A Model of neutrosophic recommendation for the improvement of the consents of the ICSID arbitration procedure in Bolivia, Ecuador and Venezuela

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Abstract. This paper analyzes the various aspects related to the denunciation of the Washington Convention of 1965 or Convention on the Settlement of Investment Disputes between States and Nationals of Other States, of the International Centre for Settlement of Investment Disputes (ICSID) by Ecuador, Bolivia and Venezuela. The facts that occurred, the positions of these states to take into consideration the denunciation of the agreement, the consequences of the denunciation and the possible solutions of the actors involved are analyzed through a neutrosophic recommendation model to recommend a solution for the improvement of the consents of the ICSID arbitration procedure in Bolivia, Ecuador and Venezuela.

Keywords: ICSID arbitration procedure, Washington Convention, treaties, neutrosophic model.

1 Introduction

The ICSID is an international private arbitration center of the World Bank, financed by the latter and based in Washington, which settles disputes, either through arbitration procedures or investment conciliation, between governments and nationals of other states party to the 1966 Convention.

The object of ICSID is set forth in Article 1 of the Convention, which states that ICSID shall have the purpose of facilitating the submission of investor disputes between Contracting States and nationals of other Contracting States to a conciliation and arbitration procedure in accordance with the provisions of this Convention [1].

For, arbitration constitutes one of the legal means of peaceful settlement of disputes, together with judicial settlement, whereby a dispute arising between international subjects may be submitted by them to an independent third party to adopt, after an adversarial procedure, a decision based on law binding on the parties terminating the dispute[2].

The first state to denounce the Washington Convention was Bolivia in 2007. Written notification of Bolivia's denunciation of the agreement was sent to ICSID in accordance with article 71 of the agreement, which provides that any contracting state may denounce this agreement by written notification addressed to the depositary of the agreement. Upon denunciation, such denunciation shall take effect six months after receipt of such notification.

The second state to denounce the Washington agreement was Ecuador, which did so by signing a decree that denounces and therefore declares the agreement with ICSID terminated. In this sense, it was alleged that there was a conflict in relation to the new political constitution of that country. The same in correspondence with the International Centre for Trade and Sustainable Development (ICTSD).

The third state was that of the Bolivarian Republic of Venezuela. The notification was sent officially in writing, expressing the denunciation of the Bolivarian Republic of Venezuela of the Convention.

The aforementioned states denounced, in particular, the treaty, alleging various reasons as referred to [3]. Among the main reasons are:

- Arbitrary conduct or partial interpretation by ICSID arbitrators, for reasons of erroneous application of the law, highlighting the following obstacles:

. Exacerbated of the autonomy of the ICSID system, which did not allow the revision of its awards.

. Applicability of minimum standards of international law regardless of the will of the parties, which can be used for the violation of the latter.

. The granting of too many guarantees to investors, without them being sufficiently delimited.

- Defense of the sovereignty of natural resources. In this declaration it was pointed out the decision that the states that belong to ALBA, agreed to withdraw and denounce in a joint way the convention of the ICSID, with the guarantee of the sovereign right of the peoples to regulate the foreign investment in their territories. Specified within the rejection of the countries belonging to ALBA, the following:

. Pressure from transnational companies that, having violated constitutional norms, national laws, contractual commitments, regulatory provisions, environment and labor, resist the application of sovereign decisions of the countries.

Threats with an incidence of international arbitration lawsuits against states in instances such as the ICSID, according to [1].

The denouncing countries also have legislation in different areas where foreign investor states can resort to the dispute settlement mechanisms established in their own legislation. It is unquestionable that a state, as a party to the convention, has the right to denounce it, being the instrument itself the one that establishes a mechanism to do so; specifically, article 71 is used for this purpose.

By virtue of this denunciation, Venezuela's exit from the ICSID materialized on July 24, 2012, while Bolivia's exit took place in October 2007. The substantial differences incorporated by the Washington Convention into the denunciation of ICSID investment treaties deserve careful analysis. Considering the validity of new laws in the countries under study, which provokes reasons to believe that these countries are the object of different lawsuits.

