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To Be, to Do, to Share: The Triple-Loop of Water Governance to Improve Urban Water Resilience—Testing the Benidorm' Experience, Spain

Sandra Ricart [1,2,*] and Antonio M. Rico-Amorós [1,3]

[1] Water and Territory Research Group, Interuniversity Institute of Geography, University of Alicante, San Vicente del Raspeig, 03690 Alicante, Spain; am.rico@ua.es
[2] Environmental Intelligence for Global Change Lab, Department of Electronics, Information and Bioengineering, Politecnico di Milano, 20133 Milan, Italy
[3] Department of Regional Geographic Analysis and Physical Geography, University of Alicante, San Vicente del Raspeig, 03690 Alicante, Spain
* Correspondence: sandra.ricart@ua.es

Abstract: Peri-urban interfaces tend to ensure water supply relying on their surrounding' resources, generating water disputes when asking for collaboration. The urban-rural matrix of the Marina Baja county in southern Spain is characterized by inland irrigation and coastal tourism development, being the most water-intensive activities in Benidorm. This contribution addresses the following research question: Can a better and systematic understanding of stakeholders' behavior and interactions increase water resilience in urban-rural interfaces? Data were collected from semi-structured interviews and questionnaires to 19 key stakeholders representing government officials, water managers, and the agricultural, tourism, and environmental sectors. Data were analyzed following the SAA and using MaxQDA® Analytics Pro 2020. A triple-loop analysis on water governance has been developed and applied to synthesize stakeholders' behavior when addressing urban water resilience to face climate change impacts: relevance and representativeness (to be), recognition and assessment (to do), and collaboration (to share). Results highlighted how Benidorm's urban water resilience is conditioned by four main learnings from stakeholders' perception and interaction: (1) 'feeling represented' is related to stakeholders' capacity to negotiate decisions, (2) lack of political will and Benidorm's leading role increase stakeholders' feelings of underrepresentation, motivating power imbalance, (3) stakeholders' actions are less valued than stakeholders' roles and functions, and (4) agreements are benefited by predisposition (willingness), but also by the compatibility of discourses (affinity) and the technical-management facilities (viability).

Keywords: urban resilience; climate change; water exchange; agreements; irrigation; stakeholders; water governance; hydrosocial cycle; Benidorm; Spain

Citation: Ricart, S.; Rico-Amorós, A.M. To Be, to Do, to Share: The Triple-Loop of Water Governance to Improve Urban Water Resilience—Testing the Benidorm' Experience, Spain. *Land* **2022**, *11*, 121. https://doi.org/10.3390/land11010121

Academic Editor: Richard C. Smardon

Received: 9 December 2021
Accepted: 10 January 2022
Published: 12 January 2022

1. Introduction

International organizations, such as the Global Commission on Adaptation (2019) or the United Nations, through the 2030 Agenda, have highlighted the need to adopt a resilient approach for speeding up climate change action in the water sector, including resilience among the attributes required to achieve the targets of the Sustainable Development Goals (SDGs). Specifically, SDG#6 aims to implement integrated water resources management to ensure water availability, and SDG#11 emphasizes the need to promote sustainable cities through resilient and inclusive societies [1]. Although the concept of 'resilience' can be understood through many differing lenses [2], due to its conceptual fuzziness and malleable meaning usually related to dynamic and multiple pathways (e.g., persistence, transition, and transformation) [3], urban resilience is defined here as the capacity of an urban area to overcome a diverse variety of disturbances and stresses, and adapt to new siloes [4].

Accordingly, urban resilience has been enacted as a contested process in which diverse stakeholders are involved, and their motivations, power dynamics, and trade-offs play out across spatial and temporal scales [5]. Therefore, resilience for whom, what, when, where, and why needs to be carefully considered, especially when disturbances and stresses significantly impact the hydrosocial cycle and disrupt the hydrological cycle conditioning the urban water systems [6].

