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Investigación original

Public participation in Environmental Impact Assessment (EIA): acceptance of the impact

Participación pública en Evaluación de Impacto Ambiental (EIA): aceptación del impacto

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Abstract: This paper presents the results of exploratory research related to the attributes assigned to environmental impacts, which followed a qualitative assessment methodology. This methodology is widely used in Colombia; however, a variable that represents the participation of the communities in the evaluation of the environmental impact is sought. The Colombian regulations and continuous legal sentences on prior consultation issues in black communities' and indigenous reserve territories, as well as the collective characteristics of these properties, deserve the inclusion of a variable that measures public participation in the assessment of environmental impacts. Particularly in the Chocó territory, it is necessary to include an additional attribute apart from those required in the qualitative assessment (which can be extended to collective property territories throughout the country or globally) that represents the communities' will. Therefore, the decision to carry out a project, work or activity is only made after consideration of a greater human approach and without discrediting other environmental factors involved in these areas, which are potentially sensitive to environmental effects. It was determined that the acceptability of projects and environmental impacts are part of the decision-making process made by the environmental authority, but communities are typically not considered. The possibility of obtaining community acceptability as a part of the methodology for assessing environmental impacts, that is, as a variable or additional attribute of an environmental impact assessment, has not been previously considered and makes this work novel.

Keywords: community participation, environmental impact, environmental impact assessment.

Resumen: Este trabajo presenta los resultados de una investigación exploratoria relacionada con los atributos asignados a los impactos ambientales y teniendo en cuenta la metodología de valoración cualitativa, ampliamente utilizada en Colombia; sin embargo, se busca también, una variable que represente la participación de las comunidades en la evaluación de los impactos ambientales. Las normas colombianas y las continuas sentencias sobre la legalidad de la consulta previa en territorios de propiedad colectiva de comunidades negras e indígenas, amerita la inclusion de una variable que mida la participación pública en la evaluación del impacto ambiental. Particularmente para el territorio chocoano, es necesario incluir un atributo adicional a aquellos que hacen parte de la valoración cualitativa (que se puede extender a territorios colectivos del orden nacional y mundial) y que represente a las comunidades, para que la decisión de ejecutar un proyecto, obra o actividad se tome con mayor sentido humano, sin el menoscabo de los otros factores ambientales implicados en las áreas potencialmente sensibles a los efectos sobre el ambiente. Se encontró que la aceptabilidad de los proyectos y de los impactos ambientales existe como parte del proceso de toma de decisiones desde la perspectiva de la autoridad ambiental y escasamente por parte de las comunidades o Stakeholders. Lo que no se pudo encontrar fue la posibilidad que dicha aceptabilidad haga parte de las metodologías de valoración de los impactos ambientales, en términos de una variable o atributo adicional de un impacto ambiental y ese aspecto convierte este trabajo en una novedad.

Palabras clave: participación comunitaria, impacto ambiental, evaluación del impacto ambiental.

1. Introduction

The Colombian legislation, from the Political Constitution, laws, decrees and pertinent resolutions, regulates the participation and prior consultation of the black and indigenous communities in the collective territories of their property. This is particularly seen when carrying out projects, works or activities, related to the exploitation of natural resources and the construction of roads, ports and similar infrastructure works. Even legal protection is related to political, programmatic decisions that potentially affect the interests of these communities; these legal considerations are stated in article 330 of the Political Constitution of Colombia, Law 21 of 1991, Law 70 of 1993, Law 99 of 1993 and Decree 1320 of 1998.

The constitutional, legislative and executive mandate is clear regarding the obligation to carry out prior consultation in projects, works or activities intended to be done in territories of black and indigenous communities in Colombia (Rodríguez- Becerra and Espinoza, 2002; Rodríguez and Muñoz Ávila, 2015; Sánchez, 2012).