The effects of perfecting the consent to submit to the ICSID arbitration procedure, for the countries in question were three, which are contemplated in the Washington Convention, these effects are shown below:

1.The consent of the state to submit to ICSID arbitration, which constitutes an irrevocable international legal obligation.

2.The granting by the ICSID tribunals of exclusive and therefore exclusive jurisdiction over the matter.

3.Prohibition for any contracting state to grant, which means diplomatic protection. This aspect is intended not to promote any international claim in respect of any dispute which any of its nationals and any other contracting state has consented to be submitted to arbitration under the Washington Convention.

Based on the foregoing, it should be noted that the contracting states must grant significant aspects of diplomatic protection, stressing that they must not promote any international claim in respect of any dispute that one of their nationals and another contracting state has the consent to submit to arbitration under the Washington Convention, provided that other states have not complied with the award made in such dispute or have failed to comply with it [1]. For this reason, a neutrosophic [4]recommendation model is proposed for the improvement of the consents of the ICSID arbitration procedure in Bolivia, Ecuador and Venezuela [5].

Given that the topic is qualitative and documentary, Neutrosophy is a branch of philosophy [9] that studies the origin, nature and scope of neutrality, as well as its interactions with different ideational spectra. The term neutrosophic comes etymologically from Neutrosophy, which means knowledge of neutral thought, and this third neutral represents the main distinction, i.e. the neutral, indeterminate, unknown part (in addition to "truth" / "belonging" and "falsehood" Components of "nonbelonging" that appear in the fuzzy logic / set).[6]

Neutrosophic sets generalize the fuzzy set (especially the intuitionist set [7]. This paper proposes a model recommendation based on the effects of perfecting consent to submit to the ICSID arbitration procedure.

2 Preliminaries

2.1 Neutrosophic Sets

Neutrosophic recommendation models are useful in the decision-making process as they provide a set of options that are expected to meet desired expectations [5, 8]. This model, in the present work, is based on the effects caused by the submission to the ICSID arbitration procedure, contemplated in the Washington Convention, is a scheme that questions the current order, a formula or a singular approach that its proponents perceive as novel [9].

For this work is particularly important the definition 1 of neutrosophic sets as defined in [13], [12], [27].

Definition 1. Let M a neutrosophic set in universe X characterized by a triple *(Label, X, $\mu_M(x)$, $\tau_M(x)$, $\sigma_M(x)$)* where: *Label* is a linguistic term which represents the name of set, X represents the universe of discourse, $\mu_M(x) \in$ *[0,1]* represents a membership function , $\tau_M(x) \in$ *[0,1]* represents a indeterminacy-membership function and $\sigma_M(x) \in$ *[0,1]* represents a falsity-membership function, where $0 \leq \mu_M(x) + \tau_M(x) + \sigma_M(x) \leq 3$.

This definition implies that for each value of the domain x $\in$ X when evaluated in neutrosophic set M, such that $M(x)$ should returns the value *($\mu_M(x)$, $\tau_M(x)$, $\sigma_M(x)$)* . First component represents the membership degree of the value x to the set M, second component represents the indetermination degree of the value x to the set M and the third component means the non-membership degree of the value x to the set M *[10]*.

2.2 Single Valued Neutrosophic Number

For the use of the set of single-value neutrosophic numbers the effects of perfecting the consent to submit to the ICSID arbitration procedure were called X which constitute the universe of the set of

Definition 2. A single-value neutrosophic numbers A on X, is an object that is composed as shown in expression as follows:

$$A = \{\langle x, uA(x), rA(x), vA(x) \rangle : x \in X\} \, d \qquad (2)$$

Where:

$uA(x): X \to [0,1]$, $rA(x): X \to [0,1]$ y $vA(x): X \to [0,1]$, with $0 \le uA(x) + rA(x) + vA(x) : \le 3$ for all $x \in X$.

The interval (x), $rA(x)$ and $vA(x)$ represents the membership to true, indeterminate and false of x in A, respectively. An SVN number, for the analysis of the effects of perfecting consent to submit to the ICSID arbitration procedure, in this study, is expressed as $A = (a, b, c)$, where $a, b, c \in [0,1]$, and $+ b + c + c \le 3$.

