

Article

Land-Use Conflict in the Gran Chaco: Finding Common Ground through Use of the Q Method

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Abstract: In a world characterized by ongoing overexploitation of finite resources—such as land and forests—stakeholder conflicts over use of remaining resources occur frequently and are likely to intensify. There is increasing awareness of the need to better understand individual stakeholders' perspectives, which often condition behavior, in order to address conflicts and inform wider policymaking. We used the Q method to capture the perspectives of diverse stakeholders and highlight consensus and distinguishing statements. Our results bring to the fore three main perspectives on deforestation (development, family agriculture, and subsistence) and several points of agreement and disagreement. The strongest disagreement concerns the benefits and costs of deforestation: the development perspective portrays benefits as mutual and costs as marginal, whereas the family agriculture and subsistence perspectives associate no benefits and extreme costs with deforestation—including loss of livelihoods and culture. Nevertheless, stakeholder consensus emerges on other points—especially the need for participatory long-term strategies of land use. This paper shows how the Q method can be applied to better understand land-use conflicts.

Keywords: land-use conflict; Gran Chaco; Q method; perceptions; deforestation

1. Introduction

In a world where natural resources are finite and overexploitation is widespread, many social conflicts are driven by diverging perceptions regarding the best use of remaining resources [1]. This is particularly true in the case of the Gran Chaco, Latin America's second-largest forest after the Amazon [2].

Located in the northwest of Argentina, the Chaco Salteño (i.e., that portion of the Gran Chaco located in the province of Salta) is a particularly valuable site for studying tensions over resource use. First, Salta exhibits one of the highest deforestation rates worldwide [3,4]. Second, the province is characterized by the presence of various important stakeholder groups, including small-scale farmers, indigenous peoples, large-scale agricultural producers, civil-society actors, and government authorities—whose perceptions of land-use change and land tenure tend to diverge strongly [5–8]. Third, the legal framework surrounding land use in Argentina has been subject to considerable scrutiny—the implementation of the so-called “forest law” of 2009, in particular, has been strongly criticized [9–12]. Based on the forest law, an updated land-use map presented in 2016 indicated that over half of the deforestation in Salta was illegal [13].

Taken together, the high rates of deforestation and corresponding latent social conflicts point to the need for more nuanced approaches to governance of land and resource use in the region. One possible approach that has gained increasing attention in recent decades is that of incorporating stakeholder perceptions into planning of land and forest use [14]. Research shows that stakeholder

perceptions of problems typically condition behavior and reveal essential insights for policymakers [15–17]. Moreover, disregard of stakeholders' perceptions and needs engenders resistance and conflict [18].

Against this background, the present study applies the Q method—a mixed-method research approach—in order to identify main perceptions, areas of consensus, and distinguishing statements among land-use stakeholders in Argentina's Salta province. Our study pursued two main objectives: (i) to understand people's perspectives on deforestation and associated conflicts in the Chaco Salteño; (ii) to identify crucial points of agreement and disagreement in order to improve the current policy situation.

Highlights:

- Capturing perceptions of deforestation in the Gran Chaco using the Q method
- Understanding land-use conflicts based on consensus and distinguishing statements
- Three distinct perspectives on deforestation emerge
- There is strong polarization about who benefits or is affected by deforestation
- There is consensus about unequal participation to the land-use regulation process

2. Methods

2.1. Study Area

Our study area is located in the heart of the Gran Chaco (Figure 1), which encompasses over 1.3 million square kilometers [19] and hosts one of the largest remaining areas of uncultivated fertile soils worldwide [20]. The Gran Chaco is threatened by land-use change, in particular, expansion of agriculture [21]. Technological innovations—including new soybeans and maize hybrids—have made it possible to farm in most parts of the Gran Chaco [22]. This, in turn, has fueled rapid deforestation. Between 1977 and 2010, the Argentinean Gran Chaco lost around 6 million hectares of forest [23]. This loss of forest area has had severe environmental impacts, such as land salinization [22], reduced carbon storage [24], stronger winds, and increases in dust [25].