In Colombia, Environmental Impact Assessment (EIA) and the Strategic Environmental Assessment (EAE) process include public participation as a right of communities for the success of projects that require environmental licenses (Perilla, 2015).

This article aims to raise a discussion about the need to obtain an expression that represents the participation of communities in the methods used to assess environmental impacts in such a way that the established legal mandates are reflected in them.

To achieve this purpose, an extensive literature review of specialized publications at the international and national levels, and environmental studies done in Colombia, particularly in regions such as the department of Chocó, was conducted.

The review did not suggest a variable that represents the communities in the mathematical expressions used to measure environmental impact in territories with black and indigenous communities. It is therefore necessary to propose that environmental impact assessments in these communities be modified to include their acceptance or rejection when carrying out any interventions in their geographical areas.

2. State of the art

The first identified model regarding the level of participation of communities is the "Arnstein's model", which is also, known as "the Participation Ladder", and consists of a ladder with rungs that correspond to the extent of the citizen' power in determining a plan and/or program subject to consultation. This ladder begins with its lowest participation level referred to as "manipulation" and ends in the highest degree called "citizen control". There is no participation in the lowest rung, which improves while moving up to the highest level of effective participation (Arnstein, 1969); an interesting analysis posed by Arnstein debates who bears the power when important decisions are made during a participation process.

However, the model of "public acceptability", proposed by John Thomas; suggests that the desirable degree of public participation varies according to the subject; the issues that require a greater "acceptability" demand greater participation, whereas the issues with higher "quality" requirements are less demanding. This also considers "political participation" versus "technical participation", according to Thomas (1993) who unveils the need for raising the information or training level for the interested parties in his approach.

During the EIA process, Roberts (1995) considered necessary to involve the public; he used the term "public involvement" and then divided it into "consultation" and "participation". "Consultation includes education, shared information and negotiation, with the aim of making better decisions. While participation means incorporating the public into the decision-making process" (Sánchez, 2011). In this analysis, both terms are considered equal, since both cases involve the influence of the public on decision-making processes.

Public consultation for environmental decisions is not always attached to a legal mandate required by governmental entities; rather, it can be conducted "voluntarily" by overseeing the start of it by the companies involved during the implementation of the investment projects, which is known as "voluntary participation". The suggestion of Azinger (1998), is that after feeling the need for public consultation, the company must identify the stakeholders, which are normally communities in the project's area of influence, and the process must be then planned with them (Azinger, 1998).

More recently, Canadian Scholars proposed the Civic Environmental Assessment model (Civic EA), which intends to redefine public participation on the basis of active citizens, a deliberate and focused spirit towards learning (Sinclair and Diduck, 2017). An interesting proposal is that during its implementation, communities be provided with environmental concepts through short educational processes over the course of a public participation experience. Similarly, some academics have contributed to the theoretical development of public participation in environmental assessment: (e.g., Lienhoop, 2018; Wu et al., 2017; Hasan et al., 2018; Glucker et al., 2013; Meredith, 2000; Salomons and Hoberg, 2014; Bastidas, 2004; Okubo, 2016; Rega and Baldizzone, 2015; Hartley and Wood, 2005).

The need to integrate certain variables related to the involvement of communities in determining the importance of impacts that are forecasted during the Environmental Impact Assessment was not be found in the literature. However, the Japanese authors Takahashi and Sato (2015) worked from a different perspective and indicated that "the development of energy systems in the future will depend on the balance between the environmental, economic viability and the public acceptance impact". In their work, these authors concluded, that alternative energy generation technology may not be sustainable or effective if it poses public acceptance difficulties; whereas other authors, such as Langer et al. (2018), Eswarlal et al. (2014) and Roddis et al. (2018), show advancement in this line of work. Even, Johnson Kanu et al. (2018) recognize the public acceptance variable but insist on the difficulty in measuring it. Public acceptance begins to show the development of a possible attribute for an EIA. Even though this variable appears a lot when Sánchez (2011) mentions that the environmental impacts can be accepted or rejected by communities (Sánchez, 2011), these two expressions (acceptance or rejection) could be the values considered for the acceptance attribute in the implementation of a qualitative assessment for environmental impacts.