The SVN numbers, which are obtained, are useful for recommendation systems[5, 6]. Publications on neutrosophic set theory and SVN numbers and its applications in several fields have been increasing in recent years; evidenced by the works presented in [11-13].

3 Methods

This paper reviews the literature on international investment treaties negotiated by Latin American countries, especially Bolivia, Ecuador and Venezuela, and the effects of their denunciation. For this purpose, the study was carried out on documents and studies carried out by multilateral organizations specialized in the subject and articles and jurisprudence on the subject, since it is a qualitative and documentary subject.

The workflow of the model proposed in the present work, shown in figure 1, is based on the proposal of Cordon [14], in particular for recommendation systems based on knowledge allowing to represent linguistic terms and indetermination by means of SVN numbers.
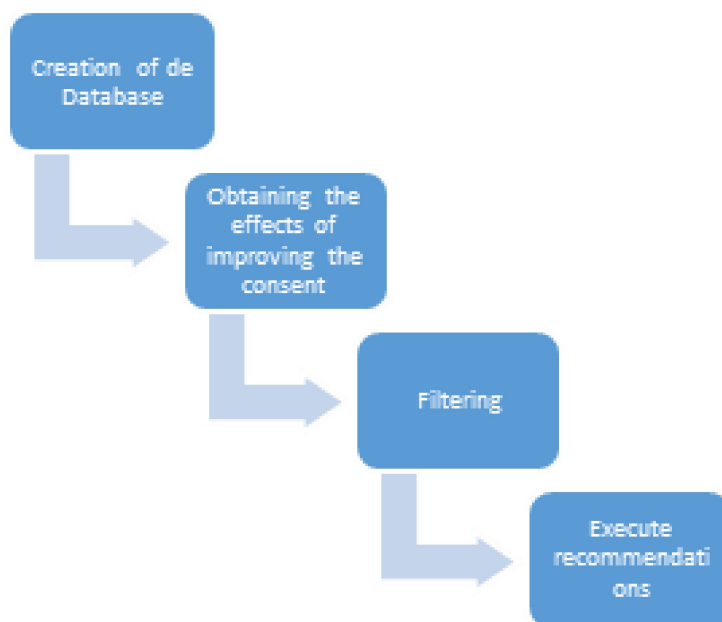
Fig. 1: Model of neutrosophic recommendation for the improvement of the consents of the ICSID arbitration procedure in Bolivia, Ecuador and Venezuela.

The aforementioned procedure analyses the effects of the submission to the ICSID arbitration procedure, in general, for Latin American countries and in particular for the first countries to denounce the Washington agreement, such as Bolivia, Venezuela and Ecuador. The analysis is carried out through the use of knowledge, where the result obtained is a set of linguistic terms which are detailed using the set of single-value neutrosophic numbers (SVN),[6], for a better understanding and recommendation of them.

The detailed description of each of the components of the model that supports the proposal is presented below.

1. Creation of the Database with the effects caused by the arbitration procedure ICSID

Each of the effects are represented by ai they will be described by a set of characteristics that will conform the

effects provoked by the ICSID arbitration procedure which are expressed mathematically as shown in expression 2.

$$C=\{c_1,...,c_k,...,c_l\} \tag{2}$$

In order to obtain the database, the effects caused by the ICSID arbitration procedure are obtained using single-value neutrosophic numbers (SVNs) [12,13]. That is, either $A* = (A1*, A2*, ..., An*)$ a vector of SVN numbers such that $Aj *= (aj*, bj*, cj*)$ j= (1,2, ..., n) and $Bi = (Bi1, Bi2, ..., Bim)$ $(i = 1,2, ..., m)$ are m vectors of n SVN numbers such that and $Bij = (aij, bij, cij)$ $(i = 1,2, ..., m)$, $(j = 1,2, ..., n)$ then, the Euclidean distance is defined as:

$$d_i = \left(\frac{1}{3}\sum_{j=1}^{n}\left\{\left(\left|a_{ij}-a_j^*\right|\right)^2+\left(\left|b_{ij}-b_j^*\right|\right)^2+\left(\left|c_{ij}-c_j^*\right|\right)^2\right\}\right)^{\frac{1}{2}} \tag{3}$$

Where Bi and $A*$ is a multiple criteria neutrosophic group value for selection as referred to [15].