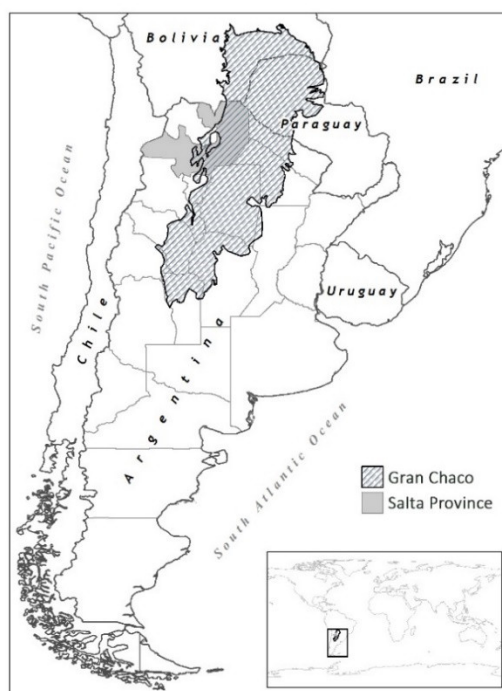


Figure 1. Map of the Gran Chaco and of the province of Salta. (Created by Matthias Fries, Centre for Development and Environment, CDE, University of Bern). The Chaco Salteño represents that part of Gran Chaco situated within the province of Salta.

Moreover, expansion of the agricultural frontier affects local populations, especially their land tenure claims. In our study area, the province of Salta with a total population of 1,214,441 people [26], various stakeholder groups are arrayed in competition over land rights. First, there are local indigenous peoples (approx. 79,204 people according to the census from 2010 [26]) whose rights to territory, culture, and resources are officially anchored in Argentina's constitution as well as international agreements such as the 1969 International Labour Organisation Convention [10,27]. In practice, however, their rights have been neglected to date, as documented, for example, in a recent United Nations (UN) report on human rights [28]. Their traditional lifestyle is based on hunting, gathering, and fishing, as well as woodworks [29]. In this way, they depend strongly on the forest for their livelihoods [30], and deforestation poses a serious threat to their traditional lifestyle.

Second, the Chaco Salteño is populated by small-scale farmers called *criollos*, who are part of the rural population of Salta, estimated at 156,490 in the latest census from 2010 [26]. They are descendants of Europeans, who settled in the area about a century ago, and of indigenous people. Their right to land is that of “*usucapio*”—protected possession of land. If they can prove that they have occupied a particular area of land for over 25 years, they are eligible to claim official land titles. Nevertheless, due to various bureaucratic obstacles and a lack of resources, most such small-scale farmers in the region do not hold legal land titles. They typically engage in subsistence agriculture and extensive cattle ranching. Approximately 80% of them work in precarious conditions [31]. With less land available, the pressure on existing farmland increases, causing land degradation and conflicts within and between stakeholder groups.

Third, the area features large-scale agricultural producers who buy land from the government or other private owners and mainly use it to cultivate soya and/or for intensive cattle ranching. Their right to land is overwhelmingly recognized in the form of official private property rights. The Salta province is known for its powerful elite class of agricultural producers, who are well organized in lobbying groups with names like ProGrano, FederSal, and AgroNoa [11].

Fourth, government authorities are another key local stakeholder group, which plays a crucial role in related conflicts over land use. On the one hand, the provincial government is charged with upholding environmental laws—such as the forest law—as well as the rights of indigenous people and small-scale farmers. On the other hand, they seek to encourage economic development by facilitating the expansion of agriculture.

Fifth and finally, civil-society actors such as environmental non-government organizations (NGOs), church groups, community organizations, and researchers participate and shape local debates around land use. Groups like Greenpeace lobby against further deforestation and push for stronger environmental protection.

These five actor groups are heterogeneous, internally differentiated, and have fluid borders [7]. All of the actors they encompass have important stakes in local land use and competition over remaining resources. Overall, the extractive agricultural system pursued by large-scale producers has increasingly impacted the distribution of benefits and exacerbated inequality between local actors [32]. At least one recent study suggests that local conservation policies would benefit strongly from greater understanding and incorporation of the perceptions and beliefs of indigenous people and small-scale farmers [33]. The present study seeks to address this knowledge/policy gap by applying the Q method.

2.2. Q Methodology

The Q method helps to capture and categorize people's subjective understandings of specific topics [34]. An individual sorting exercise and factor analysis serve to group together various subjective understandings [35]. The results shed light on different points of view, as well as conflict and consensus between groups.

Q studies are usually conducted in four steps. First, a ‘concourse’ is generated, comprising the universe of statements describing the topic at hand (e.g., deforestation). The statements building the concourse are derived by the researcher from interviews, newspapers, literature, and other information sources concerned with the topic. Second, the most relevant statements are selected by

the researcher, balancing coverage (inclusion of all relevant aspects) and avoiding overlap (not repeating aspects). Third, the statements are sorted by informed individuals on a grid according to their preferences. This process is usually followed by a post-sorting interview. Finally, a factor analysis is conducted to identify the ‘factors.’ A ‘factor’ is one of the various key viewpoints on the topic.

