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Limitations for the Application of Indigenous Justice in Ecuador

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Abstract. The application of indigenous justice in Ecuador is a topic of interest given its implications for the social life of the nation. The problem focuses on the fact that this constitutes a part of the country's cultural heritage, but in turn, sometimes contradicts the so-called ordinary justice. Due to the, it is proposed as the objective of the investigation to propose the most appropriate actions to mitigate the limitations of the application of indigenous justice in Ecuador. Empirical methods such as the interview, the cause-effect diagram, and multi-criteria decision methods such as Promethee and Vikor were used for this. It was obtained as a result that the main actions must strengthen the communication system through dialogues and conferences of judicial institutions, with the objective of Indigenous Justice, to increase the knowledge on that topic among the members of the society, and encourage the protection of the ethnical minorities and, in turn, set the necessary limits in each territory, to prevent the violation of rights and impunity, and to achieve that the indigenous communities comply with all the stipulated on the Constitution, the international treaties that Ecuador has signed, considering the indigenous justice as an immediate source of right.

Keywords: indigenous justice, Promethee, Vikor, cause-effect diagram.

1 Introduction

For a long time, indigenous peoples and their rights have not been a concern for international law, a situation that has changed over the years, which is why it is increasingly common to find research on the matter [1]. The first organization to pay attention to what was then called indigenous populations was the International Labor Organization (ILO), which incorporated into its work the reality of indigenous workers, especially those who lived in colonial territories that were and continue to be the object of discrimination and exploitation [2].

The recognition of indigenous justice in Ecuador, like other Latin American countries that have the character of being ethnically and culturally diverse, has included Indigenous Justice in their constitutional regulations [3]. In the 2008 Constitution, Chapter Four Judicial Function and Indigenous Justice is implemented, in article 171, which specifies that "the authorities of the indigenous communities, peoples, and nationalities will exercise jurisdictional functions, based on their ancestral traditions and their law, within its territorial scope, with the guarantee of participation and decision of women. The authorities will apply their own rules and procedures to resolve their internal conflicts, and that are not contrary to the Constitution and human rights recognized in international instruments" [4].

Indigenous justice and its legal expressions are the results of a history determined by historical-cultural changes that were made evident from colonization to recent changes in the constitutional sphere. This has as its main source the social and cultural history based on ancestral customs. The administration of justice in Ecuador is vested in the bodies of the Judicial Function and other bodies and functions that have this power as established by the Constitution of the Republic, depending on the case [5].

To this end, an entire regulatory framework has been developed that regulates their actions, made up of principles, norms, rules, and procedures, which must be observed by those who carry out this work, including those functions that use conciliation mechanisms as alternative means for conflict resolution, and justices of the peace. However, there is also constitutional recognition of other mechanisms for exercising justice whose procedure is not necessarily regulated, precisely because of its nature of application based on traditions (customs), this is what is called "indigenous justice", which has its origin and foundation in its ancestral roots for having exercised jurisdictional functions since time immemorial based on its customs and its own law, work carried out even before the colonization of the peoples of Latin America. Therefore, today it can be affirmed with certainty the existence of a

Raúl C. Ilaquiche L, Luis A. Crespo B, Marco R. Mena P, Paul O. Piray R. Limitations for the Application of Indigenous Justice in Ecuador true "legal pluralism" in Ecuador [3].

Indigenous justice does not exist as a set of written normative statements that allow or prohibit some conduct, but are oral ancestral practices, based on their philosophies of life; for example, respect for nature and maintaining order in the environment where they live. For the application of indigenous justice, a basic written legal instrument and internal regulations of each community contemplated by the Law of Communes are established. The latter originally emerged as one of the prerequisites for the legal recognition of each commune, which has undergone a process of change and transformation over time [6].

The current Constitution recognizes the right of the authorities of indigenous peoples and communities to exercise jurisdictional functions, which implies powers to define their own rules of conduct, establish obligations, duties, rights, and guarantees, define offenses and correlative sanctions, as well as procedures for the knowledge, investigation, and sanction of the facts submitted to its jurisdiction. These are the same powers attributed to the ordinary jurisdiction, which is why it is of interest to identify how potential conflicts that arise between the two jurisdictions should be resolved, as well as the limits that the authorities of the indigenous peoples and communities whose jurisdiction must respect. is based on its traditional rules and not on written law as the ordinary jurisdiction [7].