Urban water resilience, considered a response to climate change and natural hazards to overcome water scarcity and flash flood events and ensure water supply and quality [7], is especially challenging in peri-urban spaces. As rural-urban interfaces, they are formerly rural spaces transformed due to cities' growth and expansion, sharing intersections of flows shaped by exchanging resources, infrastructures, and imaginaries [8]. Peri-urban spaces are characterized by high heterogeneity and intensity of land-use change [9], stakeholders with often conflicting interests regarding water resources use [10], and inadequate or limited management and governance structures [11]. These hybrid interfaces tend to ensure water supply relying on their surroundings' resources, generating water disputes. The growing water demands in urban areas are often met by sourcing water from rural watersheds, mainly using large reservoirs constructed for irrigation [12]. Cities face substantial water management challenges, even more so when their activities are water-intensive, as global tourism is. Furthermore, pressure on local water systems is especially accentuated where 'sun and sand' tourism and semi-arid climates coexist [13]. Likewise, the increasing water transfer to urban areas—be it temporary, permanent, or outright—negatively impacts the environment and other co-dependent sectors, like agriculture [14]. For farmers, water is a decisive input factor under pressure through peri-urbanization [15].

Conflicts, such as confrontations between groups or categories of people regarding a resource activity and its management [16], have long been recognized at the national and international levels, mainly focused on transboundary experiences where a dynamic evolution of different stakeholders and decision-makers' behaviors coexist [17,18]. However, the declining freshwater availability has become a subject of concern at the local level [19]. In these interfaces built on urban and rural interaction, the waterscape approach understands urban water dynamics as manifested through spatial, material, and discursive facets of hydrosocial relations [20]. Waterscapes tend to be hybrids, partly natural and social, as products of historical developments, power relations, and their situatedness in space [21]. In a waterscape, access to water is regulated by social rules and norms, and the control over the resource is changed and renegotiated over time considering water demands dynamics. Thus, 'water' is never simply H_2O but always produced as a particular 'water', materially and discursively, within specific moments, contexts, and relations [22].

Poor water governance is frequently cited as the key reason for urban-rural conflicts [23,24]. However, it is also widely recognized as a part of its solution by promoting mutual comprehension and recognition [25]. Stakeholders not only hold knowledge and values that are important to understand complex problems and develop strategies for action, but they are also the ones that eventually need to implement those strategies [26]. Stakeholder participation is seen as a critical tool for water management [27] and conflict resolution [28] because stakeholder engagement incorporates individuals and communities' narratives regarding their physical surroundings and social perceptions, including their attitudes to mobilize actions [29]. Various functions of stakeholder participation are discussed in the literature, moving from opportunities to weaknesses. Opportunities include exchanging knowledge and experiences, increasing public acceptance, and reducing litigation [30]. At the same time, weaknesses comprise frustration, latent or new conflicts, lack of representation, and power or influence asymmetries—considering 'power' as the ability to influence others and distinguishing between 'power to' and 'power over' options [31,32]. Stakeholder analysis and water governance have usually been applied to studies on environmental justice and conflicts affecting vulnerable populations, such as informal settlements, indigenous communities, racial segregation, and popular movements [33]. However, asymmetrical power relationships and human-nature conflicts are

global and replicable phenomena affecting developed regions, notably when conflicts are motivated by water infrastructure construction or competing water interests [34,35].

Therefore, stakeholder narratives can be complemented by new conceptual and methodological issues that synthesize individual and collective stakeholders' behavior [36]. These issues tend to consider that water and society make and remake each other over space and time, being changeset and learning part of the process [37]. Collaborative governance, the process of engaging multiple stakeholders across scales and sectors to cooperate for joint policy and management, has emerged as an alternative to traditional government and presents an opportunity to understand water management barriers and weaknesses from stakeholders' behavior [38]. Along the same lines, collaborative arrangements aim at identifying common problems, sharing information, and building consensus on outputs in the form of policies, management plans, and on-ground action [39]. However, learnings from empirical studies highlighted some barriers to collaborative governance implementation, such as lack of communication, differences in priority definitions and specific interests, limited understanding derived from stakeholders' views, presence of uncertainties, or power asymmetries [40]. Furthermore, collaborative governance regimes can enable dialogue across opposed water interests, increasing water resilience, but the diversity of stakeholders and their restricted ability to promote actions can make it challenging to attain common views and agreements [41].