We chose the Q method for several reasons. Addams and Proops [36] have referred to it as an almost perfect technique for initial stages of environmental policy analysis, because it enables identification of public perceptions of key issues. Of particular importance to our research, it also enables identification of marginalized perspectives like those of the indigenous people and small-scale farmers in our study area [37,38]. Further, the Q method is particularly suited to conservation problems [39] in which stakeholder positions tend not to be neatly dichotomous—i.e., conserve versus exploit—but somewhere in the middle. It has been used in various contexts; for example, to explore the socioecological vulnerability of indigenous peoples in the US [40], understanding conservation conflicts in Brazil [41] as well as to incorporate stakeholder views in forest planning [14,42–44]. In the context of deforestation, Q has been applied to investigate opinions on REDD+ [45,46].

Nevertheless, it is important to keep in mind that Q aims at revealing existing perceptions on a given topic, rather than an objective “truth,” but does not necessarily indicate how those perceptions are distributed across the whole population [35,47]. Overall, the method ideally matches our study aims, as revealing people’s attitudes regarding local resource use and overexploitation is critical to problem solution, both normatively and politically.

2.3. Implementing the Q Study

For this Q study, we first conducted 25 semi-structured interviews with informed individuals from all five stakeholder groups between July and August 2017. The interviewees comprised civil-society actors ($n = 7$); government representatives from different departments and ministries, including authorities responsible for agriculture, sustainability, indigenous peoples, national or provincial agencies, etc. (11); indigenous actors themselves (3); small-scale farmers (2); and large-scale producers (2). All interviews were conducted in Spanish. To select the interviewees, we first approached official institutions and then continued with snowball sampling. We recorded and transcribed the interviews in order to identify and extract statements for the Q study. To account for the imbalance in interviews between the stakeholders, additional statements were derived from field notes from meetings with indigenous actors, small-scale farmers and large-scale producers. A total of 36 statements were selected which are presented in Table 1. Next, we shortened and simplified the statements to make the sorting process easier for participants. Then, a second series of fieldwork was carried out between April and May 2018 to implement the Q study. In this second fieldwork, five people per stakeholder group were tasked with sorting the statements—on cards—along a grid, ranging from -5 (total disagreement) to +5 (complete agreement). The main selection criteria for the participants was for them to have a strong opinion on deforestation. After sorting of the cards, the participants were asked to explain their rationale for sorting the cards in a particular way. Finally, we analysed the data with PQMethod [48]. The software provides two options for performing the factor analysis: principal component analysis (PCA) or centroid factor analysis. A detailed comparison between the two approaches can be found in Kline [49]. We opted for a PCA [35,50], with varimax rotation, as our study aims at understanding an issue [51]. The results of the PCA are the factors, presented in the following section.

Table 1. List of statements with Q sort values (Q) and z-scores (z). Q values indicate the degree of agreement with the statement; for example, a value of 4 represents strong agreement with the statement, and a value of -4 represents strong disagreement. The z-score indicates how far a statement lies from the middle of the distribution, based on a standardized mean and standard deviation.

No.	Statement	Factor 1		Factor 2		Factor 3	
		Q	z	Q	z	Q	z
1	The government designs policies without considering real conditions and needs.	5	1.332	2	0.981	2	0.62
2	Many politicians own land and pursue their own interests.	2	1.018	0	0.239	3	1.144
3	Clearly, large-scale producers have much better access and more opportunities to present their problems to the authorities.	3	1.062	2	0.725	1	0.465
4	Small-scale farmers are excluded from decisions about deforestation.	2	0.837	0	0.023	-2	-0.124
5	The guarantee of a prior, free, and informed consultancy about deforestation is neglected.	1	0.765	-1	-0.44	0	0.245
6	Large-scale producers are excluded from decisions about deforestation.	-4	-663	-2	-0.77	-3	-0.264
7	Indigenous people are excluded from decisions about deforestation.	0	0.334	0	-0.07	4	1.429
8	It is unfair that the processes for deforestation permissions are fast, while those for protection are slow.	4	1.325	0	-0.41	1	0.495
9	Concerning land rights, the government attends to all actors equally.	-5	-905	1	0.267	-4	-0.779
10	It makes me angry that there is corruption in the process to get land titles.	0	0.152	1	0.589	2	0.804
11	Indigenous people are passive in the fight against deforestation.	-1	-266	0	-0.09	0	0.37
12	The laws regulating deforestation are completely ignored.	2	0.983	-1	-0.64	-1	-0.3
13	The forest is a resource that needs to be exploited.	-1	-358	3	1.109	-3	-0.424
14	Indigenous people are overprotected concerning land rights.	-2	-812	1	0.41	-4	-0.548
15	Indigenous people only live in the forest because there is no alternative.	-2	-0.84	2	0.652	-1	-0.91
16	Large-scale producers are overprotected concerning land rights.	1	0.77	-2	-0.79	0	0.3
17	When they cut trees, it's like they cut my mother because the trees provide me with food and shade.	1	0.768	-3	-1.08	3	1.258
18	Small-scale farmers are overprotected concerning land rights.	-2	-215	-1	-0.43	-1	-0.37
19	If there is one thing that destroys the forest, it is the cows of the small-scale farmers.	-2	-051	2	0.965	-2	-0.635