The indigenous society has developed its procedure that has to be fulfilled in accordance with:

The first step is the notice or demand or "Willachina" which consists of informing the council leaders of everything that has happened: fights, gossip, robbery, and death. With this request, those involved must be summoned through an official letter that contains the names of the defendants, the day, time, and date on which the crime was committed, and the day on which the conflict will be resolved, which is done by the president of the communes, who must also take those involved to the town hall; from there it goes to the next stage [4].

The next stage is the investigation of the problem or "Tapuykuna" for this a variety of procedures are carried out such as the ocular inspection or verification of the fact, in the case of deaths, robberies, fights, testimonies are collected and raids are carried out, this is done by the leaders of the communities in the company of people of legal age, of recognized experience and honesty, who must present an oral report to the Assembly, the investigation also focuses on finding out whether or not those involved have been repeating offenders, which will help at the moment to impose the penalty.

Then there is a confrontation between the accused and the accuser or "Chimbapurana" that can lead to confrontation and confrontation of words between those involved. This is the most important step of the entire procedure, because, unlike the judicial trial, lawyers who represent the parties do not intervene in it, but it is the parties who speak as many times as necessary until everything is clear and there are no bad guys. understood when determining the responsibilities and sanctions [6].

Once all of the above is done, the imposition of the sanction or "Killpichirina" is carried out, which can be fines; return of stolen objects plus compensation; bath with cold water, nettle, whip, or whip; communal work; pulls off the ears; expulsion from the community or death is applied exceptionally, the latter has only been applied a few times in some tribes and has to do with cases of rape or murder. In the Ecuadorian territory, especially in the mountains, this sanction has not been applied, however, in the indigenous peoples of the east, there have been experiences in this regard. Sanctions are implemented according to the seriousness of the case. The execution of the sanction or "Paktachina" consists of the fulfillment of the sanctions that are mandatory [8].

The issue of indigenous justice is not new, but it is an issue that still needs to be studied in depth. Certain constitutions, including that of Ecuador, recognized collective rights and special rights of indigenous peoples, becoming a State with a plurality of legal systems. Faced with this reality, challenges for the Law appear, and new legal problems derived from that reality must be resolved. For example, the interpretation of principles that are enshrined in the Constitution and their link with the indigenous justice system [9]. Due to the above, it is proposed as an objective of the investigation to propose the most appropriate actions to mitigate the limitations of the application of indigenous justice in Ecuador.

2 Methods

2.1 Interviews

Structured interviews were prepared aimed at obtaining information on the real problem and issuing possible solutions, to obtain valid conclusions and support the results.

Population: a universe of individuals to contemplate for the study

Sample: the representative amount of the study population is to be determined through the following formula:

(1)

$$n = \frac{\mathrm{N}\sigma^{2}\mathrm{Z}^{2}}{(\mathrm{N}-1)\mathrm{e}^{2} + \sigma^{2}\mathrm{Z}^{2}}$$

Where:

n = the sample size

N = population size

 σ = Standard deviation of the population that, generally when its value is not available, a constant value of 0.5

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is usually used

Z = confidence level value, 95%

e = is the maximum margin of error that is allowed is 5%

2.2 Ishikawa diagram

The Ishikawa Diagram, being one of the effective and efficient quality tools in the actions of reducing a central problem, becomes a fundamental element, which makes it possible to examine the elements that intervene in the quality of the product/service through an interaction of cause and effect, helping to bring to light the causes of dispersion and also to order the relationship between the causes in a matter that may be focused on various fields: in the case of this investigation, on the limitations of indigenous justice. It is sometimes called the Ishikawa Diagram or Fishbone Diagram because it resembles the skeleton of a fish. It is an effective tool for studying processes and situations, and for developing a data collection plan. It is used to identify the possible causes of a specific problem. The graphic nature of the Diagram allows groups to organize large amounts of information about the problem and pinpoint possible causes. Finally, it increases the probability of identifying the main causes [10]. The Cause-and-Effect Diagram should be used when you can answer "yes" to one or both of the following questions:

- 1. Is it necessary to identify the main causes of a problem?
- 2. Are there ideas and/or opinions about the causes of a problem?