From the result of the Euclidean distance a measure of similarity is defined as refers [16]. This measure of similarity to the extent that the alternative A_i is closer to the effects caused by the ICSID arbitration procedure (s_i), the greater the similarity will be, allowing an order to be established between the effects as referred to [17], which is obtained through equation 4.

$$F_{a_j} = \left\{v_1^j, ..., v_k^j, ... v_l^j\right\}, j = 1, ... n \tag{4}$$

The valuations of the provoked effects of the arbitration procedure ICSID, a_j, are expressed using the linguistic scale S, $V_k^j \in$ S where S={$s_1,...,s_g$} is the set of linguistic terms defined to evaluate the characteristics ck using the SVN numbers. For this, the linguistic terms to be used are defined once the set of effects is described as shown in expression 5, which are saved in the database created.

$$A = \{a1, ..., aj, ..., an\} \tag{5}$$

2. Obtaining the effects of improving the consent of the ICSID arbitration procedure

In this component, information is obtained related to the effects of improving the consent of the ICSID arbitration procedure, and they are stored in a database registry.

$$Pe = \{p_1^e, ..., p_k^e, ..., p_l^e\} \tag{6}$$

This register will be composed of a set of attributes that are mathematically represented as shown in expression 7.

$$Ce = \{c_1^e, ..., c_k^e, ..., c_l^e\} \tag{7}$$

Where: $c_k^e \in S$

The effects of improving the consent of the ICSID arbitration procedure is obtained through the so-called conversational approach as it refers [16].

3. Filtering the effects of improving consent to submit to the ICSID arbitration procedure

In this activity, the effects of improving the consent to submit to the ICSID arbitration procedure are filtered according to the records stored in the Database to find which are the most appropriate. For this purpose, the similarity between the effects of improving the consent of the ICSID arbitration procedure, Pe and each effect aj registered in the Database was calculated. For the calculation of the total similarity, the following expression is used:

$$S_i = 1 - \left(\left(\frac{1}{3}\sum_{j=1}^{n}\left\{\left(\left|a_{ij}-a_j^*\right|\right)^2+\left(\left|b_{ij}-b_j^*\right|\right)^2+\left(\left|c_{ij}-c_j^*\right|\right)^2\right\}\right)^{\frac{1}{2}}\right) \tag{8}$$

The function S calculates the similarity between the values of the effects of the records stored in the Database and that of the general effects, for the countries of Latin America, related to the improvement of the consent to submit to the ICSID arbitration procedure, aj, as it refers [14].

4. Execute recommendations

Calculated the similarity between the effects that were stored in the records of the Database and each of the general effects, for Latin American countries, related to the improvement of consent to submit to the ICSID arbitration procedure, are sorted according to the similarity obtained, represented by the similarity vector that is shown in the expression 9.

$$D = (d1, \dots, dn) \qquad\qquad (9)$$

The effects to take into account with greater precision will be those that better satisfy the needs of the effects stored in the records of the Database, that is to say, those that have greater similarity.

4 Case Study

The Database created, as component 1 of the proposed model of Figure 1, contains the provoked effects of the ICSID arbitration procedure, whose procedures are represented mathematically as shown in expression 10.

A = {a₁, a₂, a₃}   (10)

The one that contains the set of attributes that are shown in expression 11.

C = {c₁, c₂,, c₃}   (11)

The attributes will be evaluated in the following one through the linguistic scale that is shown in table 1. These valuations are stored in the previously created Database.

Linguistic term	SVN Numbers		
Extremely good(EG)	(1,0,0)	Medium Bad (MDB)	**(0.40,0.65,0.60)**
Very very good (VVG)	(0.9, 0.1, 0.1)	Bad (B)	**(0.30,0.75,0.70)**
Very good (VG)	(0.8,0,15,0.20)	Very bad (VB)	**(0.20,0.85,0.80)**
Good(G)	(0.70,0.25,0.30)	Very very bad (VVB)	**(0.10,0.90,0.90)**
Medium good (MDG)	(0.60,0.35,0.40)	Extremely bad (EB)	**(0,1,1)**
Average(M)	**(0.50,0.50,0.50)**		

Table 1: Linguistic terms used [12].