20	Small-scale farmers produce in an environmentally friendly way.	3	1.213	-1	-0.67	-3	-0.474
21	Large-scale producers are the only ones who deforest legally.	-3	-352	-2	-0.82	-1	-04
22	Without trees, there is no life for us.	2	0.816	1	0.633	3	1.034
23	If I own the land, I should be allowed to use it the way I want to.	-4	-716	-4	-1.41	0	0.084
24	Everybody should respect indigenous people's right to land.	0	0.225	3	1.212	5	1.898
25	Small producers are affected the most by deforestation because there are no laws that protect them.	4	1.228	-1	-0.46	1	0.599
26	Indigenous people are affected the most by deforestation because they are strongly connected to nature.	1	0.718	1	0.636	4	1.368
27	We lack the money to stop deforestation.	0	-151	0	-0.08	-1	-0.175
28	Land-use change helps everybody because it contributes to development.	-1	-0.601	5	2.002	-2	-1.13
29	In my opinion, only the large-scale producers benefit from deforestation.	3	1.133	-2	-0.78	2	0.795
30	The national government gets all the benefits from deforestation through the money paid by companies.	1	0.536	-3	-1.28	0	0.035
31	Social inequality causes deforestation.	-1	-0.239	-5	-2.01	0	0.16
32	Where there is forest, there is poverty.	-3	-1.449	3	1.277	-5	-1.878
33	Lack of education causes people to cut trees.	-1	-0.319	-3	-0.83	1	0.439
34	Deforestation creates employment.	-3	-1.407	4	1.624	-2	-1.213
35	There is a lack of job opportunities for indigenous people.	0	0.138	4	1.595	2	0.67
36	We are dying because of the pesticides that they put on the fields.	0	-0.009	-4	-1.88	1	0.594

3. Results

Based on the factor analysis, we identified three factors, that is, three different main perceptions of deforestation, as presented in the following section. A table with a complete list of statements including values and z-scores is presented below (see Table 1), followed by another table with the exact factor loadings of each participant (see Table 2). After discussing the factors, we present the distinguishing statements and the consensus statements.

Table 2. Factor loadings. Bold script denotes significant loadings. In the actor IDs, P stands for large-scale producer, G for governmental actor, N for civil-society actor, C for small-scale farmer, and I for indigenous person.

Sorts	Actor	Factor 1	Factor 2	Factor 3
1	P1	−0.2537	0.7478	−0.0481
2	P2	−0.0333	0.6781	−0.4320
3	P3	−0.2397	0.6643	−0.0698
4	P4	−0.0237	0.6842	0.1145
5	P5	0.2100	0.6630	0.1074
6	G1	0.5408	0.2514	0.5781
7	G2	0.0136	0.6059	0.1310
8	G3	−0.0745	0.7671	−0.1846
9	G4	0.1206	0.3826	0.0680
10	G5	0.6479	0.2026	0.5898
11	N1	0.5634	0.0865	0.5733
12	N2	0.6681	0.0671	0.5738
13	N3	0.5606	0.1676	0.4058
14	N4	0.4561	0.5283	−0.2021
15	N5	0.7588	0.0591	0.2778
16	C1	0.8528	−0.1178	0.0877
17	C2	0.6277	−0.0842	0.3407
18	C3	0.7470	−0.1658	0.2266
19	C4	0.7720	0.0496	0.1145
20	C5	0.6966	−0.0524	0.2897
21	I1	0.1571	−0.1653	0.7389
22	I2	0.2374	0.0128	0.7844
23	I3	0.4505	−0.0277	0.7673
24	I4	0.5305	0.0196	0.5243
25	I5	0.4535	−0.1244	0.3749