Often people closely associated with the problem under study have formed opinions about what causes the problem. These opinions may conflict or fail to express the main cause. The use of a Cause-and-Effect Diagram makes it possible to bring all these ideas together for study from different points of view. These diagrams are most effective after the process has been described and the problem is well defined. By this time, team members will have a good idea of what factors to include. They can also be used for purposes other than root cause analysis. The format of the tool lends itself to planning. For example, a group might brainstorm the "causes" of a successful event, such as a seminar, a conference, or a wedding. As a result, they would produce a detailed list grouped into one main category of things to do and to include for a successful event. [11]

It does not offer an answer to a question, as other tools do. Tools such as Pareto Analysis, Scatter Diagrams, and Histograms can be used to analyze data statistically. At the time of generating the Cause-and-Effect Diagram, it is usually unknown whether or not these causes are responsible for the effects. On the other hand, a well-prepared Cause and Effect Diagram is a vehicle to help teams have a common understanding of a complex problem, with all its elements and relationships clearly visible at whatever level of detail is required. [12]

2.3 PROMETHEE method

The PROMETHEE method is a non-compensatory method that handles classification problems, evaluating a set of alternatives under multiple criteria, which are often contradictory, it is explained in detail in [13]. The PRO-METHEE I (partial classification) and PROMETHEE II (complete classification) methods were developed and published by JP Brans in 1982. Its name refers to the acronym Preference Ranking Organization Method for Enrichment Evaluation, and it is included within the relation-based methods of overclassification (outranking methods). The modeling establishes a structural preference between the alternatives, considering a preference function, defined by the decision-maker for each criterion, where the global index allows the partial and complete overcoming of the alternatives [14].

A multicriteria problem responds to a structure of type max { $g_1(a), g_2(a) \dots g_i(a)/a \in A$ } where A is a finite

set of alternatives { $a_1, a_2 \dots a_n$ } and { $g_1(.), g_2(.) \dots g_n(.)$ } a set of evaluation criteria. In general, this problem will be poorly conditioned since no alternative will maximize all the criteria, so a compromise solution must be reached. The PROMETHEE method is based on pairwise comparisons, so the difference in value between two evaluations of two alternatives for a given criterion will be taken into account. If this difference is small, a small preference or even indifference will be assigned if it is considered insignificant. The choice of a generalized criterion is reduced to the choice of the appropriate parameters, which can be considered a simple task. [14]



Figure 1: Definition of the criteria. Source: [13]

In each problem, an alternative a is confronted with the (n-1) remaining alternatives that define A:

$$\Phi^{+}(a) = \frac{1}{n-1} \sum_{x \in a} \pi(a, x)$$

$$\Phi^{-}(a) = \frac{1}{n-1} \sum_{x \in a} \pi(a, x)$$
(2)
(3)

Positive Relevance Flow and Negative Relevance Flow. The first indicates as an alternative *a* is relevant compared to the rest, it shows its dominating character. The higher, the better the alternative. The second shows its weakness, as it is dominated by the rest of the alternatives. The lower its value, the better the alternative [15].

PROMETHEE I: The Partial Classification

In this method, the ranking is obtained using the positive and negative streams of relevance. It is important to realize that if we used both flows separately, the classifications would not be the same, therefore this method uses an intersection of both. The method is prudent and does not decide which alternative is better, leaving the decision to the decision-maker. [27, 28]

PROMETHEE II: The complete classification

In this method, all the alternatives are comparable, although the information requires more study since when calculating the net flow as the subtraction of flows, a valuable amount of information is lost. In actual practice, both classifications should be used because although PROMETHEE II is easy to use, the incomparability analysis offered by PROMETHEE I can help make the appropriate decision. [29, 30]

Elaboration of the profiles of the alternatives

With the elaboration of the profiles of the alternatives, it is possible to appreciate the quality of an alternative according to the criteria and complete assessments, and to understand some of the results that can be obtained.

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Mathematically it is the cross-product of the vector of profiles of an alternative and the vector of weighted weights.



Figure 2: Representation of the profiles of alternatives. Source: [13]

2.4 VIKOR Method (VIseKriterijumskaOptimizacija I KompromisoResenje)

The VIKOR method was proposed by Serafín Opricovic in 1990. It determines the ranking of the alternatives using the aggregation function Q, which represents the "closeness to the ideal, calculated from the aggregation of the maximum utility function of group S and the function of individual regret R [16], [21], [22], [23]. Its application implies a compromise solution that is acceptable for conflict resolution.