This paper aims to go deeper into stakeholder collaboration and governance by addressing the following research question: Can a better and systematic understanding of stakeholders' behavior and interactions increase water resilience in urban-rural interfaces? While the idea of stakeholders' collaboration and interaction seems intuitive, its implementation and actual results tend to be uncertain or not entirely understandable. To the best of our knowledge, there is an acknowledged gap between collaborative governance as an ideal and its success regarding perceived legitimacy and social-learning in practice, especially at the local scale [42,43]. In order to advance the empirical understandings of the links between water governance and their outcomes, this paper combines stakeholders' narratives with five behavioral issues (relevance, representativeness, recognition, assessment, and collaboration) to understand stakeholders' roles and relationships and simplify how their perception and interaction could be tested in urban water resilience analysis. Furthermore, these issues are combined to configure a triple-loop analysis ('to be', 'to do', 'to share') based on stakeholders' mutual understanding and recognition able to organize stakeholders' performance ('to be' and 'to do') and collaboration ('to share'). This can be seen as an intuitive road from theory (loop one) to practice (loop two) in a mutual understanding framework (loop three). Otherwise, this approach could be considered a mechanism to deepen how collaborative governance can be explored by characterizing the conditions under which stakeholders' (in)formal interactions can benefit problem-solving and decision-making in peri-urban interfaces when addressing urban water resilience. Its application to the Marina Baja county (southern Spain), with particular attention to the peri-urban interfaces with the mass-tourism destination of Benidorm as focus, will exemplify the added-value of this approach when addressing complex water systems.

The remainder of this paper is structured as follows: The case study is presented in Section 2, where the water supply system and management, agricultural and urban-tourism water demands, and agreements between stakeholders are covered. Section 3 provides the methodological background, where data collection and analysis are duly attached, including stakeholders' roles and the questionnaire design description. The results are provided in Section 4, combining background on the water system management from stakeholders' narratives and water system governance from stakeholders' interactions. Results evaluation and future research are finally discussed in Section 5, including opportunities to illustrate the valuable exploration of water governance in exposing human-water coupling systems.

2. Case Study

The Marina Baja county is located in the south-east of Spain (Alicante), on the Mediterranean coast. Its almost 580 km^2 area presents sharp topographic and climatic differences, contrasting relatively abundant water resources in the hinterland with one of the driest regions in Spain in the coastal area. Likewise, there is relevant interannual variability of rainfall, so drought periods are frequent and, in some cases, may last for several years [44]. In recent decades, the population of this county has strongly increased, currently standing at around 190,000 inhabitants, to which the seasonal population that can double or triple the resident population must be added. Most of this socioeconomic growth has been generated around Benidorm, the most renowned mass tourism destination on the Spanish Mediterranean coast [45], attracting international and national visitors [46]. Benidorm is a typical example of a mass tourism resort that emerged along the Mediterranean coast in the 1960s and has become one of the most famous holiday destinations in Europe [47].

2.1. Water Supply System and Management

The recurrence of drought episodes in the Marina Baja county, together with intense tourism development, has produced up to seven severe water crises since the 1960s (1965–1969, 1978, 1981–1984, 1992–1996, 1999–2001, 2005–2008, and 2014–2016) [48]. An example of how this drought-prone context interacts with local urban systems occurred in 1978: on the 24th of August, the municipal council of Benidorm made public that it reached what is nowadays known as "day zero", a term used to describe when the city exhausted its water supply [49]. A few years before, in 1977, the Marina Baja Water Consortium was constituted by the most populated municipalities of the county, including Benidorm. The impact that the 1978 drought episode had on tourism, which had been turned into the main economic activity of the county, required the strengthening of the water supply system. Consequently, the Marina Baja Water Consortium relies on several water sources, including surface water, stored by two reservoirs, Guadalest (13 hm^3) and Amadorio (16 hm^3), from where the homonymous pipelines depart for urban-tourist water supply (Figure 1). Likewise, the water supply system includes groundwater resources from two karstic aquifers (mainly the Beniardà and the Algar pumping wells).