3.1. Factors

3.1.1. Factor 1: ‘Family Agriculture’

Five small-scale farmers and two civil-society actors were significantly associated with this factor. According to this point of view, the most important problem is the lack of participation in land-use decisions and the lack of political will to distribute land titles. Participants claimed this is due to the government being very closely aligned with the interests of large-scale producers in regard to exploitation of forest resources. The actors sharing this perspective feel that deforestation by large-scale producers threatens the livelihoods of rural populations by displacing small-scale farmers and indigenous people. This viewpoint also suggests that indigenous people and small-scale farmers do not strive for profit maximization, but rather for quality of life and preservation of their current lifestyle.

3.1.2. Factor 2: ‘Development’

Five large-scale agricultural producers, two governmental actors, and one civil-society actor were associated with this factor. According to this point of view, deforestation is not a problem, but rather the solution. Participants sharing this perspective believe that land-use change contributes to development and creates work. While some such actors acknowledge possible negative side effects, they see no alternative to forest exploitation. They stated that if the government fails to manage the forest efficiently, the cows of the small-scale farmers would degrade the forest completely and indigenous people would persist in poverty. According to this perspective, the province of Salta must develop, and this is facilitated by deforestation or land-use change.

3.1.3. Factor 3: ‘Subsistence’

Three indigenous participants were significantly associated with this factor. The findings suggest that indigenous people feel excluded and discriminated against by the government. They feel as though they suffer the worst consequences of deforestation, as they can no longer find sufficient food or medicinal plants. Participants voiced constant fear of being displaced and of exposure to floods and pesticides. They feel like they are not recognized in their rights to land and discriminated against because of their culture.

3.2. Distinguishing and Consensus Statements

In the following, we present the results of our Q study revealing which statements were sorted similarly or differently across all factors to a significant extent. Notably, the existence of a significant difference or consensus does not confirm disagreement or agreement on its own, as people may interpret the same statements in varying ways. Indeed, *language-in-use* rests on dynamics that Cohen’s *d* and Stephenson’s standard error of differences cannot capture [52,53]. As a result, our broader analysis strongly relies on the additional information captured in our post-sorting interviews.

In order to identify areas of conflict between the actors concerning deforestation, we looked for distinguishing statements between the factor groups. Detailed tables containing the full list of distinguishing statements for each factor (Table A1 for factor 1, Table A2 for factor 2, and Table A3 for factor 3) can be found in Appendix A. Distinguishing statements are those that have been ranked significantly different by participants in one factor group in comparison with those in another factor group. The difference is considered statistically significant when $p < 0.05$.

Participants associated with factor 1 and factor 3 share the same basic understanding of deforestation as something negative. However, they are distinguished by their view of whether or not small-scale farmers produce in an environmentally friendly way: factor 1 actors believe they do, while factor 3 actors contest it.

With regard to participants associated with factor 1 and factor 2, respectively, the strongest disagreement concerns the impact of deforestation on society. Participants associated with factor 2 believe that ‘Where there is forest, there is poverty’ and that the cattle kept by small-scale farmers, in particular, degrades the forest. For them, deforestation presents a solution, as it contributes to development and creates employment. Further, they feel that the government treats all actors equally. This is disputed by participants associated with factor 1.

Factor 3 participants disagree with factor 2 participants over the same issues as participants associated with factor 1. In addition, factor 3 and factor 2 participants differ in that factor 2 actors perceive indigenous people as overprotected concerning land rights. Further, factor 3 participants agreed with the statements “We are dying because of the pesticides they put on the fields” and “It feels like they cut my mother when they cut down a tree,” as well as that social inequality causes deforestation. By contrast, factor 2 participants disagreed with all of these statements.

In summary, the greatest distinction between the factor groups concerns perceptions of who is affected by deforestation and who benefits from deforestation. Factor 2 participants view everyone as benefitting from deforestation, whereas factor 1 and factor 3 participants contest the positive

impacts of deforestation, emphasize its negative impacts (e.g., floods, biodiversity loss), and highlight the positive impacts of preserving the forest.

Besides the considerable differences in perception between the factor groups, there was also some agreement. The consensus statements shown in Table 3 do not differ significantly between the factor groups (i.e., $p > 0.01$). There were seven consensus statements, meaning statements that were ranked similarly in all factor groups. In general, it appears that a significant consensus among actors was found with respect to statements reflecting participation to the land-use regulation process and procedural issues (e.g., statements 1, 3, 10, and 27) or with respect to the condition of indigenous peoples (e.g., statements 11 and 26).