- The decision-maker is willing to approve the solution closest to the ideal.
- There is a linear relationship between each criterion function and the utility of a decision-maker.
- The criteria are conflicting and not commensurable (different units).
- Alternatives are evaluated against all established criteria (performance matrix).
- The decision maker's preference is expressed by weights, given or simulated.
- The method can be started without interactive decision-maker participation, but the decision-maker is in charge of approving the final solution and their preference must be included.
- The proposed compromise solution (one or more) has a rate advantage.
- A stability analysis determines the weight stability intervals.

It is proposed as a compromise solution, to the best ranked alternative by measure Qj, if the condition of acceptable advantage and the condition of acceptable stability in decision-making are met. If any of these conditions are not satisfied, a set of compromise solutions must be proposed. [17], [18], [19], [20] Steps:

- a) Definition of the Decision Matrix with the respective weights (w_i) of each criterion.
- b) Linear normalization of the decision matrix.

$$f_{ij}(\mathbf{x}) = \frac{m_{ij}}{m_{ij}} \qquad i = 1, \dots, m; j = 1, \dots, n$$
(4)

c) Determination of the best (f^*) and the worst (f^-) values in the evaluations of each criterion (i=1,2,...,n) and alternatives (j=1,2...,j) defined as follows:

$$f_j^* = Max_i f_{ij} , \quad f_j^- = Min_i f_{ij} ; \quad j = 1, 2, ..., n$$
(5)

$$f_j^* = Min_i f_{ij} , f_j^- = Max_i f_{ij} ; j = 1, 2, ..., n$$
(6)

$$f^{-} = \{f_{1}^{-}, f_{2}^{-}, \dots, f_{n}^{-}\}$$
(7)
$$f^{-} = \{f_{1}^{-}, f_{2}^{-}, \dots, f_{n}^{-}\}$$
(8)

 $f^- = \{f_1, f_2, f_3, \dots, f_n\}$ d) Calculation of the measures S, R, and O for each alternative.

$$S_{j} = \sum_{i=1}^{j} w_{i} \left(\frac{j}{f_{j}^{*} - f_{i}^{-}} \right)$$
(9)

$$R_{i} = Max_{j} \left[w_{j} \frac{(f_{j}^{*} - f_{ij})}{(f_{j}^{*} - f_{j}^{-})} \right]$$
(10)

Each of the obtained vectors generates a ranking by organizing their values from lowest to highest and with them, the Q values are calculated:

$$S^* = \min_j S_j \tag{11}$$
$$S^- = \max_j S_j$$

$$R^* = \min_j R_j \tag{12}$$

 $R^- = max_iR_i$

e) Verification of the acceptable advantage condition and the acceptable stability condition in decision making

f) Definition of the compromise solution(s).

$$Q_j = v \frac{S_j - S^*}{S^- - S^*} + (1 - v) \frac{R_j - R^*}{R^- - R^*}$$
(13)

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3. Application of the methods

3.1 Cause and effect diagram

For the application of the method, an interview was conducted with jurists and judges about the limitations of indigenous justice in Ecuador. For this, the following question guide was used:

- 1. Do you consider that the application of indigenous justice in Ecuador has limitations?
- 2. In your opinion, what are the main limitations and how would you classify them?
- 3. What actions could be implemented to mitigate the limitations?

Sample calculation

n =134

n= sample.

N= population universe (200)

E= maximum admissible error. 5%

Z: Critical value corresponding to a confidence coefficient with which the investigation is to be carried out.

P: Population proportion of occurrence of an event

E: Sample error (difference between statistical and parametric)

To carry out the study, the following restrictions were handled:

E: 5% = 0.05 Z: 1.96 (value that corresponds to a coefficient of 95%).