2.1 Public participation and EIA methodologies

The participation of communities could be included in the implemented methodologies to assess environmental impacts, to reduce conflicts and to make the decision-making process more effective. Qualitative Assessment for Environmental Impacts (*Valoración Cualitativa de los Impactos Ambientales*, VACIA) consists of evaluating "a series of qualities of the environmental impacts, usually using the qualities defined by legislation and getting a numeric value that is called importance" (Garmendia, 2005). This assessment has been used since the emergence of methods used to perform an EIA. Some scholars have shown interest in addressing the issue. For instance, Glasson et al. (2005), suggests that the criteria for assessing the environmental impacts considers "the level of public concern" (Glasson et al. 2005). Similarly, Marilyn Block (1999), presents nine attributes with the same purpose; including the "stakeholders' concern" (Sánchez, 2011).

The Spanish legislation, in regards to the Environmental Impact Assessment for projects (MMA, 2008), refers to the term "acceptable impact" within the "screening" process that is applied to every project to decide those who must undergo an EIA and its level of detail (Gómez Orea, 2013). Likewise, Cantarino (1999) reproduces the content of the paragraph of Article 10 of the Valencian Regulation Law on Environmental Impact Assessments (Official Journal of the Comunitat Valenciana No. 1412, 1990), which expressly states that "the procedures used to determine the degree of social acceptance of the activity, as well as the economic implications of its environmental effects shall be indicated" (Cantarino, 1999). Some authors' approaches were observed regarding the use of the term acceptance of the communities and in relation to the environmental impacts that are forecasted at an environmental decision-making process (which also involves the execution of the projects).

The qualitative method, which is addressed by Conesa (2010), (equation 1), was developed based on consultations with expert panels using Delphi's style surveys. It considers eleven (11) attributes to calculate the importance of the impact, without taking into account the participation of communities, as follows: sign (+/-), Intensity (IN), Extension (EX), Moment (MO), Persistence (PE), Reversibility (RV), Recoverability (RB), Synergy (SI), Accumulation (AC), Effect (EF) and Periodicity (PR) (Conesa, 2010). Furthermore, this is determined by the equation:

$$I = +/-(3IN + 2EX + MO + PE + RV + SI + AC + EF + PR + RB) \quad (1)$$

The black and indigenous community territories in Colombia, which have great biodiversity, immense aquatic ecosystems and complex cultural and ethnic diversity (Mast et al., 1993), require that the attributes be allocated to impacts that are forecasted for the execution of the projects, works or activities. In addition, these attributes require applicability and express high sensitivity.

Although there are approaches related to the acceptance of environmental impacts, normally this refers to acceptance by a government environmental body or authority (e.g., the Spain case), while, considering the communities' or stakeholders' opinions, even though these opinions often matter very little [as noted by Sánchez (2011)]. Amendments to the mathematical expressions used in the VACIA, have not been considered, including the acceptance of the environmental impacts as a quality measurement that is why the study was conducted.

Toro (2009), in a proposal for an environmental impact assessment in Colombia, introduced the concept of vulnerability for the calculation of the environmental relevance of a project based on a vulnerability index factor, which changes according to the geographical area with high impact action. In his contribution, Toro does not mention any significant elements related to the role of the black and indigenous communities during the environmental impact assessment process for projects in the territory. In addition, there are not any advances in the acceptability of the environmental impacts by these ethnic communities either.

Likewise, Martínez (2010) proposed a methodology for the qualitative assessment of impacts within the Colombian context, where the importance of the impact regarding the environmental quality does not include an attribute related to the level of acceptance of the impacts on the part of ethnic communities (Martínez, 2010).

