & Musarra, R. (March, 2021). Principais aspectos do licenciamento ambiental para captura e estocagem de dióxido de carbono no Brasil. **Brazilian Journal of Development**. 7(3), 29.468-29.488.
- Dixon, J. & Pagiola, S. (1998). Economic Analysis and Environmental Assessment. Environmental Assessment Sourcebook Update. 23:1-17. <https://www.conservation-strategy.org/sites/default/files/field-files/EAUPDATE-S3-Spanish.pdf>
- Forattini, G (2012). Federal Environmental Licensing – LAF in Brazil. Ministry of Environment Ministry. https://sea.gob.cl/sites/default/files/migration_files/seminario/SANTIAGO_CHILE_05112012_GISELA_DAMM.pdf
- Giraud, L. & Durán, D. (2022). Tools for the management of Social Responsibility, Sustainable Development Goals and B corporations. Peru: Fondo Verde.
- Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA). (2020). Portaria 1729. Estrutura do Plano de Gestão Ambiental do Licenciamento Ambiental Federal. https://www.gov.br/ibama/pt-br/assuntos/laf/procedimentos-e-servicos/arquivos/publicacoes/Estrutura_PGA_Ibama-LAF.pdf
- Milanetto, C. (2005). Análise do monitoramento pós estudo de impacto ambiental no Estado de São Paulo. [Master's thesis, Universidade Federal de São Paulo]. Centro de Ciências Exatas e de Tecnologia. <https://repositorio.ufscar.br/bitstream/handle/ufscar/4404/DissCMM.pdf?sequence=1>
- Ministry of Environment and Sustainable Development (July 25, 2018). Resolution 1402. By which the General Methodology for the Preparation and Presentation of Environmental Studies is adopted and other determinations are made. DO. 50,673. <https://www.minambiente.gov.co/documento-normativa/resolucion-1402-de-2018/>
- Ministry of Environment and Sustainable Development (August 4, 2017). Resolution 1669. By which the Technical Criteria for the Use of Economic Tools in the projects, works or activities of Environmental License or Equivalent Instrument are adopted and other determinations are adopted. DO. 50,335. <https://www.minambiente.gov.co/wp-content/uploads/2021/11/resolucion-1669-de-2017.pdf>
- Ministry of the Environment. 2002. Manual of environmental monitoring of projects. Criteria and procedures. Bogota, Colombia. <https://www.minambiente.gov.co/wp-content/uploads/2022/04/Manual-de-seguimiento-ambiental-de-proyectos-2002.pdf>
- Ministry of the Environment Environment. 2019. Guide for the Development of Environmental Education Programs in Federal Environmental Licensing. Rio de Janeiro, Brazil. <https://www.gov.br/ibama/pt-br/assuntos/laf/procedimentos-e-servicos/arquivos/publicacoes/2019IbamaGuiaparaElaboracaodosProgramasdeEAnoLAF.pdf>
- Munévar, C. & Valencia, J. (2020). Socio-environmental conflicts in Colombia in the context of Environmental Licenses and access to justice. *Revista Jurídicas*, 17(1), 42-63. <https://10.17151/jurid.2020.17.1.3>.
- Perea, F. (2016). Law and Environment (2nd ed). Colombia: Librería Jurídica Sánchez R Ltda.
- Presidency of the Republic of Brazil. (August 31, 1981). Law No. 6,938. Dispõe sobre a Política Nacional do Meio Ambiente, seus fins e mecanismos de formulação e aplicação, e dá outras providências. OJ of 2/9/1981, p. 16.509. <https://www2.camara.leg.br/legin/fed/lei/1980-1987/lei-6938-31-agosto-1981-366135-norma-pl.html>
- Presidency of the Republic of Colombia. (June 26, 2003). By which the Colombian Petroleum Company, Ecopetrol, is spun off, its organizational structure is modified and the National Hydrocarbons Agency and the company Promotora de Energía de Colombia S. A. are created.

- [Decree 1760. De 2003] DO. 45,230.
<https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=65495>
- Republic of Colombia (May 26, 2015). Environment and Sustainable Development Sector. [Decree 1076 of 2015]. DO. 49,523.
<https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=78153#:~:text=El%20objeto%20de%20este%20decreto,las%20leyes%20del%20sector%20Ambiente.>
- Ribeiro, J. (2006). Desafios do licenciamento ambiental. In: State Seminar on Licensing. Environmental. Brazil: AMDA/SEMAD.
- Rusch, E, & Krull, A. (2017). Guidance guide for environmental licensing. Câmara Brasileira da Indústria da construção (CBIC). https://cbic.org.br/wp-content/uploads/2017/11/Guia_de_Orientacao_para_Licenciamento_Ambiental_2015_esp-1.pdf
- Sánchez Montenegro, D. C. & Calderón Gómez, E. (2014). Comparative study of the environmental licensing process for projects, works or activities in the electricity sector between Colombia and Brazil. Retrieved from https://ciencia.lasalle.edu.co/ing_ambiental_sanitaria/973
- Viana, M. (2007). Licenciamento ambiental de minerações em Minas Gerais: novas abordagens de gestão. [Mestrado, Universidade de Brasília], Universities of Brasília.
- Viana, M. (2013). Environmental License. Legislação brasileira sobre meio ambiente: instrumentos da Política Nacional do Meio Ambiente. Brazil: Edições Câmara. <http://goo.gl/J9BsWS>