P: 50% = 0.50 (since the value is not known, maximum variability is assumed)

Q: 1 - P = 0.50

Once the legal professionals were interviewed, their answers were processed, obtaining that the main limitations are:

- 1. Lack of means for indigenous communities to register legal activity
- 2. Insufficient training of officials on indigenous justice
- 3. Non-existence of a representation of indigenous people among the decision-makers of ordinary justice
- 4. Indigenous justice does not comply with what is legislated in the Constitution or international treaties to which Ecuador is a party.
- 5. Poor communication system through dialogues and conferences of judicial institutions, on the objective of Indigenous Justice, to increase knowledge of this issue among members of society.
- 6. The state does not consider indigenous justice as an immediate source of law
- 7. Lack of protection of ethnic minorities by the state
- 8. No law allows the indigenous community to act in a solvent manner and in turn set the necessary limits within each territory, to avoid violation of rights and impunity.
- 9. Need for a budget for communication and training actions.



Figure 3: Cause-effect diagram. Source: own elaboration

The actions to respond to the limitations detected are:

- 1. Provide indigenous communities with the means to register legal activity
- 2. Train officials on indigenous justice and place a representation of indigenous people among the decision-makers of ordinary justice

- 3. Achieve compliance with what is legislated in the Constitution and the international treaties to which Ecuador is a party, by the indigenous communities, considering indigenous justice as an immediate source of law.
- 4. Strengthen the communication system through dialogues and conferences of judicial institutions on the objective of Indigenous Justice, to increase knowledge of this issue among members of society and encourage the protection of ethnic minorities by the state. [34, 35, 36]

Approve a Law that allows the indigenous community to act in a solvent manner and in turn set the necessary limits within each territory, to avoid violation of rights and impunity.

3.2 Application of the Promethee method

For the application of the method, the Promethee software is used, and the data is entered as follows (Figure 4):

Three criteria were defined:

- 1. The economic impact
- 2. societal impact
- 3. The political impact

From the analysis carried out in the software, the following results were obtained:

Figure 4 shows the introduction of the data in the software, in this case, the weight of each criterion is found if it is a criterion to minimize or maximize, the preference functions, and the evaluation for each of the 5 alternatives presented.

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		Thresholds	absolute	absolute	absolute	•			
		- Q: Indifference	n/a	n/a	n/a	1			
		- P: Preference	n/a	n/a	n/a	1			
		- S: Gaussian	n/a	n/a	n/a	1			
3		Statistics							
1		Minimum	1,00	3,00	5,00				
		Maximum	6,00	8,00	8,00)			
		Average	3,00	6,40	6,60)			
		Standard Dev.	2,10	1,85	1,20)			
3		Evaluations							
	\checkmark	action1	6,00	3,00	5,00				
	\checkmark	action2	2,00	6,00	6,00				
	\checkmark	action3	1,00	7,00	6,00)			
	\checkmark	action4	1,00	8,00	8,00)			
	\checkmark	action5	5,00	8,00	8,00)			

Figure 4: Entering the data in the software. Source: Own elaboration using the Promethee software

The Promethee I method, although it does not come to propose a decision (Figure 5), shows that the most convenient actions are 4, 5, and 3, which adequately respond to a greater number of criteria.



Figure 5: Results of the Promethe I method. Source: Own elaboration using the Promethee software

For its part, the Promethe II method confirms that the best alternatives are 4, 5, and 6, and the least desirable is action 1. As can be seen in figure 6. From the rainbow analysis (Figure 7), which is a mixture of the profiles of the alternatives, since it shows the impact of each one of them in the 3 chosen criteria, it can be seen that the optimal social, political and economic impact is achieved with the action 4, in the case of action 5, has a greater social and political impact, but to a lesser extent in the economic area, which is desirable since it is expected to minimize this aspect [24, 25, 26, 31, 32, 33]. As for action 3, it has a small impact on the 3 criteria. In the case of action 2, it has an unfavorable impact on all 3 criteria, although not as pronounced as action 1.



Figure 6. Results of the Promethe II method. Source: own elaboration using Promethee software



Figure 7: Rainbow analysis for each alternative. Source: own elaboration using Promethee software

3.3 Application of the Vikor method

In this study, 3 criteria and 5 alternatives are classified according to the VIKOR method. Table 1 shows the type of criterion and the weight assigned to each criterion.