Table 3. Consensus statements.

No.	Statement	Factor 1		Factor 2		Factor 3	
		Q-sort	Z-score	Q-sort	Z-score	Q-sort	Z-score
1 **	The government designs policies without considering real conditions and needs.	5	1.332	2	0.981	2	0.62
3 *	Clearly, the large-scale producers have much more access to present their problems to the authorities.	3	1.062	2	0.725	1	0.465
10 *	It makes me angry that there is corruption in the process to get land titles.	0	0.152	1	0.589	2	0.804
11 *	The indigenous people are passive in the fight against deforestation.	−1	−0.266	0	−0.09	0	0.37
22 *	Without trees, there is no life for us.	2	0.816	1	0.633	3	1.034
26 **	The indigenous people are the most affected by deforestation because they are very connected to nature.	1	0.718	1	0.636	4	1.368
27 *	We lack the money to stop deforestation.	0	−0.151	0	−0.08	−1	−0.175

* $p > 0.05$; ** $0.05 > p > 0.01$.

4. Discussion

The present study sought to identify what distinguishes and what connects the perceptions of deforestation among various stakeholders in order to better understand current land-use conflicts. In the following section, we first discuss what separates, and second what links, the different stakeholders' perceptions concerning land-use conflicts in the Chaco Salteño.

The disagreement between actors associated with factor 1 and actors associated with factor 3 concerning whether small-scale farmers produce in an environmentally friendly way is particularly important, as it highlights the existence of a cleavage between two parties that otherwise agree on many issues. In our interviews, small-scale farmers claimed to be the only ones who truly protect the environment from illegal deforestation, as they view their communities as well organized and willing to block bulldozers, for example, even with their own bodies. They exhibit awareness that their own agricultural practices may not be sustainable in the long term, but they feel that their environmental impact is relatively small compared to large-scale producers, as has been confirmed by [54]. By contrast, indigenous actors associated with factor 3 disagree strongly with this statement for two reasons, as revealed in the interviews. First, some indigenous participants make no distinction between “small-scale” and “large-scale” farmers—to these indigenous actors, all such farmers are *criollos*, i.e., white farmers (term used in the Spanish statement). Second, many indigenous people feel that the cattle of the small-scale farmers cause habitat destruction and cannot be considered environmentally friendly.

In spite of such a difference, the overall results suggest that it is not simply “everyone against everyone” in these land-use conflicts, but rather that factor 1 and factor 3 actors perceive deforestation rather similarly. This is in line with the findings of Boffa [55], who argued that the conflict is not mainly between small-scale farmers and indigenous people or government. Instead, she observed

that the frontline in the battle over deforestation largely cuts between a group with an economic interest in capitalistic expansion, on the one hand, and a pluri-ethnic group, on the other.

Overall, the clearest point of polarization concerns who is perceived as carrying the costs of deforestation and who is perceived as benefitting from it. The statement best exemplifying this is “Land-use change helps everybody because it contributes to development.” Actors associated with factor 2 fully agree with this statement and view economic “development” as the primary goal, i.e., reduction of unemployment, construction of infrastructure, and growth of GDP. For them, the only way to reach this goal is through deforestation and effective forest management. This discourse, largely associated with economic elites, is widely accepted in Argentina [56]. In this vision of “modernization” and “efficiency,” there is no place for small-scale farming or indigenous culture [57]. By contrast, actors associated with factor 1 and factor 3 dispute this view of development. Instead, they emphasize the importance of preserving the forest, their culture, and their current way of life, stating that they have only experienced negative aspects of deforestation, including loss of livelihood, increased floods, stronger winds, and biodiversity loss. Their perception is supported by several studies [32,58,59].

Another key statement, reflecting a similar issue, is “Where there is forest, there is poverty.” Participants associated with factor 2 said they see a direct relationship between living in the forest and not having access to water, electricity, education, health services, labor markets, etc.—representing a state of complete poverty. This picture is supported by the fact that, overall, 20% of indigenous people in the region still have unsatisfied basic needs, and approximately 20% are still completely illiterate [60]. Nevertheless, stakeholders associated with factor 1 and factor 3 disagree with this statement linking forests to poverty. As evidenced by our interviews, they identify the forest with life and with the provision of fruit, shade, animals, fresh air, building materials, and more. Additionally, they express an emotional connection with the forest that is not easily reconciled with the prevailing market-based logic of individual private property [61]. Indeed, in line with [62], our results show that it is crucial to recognize the different ways that people relate to nature and to consider them in the design of environmental policies.