The view of the result of the database of the effects caused by the ICSID arbitration procedure for Bolivia, Venezuela and Ecuador is shown in table 2.

	c1	c2	c3
a1	MDB	M	MMB
a2	B	MD	MB
a3	MMB	M	M

Table 2: Database of the effects caused by the ICSID arbitration procedure. Source: self made

To make a recommendation, the result obtained is analyzed, which is expressed mathematically as shown in expression 12.

Pe = {MDG, VG, VVG}   (12)

Subsequently, the calculation of the similarity between the effects caused by the ICSID arbitration procedure in a general manner, that is, for the countries of the Americas and the effects caused by the ICSID arbitration procedure stored in the database. The similarity obtained is shown in table 3.

a1	**a2**	**a3**
0.60	0.8	0.9

Table 3: Similarity between the effects caused by the ICSID arbitration procedure in the countries of Latin America and between the countries of Bolivia, Venezuela and Ecuador. Source: self made

Once the results of similarity are obtained, it will be recommended to address those effects caused by the ICSID arbitration procedure, generally for the countries of Latin America that are closest to the effect caused in the countries of Bolivia, Venezuela and Ecuador. The ordering of the provoked effects of the ICSID arbitration procedure is: {a1, a3, a2}. In case of a recommendation of the effects caused by the ICSID arbitration procedure that have more similarity, these would be the recommendations: a2, a3. Based on the result obtained, the two

provoked effects of the ICSID arbitration procedure that must be addressed are described. In particular, for all countries in Latin America, it is required to grant exclusive jurisdiction and, consequently, exclusive of any other, to be heard by the ICSID tribunals, as well as the prohibition of any contracting state to grant, which means diplomatic protection, which has the purpose of not promoting any international claim, with respect to any difference that any of its nationals and another contracting state have consented to its submission to arbitration under the Washington Convention.

The case of Bolivia, Venezuela and Ecuador; as complainants of the Convention, they showed their interest in withdrawing from the ICSID since there are other mechanisms to which they say that investors can resort to denouncing, which can have a counterproductive effect of not minimizing the alleged violation of the rights of sovereign states. abandon one of the arbitration forums, which has an important connotation since they would have such states to denounce all the treaties they have in force and all the multilateral treaties, subtracting from the international dispute resolution mechanisms.

It is noteworthy that Bolivia, Venezuela and Ecuador have not been released from possible arbitration lawsuits; they have only been released from possible claims before the ICSID. Its bilateral investment treaties contain clauses that subject the resolution of investor-State disputes to arbitration awards, and in many cases specifically to ICSID, provided that the parties have ratified this Convention.

The common agreement of the parties to submit a difference to their resolution stands out from the ICSID rules. The Washington Convention did not consider that the international treaties were the instruments that enabled the arbitration to the foreign investor. On the contrary, its provisions reflect that the jurisdiction of the center presupposes a contractual arbitration agreement, concluded between the state and the foreign investor, to submit a difference to its resolution.

Conclusions

According to the documentary analysis carried out, it is demonstrated that in Comparative International Law there is no precedent over the interpretation of article 72 of the ICSID Convention, and the subsistence of an arbitration clause agreed in a BIT, after one of the Contracting States has denounced the Convention. The denunciation of Venezuela, Bolivia and Ecuador of deviating from the ICSID has filed requests for arbitration after the Convention has been denounced.

A recommendation is made for the improvement of the consents of the ICSID arbitration procedure in Bolivia, Ecuador and Venezuela through a neutrosophic model which contributed to the confrontation of conflicts arising from international investments and to improve the work towards such conflicts, in order to achieve a qualitative economic development of the countries of all Latin America. All of which contributes to the creation of an environment of legal security in terms of investment and equity between investors and recipients of investment.

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