3. Materials and methods

The conducted research had an exploratory scope that used secondary information and documentary data. A comprehensive review of the international literature and the Colombian legislation regarding prior environmental consultation for black and indigenous communities as well as an analysis of environmental impact studies for projects that filed for an environmental license at a regional and national level were conducted. Four hydroelectric projects in the municipality of El Carmen de Atrato, Chocó (Atrato Alto, Atrato Bajo, Río Grande and the Atrato more Río Grande river basins) and a national project for the highway "Vìa al mar (Road to the sea)" stretch Nuquí- Copidijo were examined. In addition, the contributions of the qualitative assessment of environmental impacts from the most recent Ibero-American academics and theoreticians were studied, which included Vicente Conesa (2010) and Alfonso Garmendia (2005) from Spain and José Toro (2009) and Renson Martínez (2010) from Colombia.

4. Results and Discussion

4.1 Implementation in Environmental Studies

The findings of an inquiry submitted to the environmental authorities, Agencia Nacional de Licencias Ambientales (National Agency for Environmental Licenses) (ANLA) of Colombia and the Corporación Autónoma Regional para el Desarrollo Sostenible del Chocó (Regional Autonomous Corporation for the Sustainable Development of Chocó - CODECHOCO-), showed that the most representative consulting firms that filed a request for environmental licenses in the last 10 years also implemented the qualitative assessment method in the environmental impact studies as suggested by Vicente Conesa (2010). However, the inclusion of variables that would indicate the level of satisfaction of the communities regarding the forecasted environmental impacts was not observed despite complying with the prior consultation process as set out in the legal system.

The qualitative assessment methodology, which is mostly implemented in Colombia for the elaboration of environmental impact studies (Martínez, 2010), will need to be adaped to certain special conditions and for implementation as an environmental assessment method in Chocó and in any other areas that are part of the black and indigenous communities' collective territories.

It can be concluded that for a region with similar characteristics to Chocó, some variables that express the participation of these communities must be included within the environmental assessment methods.

4.2 Results

From the comprehensive review of the documentation, both from the country's legislative and academic approach, it was determined that the acceptability of the projects and the environmental impacts exist as part of the decision-making process from the environmental authority's perspective but not from the communities' point of view. However, the possibility of including such acceptability in the valuation methodologies of the environmental impacts was not found, in terms of a variable or an extra attribute of an environmental impact assessment, which was the main quest of this research. However, neither legislative nor academic sources show a rejection of such a possibility. Table 1 shows the equations of the Qualitative Assessment for Environmental Impacts and its modifications used in Colombia based on the work conducted by Toro (2013).

Table 1
Qualitative equations to calculate the importance of the environmental impacts

	Changes to the equation for the calculation of importance	Observation
Original	Imp = ± (3IN+2EX+MO+ PE+RV+IF+AC+EF+PR+MC)	Does not include community participation attribute
1st	I =+/- (Ex +Mo+ Pe +Rv+ Ef)	
2nd	I =+/- (3I +2Ex +PE+Rv+Ac + Rc)	
3rd	I =+/- (I + Rv + Ef + Po)	
4th	I = ± (3I+2Ex+Pe+Rv+Ac+ef+ Pr + Rc + RP)	
5th	I =+/- (3I + 2Ex + Pe+Rv+ Ef + Po +Mt)	
6th	I =+/- (3I + 2Ex +Mo+ Pe+ Rv + C)	

Source: modified from Toro (2013).

5. Conclusion

In summary, the community acceptance of an environmental impact could be a variable or an extra attribute that is suitable to calculate the importance of the environmental impacts by using the Qualitative Assessment for Environmental Impacts (VACIA) or as part of an environmental impact study whose purpose is to obtain an environmental license for the execution of a project, work or activity. In subsequent research of a descriptive scope, the possibility that this variable can be included in the qualitative method and become a social quality of environmental impacts could be validated by experts.

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Notes

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