With respect to consensus statements, the strongest area of agreement concerns statements about participation. For example, concerning the statement “The government does not consider the real conditions and needs of the stakeholders,” actors associated with factor 1 point to a lack of participation and the prevalence of top-down policies. Similarly, actors associated with factor 2 criticized what they view as short-sightedness in policy design, with most measures geared towards upcoming election cycles. Finally, actors associated with factor 3 highlighted apparent government disregard for their needs, evidenced by the government selling land to companies without considering that people live on the land. These conditions create problems for all the actors involved. In this way, there is an emerging consensus about the need for long-term policies on land tenure, designed in a bottom-up participatory manner.

Lastly, consensus was also found regarding the statement that large-scale producers have better access to authorities. However, there was disagreement about the reasons for their superior access. Actors associated with factor 2 argued that large-scale producers are simply better organized and share a common vision, whereas small-scale producers and indigenous people are much more scattered—both geographically and in terms of their visions—making it difficult to collaborate with them. On their part, actors associated with factor 1 and with factor 3 exhibited reluctance to engage with the formal legal system, because they feel that the legal system is created to protect the rich and not to bring justice, as one of the participants explained. This highlights that such actors have very little trust in local institutions. According to Boffa [63], the government wants to include indigenous people in the growing market economy to provide the workforce and to facilitate sales of land as private property. In this way, it appears essential for policymakers not only to facilitate access to the authorities, but to also build trust in them to encourage people to engage in local land-use policies.

5. Conclusions

In this study, we applied the Q method to identify diverse stakeholder perceptions of deforestation in the Chaco Salteño. Our results reveal three main perspectives that simultaneously illustrate a divide between capitalistic development perspectives (factor 2) and more conservation-focused perspectives (factor 1 and factor 3).

Nevertheless, some important common ground can be found among the various perspectives, which can be summarized according to the following two points. First, all the identified perspectives highlight the need for greater participation in the land-use regulation process. This is in line with the findings from other authors [11,12]. Second, there is general consensus that the government has enough resources to address the issue. Further discussion with the actors indicates that there is a united call to address existing conflicts by clarifying the conditions of land tenure once and for all. These are novel insights. This common ground should be used to build consensus on appropriate policy interventions. Clearly, there are many ways to go about it. As deforestation remains one of the most important drivers of both biodiversity loss and anthropogenic climate change, empowering local communities and recognizing their land claims [64,65], acknowledging that there is a variety of land tenure regimes beyond individual private property, could be extremely effective [65,66]. To this end, we would recommend offering technical support to rural communities (to enable securing and/or regularization of land titles) while also facilitating self-organization and participation in decision-making processes [12,30,64]. While the results of this Q study cannot be generalized, our findings highlight the value and usefulness of identifying and including people's perceptions of land-use conflicts, and indicate the need for further investigation of land-use conflicts in Salta in particular.

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Appendix A

Table A1. Distinguishing Statements for Factor 1.

Distinguishing Statements for Factor 1 ($p < 0.05$; Asterisk (*) Indicates Significance at $p < 0.01$)		Factor 1		Factor 2		Factor 3	
No.	Statement	Q-SV	Z-SCR	Q-SV	Z-SCR	Q-SV	Z-SCR
8	It is unfair that the processes for deforestation permissions are fast, while those for protection are slow	4	1.33	0	−0.41	1	0.49
20	The <i>criollos</i> produce in an environmentally friendly way.	3	1.21 *	−1	−0.67	−3	−1.47
12	The laws regulating deforestation are completely ignored.	2	0.98 *	−1	−0.64	−1	−0.30
4	The <i>criollos</i> are excluded from decisions about deforestation.	2	0.84 *	0	0.02	−2	−1.12
24	Everybody should respect the indigenous people's right to land.	0	0.23*	3	1.21	5	1.90
33	Lack of education causes people to cut trees.	−1	−0.32	−3	−0.83	1	0.44
13	The forest is a resource that needs to be exploited.	−1	−0.36 *	3	1.11	−3	−1.42

14	The indigenous peoples are overprotected concerning land rights.	−2	−0.81	1	0.41	−4	−1.55
15	The indigenous peoples only live in the forest because there is no alternative.	−2	−0.84	2	0.65	−1	−0.09
18	The <i>criollos</i> are overprotected concerning land rights.	−2	−1.21	−1	−0.43	−1	−0.37
21	The big producers are the only ones who deforest legally.	−3	−1.35	−2	−0.82	−1	−0.40

Table A2. Distinguishing Statements for Factor 2.