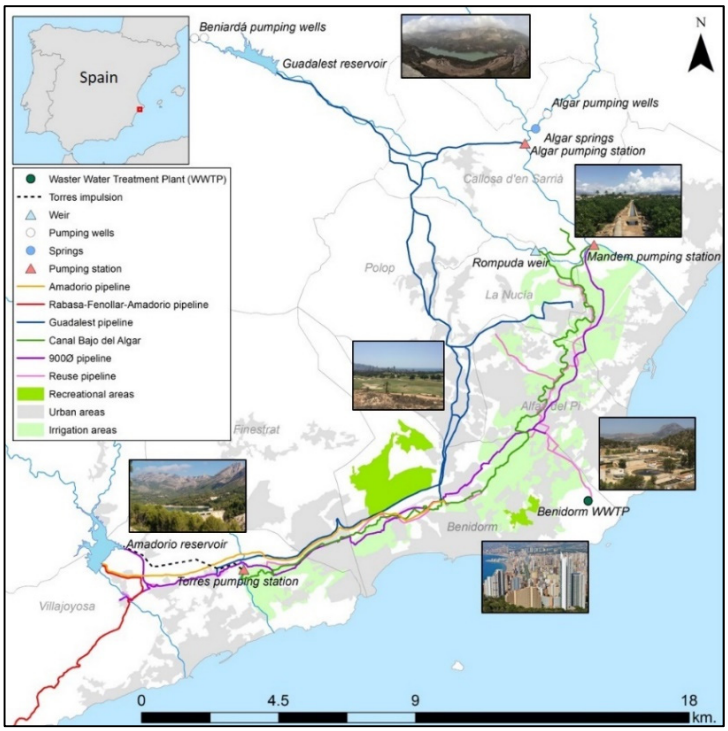

Figure 1. The Marina Baja county water system management. Source: Adapted from [50].

During drought periods, groundwater pumping is increased, even inducing transient overexploitation, but its piezometric levels are rapidly recovered, demonstrating a high recharge capacity during heavy rains. Additionally, it should be mentioned that the Algar-Guadalest and the Amadorio basins are interconnected through the Canal Bajo del Algar (a semi-open irrigation channel) and the 900 mm pipeline, that allows the mobilization of water to irrigation uses and municipal water tanks, and even the pumping water to the Amadorio reservoir through the Torres Pumping station. Finally, the Marina Baja Water Consortium manages the reclaimed water produced at the Benidorm Waste Water Treatment Plant (WWTP), conveying it through the reuse pipeline. This reclaimed water incorporates tertiary treatment (an ultrafiltration process) and a desalination stage to correct the conductivity levels required by the irrigators, fixed by the agreement established with the water consortium.

2.2. Agricultural and Urban-Tourism Water Demands

The approval of the Benidorm Urban Master Plan in 1956 motivated the promotion of tourist activity as a strategy for social and economic progress. More than 60% of the tourist activity in the Valencian Community was concentrated in Marina Baja county. Most of this activity takes place in Benidorm, accounting for 70,000 inhabitants and a floating population of 150,000 inhabitants each year [51,52]. Benidorm attracts around two million visitors and 16 million overnight stays [53], which places the city as the fourth most visited tourism destination in Spain after Barcelona, Madrid, and the Canary Islands. Benidorm's great urban-tourist activity consumes half of the urban water supplied by the Marina Baja Water Consortium, around 10 hm^3/year, located in this municipality. About two-thirds of this water consumption is for tourist, recreational and commercial activities [54]. However, the water consumption per capita in Benidorm is lower (150–130 L/person/day) than that produced in other residential-tourist municipalities due to the high-density urban model and the implementation of several water efficiency measures in the hotel sector, such as the introduction of Mediterranean gardens or the installation of water-saving devices in bathrooms, kitchens and outdoor uses [55].