	Name	Туре	Weight		
1	The economic impact	-	0.2		
2	societal impact	+	0.8		
3	The political impact	+	0.3		
Fable 1. Chamateriation of the anitaria Communication allocation					

Table 1: Characteristics of the criteria. Source: own elaboration

	Criterion 1	Criterion 2	Criterion 3
Action 1	5.66666666666667	3.66666666666667	4.66666666666666
action 2	2	6	6.3333333333333333
action 3	1	7	6.66666666666667
action 4	1.3333333333333333	8	7.3333333333333333
action 5	3.66666666666666	8	7.66666666666666

Table 2: Decision matrix. Source: own elaboration

	Criterion 1	Criterion 2	Criterion 3
Action 1	0.783	0.244	0.315
action 2	0.276	0.399	0.428
action 3	0.138	0.465	0.451
action 4	0.184	0.532	0.496
action 5	0.507	0.532	0.518

Table 3. Normalized decision matrix. Source: own elaboration.

	R	S
Action 1	0.8	1.3
action 2	0.369	0.545
action 3	0.185	0.285
action 4	0.033	0.048
action 5	0.114	0.114

Table 4: Hierarchy of alternatives. Source: own elaboration.

	Q
Action 1	1
action 2	0.418
action 3	0.193
action 4	0
action 5	0.079

Table 5: Q values. Source: own elaboration

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Alternatives are ranked by sorting the S, R, and Q values in decreasing order so that the highest ranking is assigned to the alternative with the smallest VIKOR value. The results are three ranking lists. The following table presents the ranking list of the alternatives based on the S, R, and Q values

	R value	Rank in R	S value	Rank in S	Q value	Rank in Q
Action 1	0.8	5	1.3	5	1	5
action 2	0.369	4	0.545	4	0.418	4
action 3	0.185	3	0.285	3	0.193	3
action 4	0.033	1	0.048	1	0	1
action 5	0.114	2	0.114	2	0.079	2

Table 6: Classification list of alternatives. Source: own elaboration.

Propose a compromise solution

Propose a compromise solution of the alternative $(A^{(1)})$, which is the best ranked by measure Q (minimum) if the following two conditions are met:

- Condition 1. Acceptable advantage: $Q(A^{(2)}) Q(A^{(1)}) \ge \frac{1}{m-1}$ where $A^{(1)}$ is the alternative with the first position and $A^{(2)}$ is the alternative with the second position in the ranking of the alternatives taking into account the Q value and m is the number of alternatives.
- **Condition 2**. Acceptable Stability in Decision Making: The Alternative *A*⁽¹⁾ must also be the best-ranked by S and/or R.

If one of the conditions is not met, a set of compromise solutions is proposed, consisting of:

- Solution 1. Alternatives $A^{(1)}$, $A^{(2)}$, ..., $A^{(M)}$ if Condition 1 is not met; Alternative $A^{(M)}$ is determined by $Q(A^{(M)}) Q(A^{(1)}) < \frac{1}{m-1}$ for a maximum M (the positions of these alternatives are "in proximity").
- Solution 2. Alternatives $A^{(1)}$ and $A^{(2)}$ if only condition 2 is not met.
- Solution 3. The alternative with the minimum value of Q will be selected as the best alternative if the 2 conditions are met.

The result of meeting the conditions is shown in the following table.

Condition 1	Non-acceptance		
Condition 2	-		
Selected solution	Solution 1		
Table 7. Can dition and the Same start and the section			

Table 7: Conditions survey results. Source: own elaboration

Then alternatives 4, 5, and 3 are the ones selected.

Conclusion

With the completion of this research, it is observed that the issue of indigenous justice and its application in Ecuador is an area that, despite being studied by several researchers, maintains its relevance given the social impact it entails. As Ecuador is a Plural State in legal matters, it is important to find a balance for the coexistence of ordinary and indigenous justice.

Through interviews with jurists and judges, the main limitations surrounding the application of indigenous justice and the actions that must be taken to mitigate its effects were defined. The representation of the limitations found in the cause-effect diagram allows visualizing each area where they belong, as well as if there is any subcause between them.

With the application of the Promethee and Vikor method, the same results are obtained, the chosen actions being to strengthen the communication system through dialogues and conferences of judicial institutions, with the objective of Indigenous Justice, to increase knowledge of this issue among members of society and encourage the protection of ethnic minorities by the state, approve a law that allows the indigenous community to act in a solvent manner and, in turn, set the necessary limits within each territory, to avoid violation of rights and impunity and ensure that indigenous communities comply with what is legislated in the Constitution and international treaties to which Ecuador is a party, considering indigenous justice as an immediate source of law.

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