Distinguishing Statements for Factor 2 ($p < 0.05$; Asterisk (*) Indicates Significance at $p < 0.01$)		Factor 1		Factor 2		Factor 3	
No.	Statement	Q-SV	Z-SCR	Q-SV	Z-SCR	Q-SV	Z-SCR
28	Land-use change helps everybody because it contributes to development.	−1	−0.60	5	2 *	−2	−1.13
34	Deforestation creates employment.	−3	−1.41	4	1.62 *	−2	−1.21
35	There is a lack of work opportunities for indigenous peoples.	0	0.14	4	1.59 *	2	0.67
32	Where there is forest there is poverty.	−3	−1.45	3	1.28 *	−5	−1.88
24	Everybody should respect the indigenous people's right to land.	0	0.23	3	1.21	5	1.90
13	The forest is a resource that needs to be exploited.	−1	−0.36	3	1.11 *	−3	−1.42
19	If there is one thing that destroys the forest it's the cows of the <i>criollos</i> .	−2	−1.05	2	0.97 *	−2	−0.63
15	The indigenous peoples only live in the forest because there is no alternative.	−2	−0.84	2	0.65	−1	−0.09
14	The indigenous peoples are overprotected concerning land rights.	−2	0.81	1	0.41 *	−4	−1.55
9	Concerning land rights, the government attends to all actors equally.	−5	1.91	1	0.27 *	−4	−1.78
2	Many politicians own land and take care of their own interests.	2	1.02	0	0.24 *	3	1.14
4	The <i>criollos</i> are excluded from decisions about deforestation.	2	0.84	0	0.02 *	−2	−1.12
8	It is unfair that the processes for deforestation permissions are fast, while those for protection are slow.	4	1.33	0	−0.41 *	1	0.49
5	The guarantee of prior, free, and informed consultancy about deforestation is neglected.	1	0.77	−1	−0.44	0	0.25
25	The small producers are the most affected by deforestation, because there are no laws that protect them.	4	1.23	−1	−0.46 *	1	0.60
20	The <i>criollos</i> produce in an environmentally friendly way.	3	1.21	−1	−0.67	−3	−1.47
29	In my opinion, only the big producers benefit from deforestation.	3	1.13	−2	−0.78 *	2	0.79
16	The big producers are overprotected concerning land rights.	1	0.77	−2	−0.79 *	0	0.30
33	Lack of education causes people to cut trees.	−1	−0.32	−3	−0.83	1	0.44
17	When they cut trees, it's like they cut my mother because they provide me with food and shade.	1	0.77	−3	−1.08 *	3	1.26
30	The national government gets all the benefits of deforestation.	1	0.54	−3	−1.28 *	0	0.04
36	We are dying because of the pesticides that they put on the fields.	0	−0.01	−4	−1.88 *	1	0.59

31	Social inequality causes deforestation.	−1	−0.24	−5	−2.01 *	0	0.16
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Table A3. Distinguishing statements for Factor 3.

Distinguishing Statements for Factor 3 ($p < 0.05$; Asterisk (*) Indicates Significance at $p < 0.01$)		Factor 1		Factor 2		Factor 3	
No.	Statement	Q-SV	Z-SCR	Q-SV	Z-SCR	Q-SV	Z-SCR
24	Everybody should respect the indigenous people's right to land.	0	0.23	3	1.21	5	1.90
7	The indigenous peoples are excluded from decisions about deforestation.	0	0.33	0	−0.07	4	1.43 *
8	It is unfair that the processes for deforestation permissions are fast, while those for protection are slow	4	1.33	0	−0.41	1	0.49
33	Lack of education causes people to cut trees.	−1	−0.32	−3	−0.83	1	0.44
23	If I own land, I should be allowed to use it the way I want to.	−4	−1.72	−4	−1.41	0	0.08 *
15	The indigenous people only live in the forest because there is no alternative.	−2	−0.84	2	0.65	−1	−0.09
4	The <i>criollos</i> are excluded from decisions about deforestation.	2	0.84	0	0.02	−2	−1.12 *
13	The forest is a resource that needs to be exploited.	−1	−0.36	3	1.11	−3	−1.42 *
20	The <i>criollos</i> produce in an environmentally friendly way.	3	1.21	−1	−0.67	−3	−1.47
14	The indigenous people are overprotected concerning land rights.	−2	−0.81	1	0.41	−4	−1.55

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