The agricultural sector, which counts for more than 4000 ha of irrigated land in the county, uses about half of the total water managed by the Marina Baja Water Consortium. It should be noted that the water sources supplied to irrigation vary widely from year to year according to the availability of freshwater sources. During drought episodes, the share of reclaimed water used for irrigation may reach 70%, as happened in 2000, but this figure usually oscillates between 8% and 38%. The dominant crops in the area are medlars, citrus, and other fruits, coexisting with dryland crops such as carob, olive, and almond trees [56]. Irrigation modernization systems (such as drip irrigation) have been promoted, and nowadays, water efficiency systems are applied in about 80% of the plots.

2.3. Agreements between Key Stakeholders

The water supply system managed by the Marina Baja Water Consortium has been possible thanks to the agreements established with the irrigation communities consisting of the shared use of the main water infrastructures and the exchange of water resources [57]. There are agreements with the irrigation communities of Callosa d'En Sarrià, Villajoyosa, Altea, Polop, and La Nucía, for a total amount of about EUR 1,200,000. Until 1990, most of the agreements were verbal, based on goodwill between stakeholders, but numerous agreements were written at the beginning of the decade. One of the most significant agreements is between the Marina Baja Water Consortium and Canal Bajo del Algar irrigation community, which can be traced back to 1964, even before the consortium's foundation. This agreement was signed to establish the permanent rules of surface water and reclaimed water exchange: during drought or water scarcity situations, reclaimed water from the Benidorm WWTP will be supplied to the irrigation community in return for freshwater from the Algar-Guadalest watershed, whose water rights belong to the irrigators. This agreement also establishes that the Marina Baja Water Consortium should assume the main-

tenance and operational cost of the water distribution system and an annual contribution of EUR 600,000 a year to the Canal Bajo del Algar irrigation community to guarantee up to an equivalent volume of 3 hm^3 of reclaimed water. Likewise, in 1991, a second agreement between the Marina Baja Water Consortium and the Canal Bajo del Algar irrigation community allowed the joint use of the Canal Bajo del Algar for the water conveyance from the Algar-Guadalest river to the Amadorio reservoir [58].

3. Materials and Methods

3.1. Data Collection

Face-to-face semi-structured interviews and questionnaires to 19 stakeholders have been conducted between May and July 2018. Directly relevant stakeholders have been identified starting from previous research works in the area [50,59], updated after considering their functional level according to the agricultural and urban-tourism nexus, and checked by key informants and local experts' feedback to ensure that all possible relevant perspectives were included. The selection criteria were based on three main issues: who is affected, interested in, and impacted by the water system management. In the words of [60], 'actors dependent on the site for their livelihood'. Stakeholders have been organized into five categories: (1) government officials (regional government, provincial council, and municipalities), (2) water managers (river basin authority and water consortium), (3) the agricultural sector (irrigation communities and union farms), the tourism sector (hotel association), and the environmental sector (environmental association) (Table 1).

Table 1. Stakeholders listed by groups and described according to its function.

Stakeholder Group	Stakeholder Name	Stakeholder Description
Government officials	Regional government—Generalitat Valenciana (GV)	The Council of Agriculture, Environment, Climate Change and Rural Development, through the Water Planning Division, is the governing body at the regional level that assumes the functions of planning, the management, and protection of water resources, including water infrastructure exploitation for urban and agricultural use under the guardianship of the river basin authority.
	Provincial Council of Alicante (PC)	The Water Cycle Department is in charge of guaranteeing both the availability and quality standards of water resources and giving support to municipalities on issues related to planning, construction and repairing water infrastructures at the local scale. It chairs the Marina Baja Water Consortium.
	Alfàs del Pi city council (ALF)	Municipality of 20,042 inhabitants (2020). Wells covering about 10% of the municipality's water demand. In 2014, a desalination plant (La Angelita) was proposed by Hidraqua water company to complement the water supply system, while a WWTP was projected. The water supply network efficiency managed by Hidraqua water company is currently at 75%.
	Altea city council (ALT)	Municipality of 22,558 inhabitants (2020), doubling in high season. It relies on municipal water deposits (Tossal Les Rotes, Montahud, Altea la Vella and some private water deposits) and wells (Riquet and Bèrnia).
	Benidorm city council (BEN)	Municipality of 70,450 inhabitants (2020), six-fold in the summer. Wells are used to supply the Aqualandia and Mundomar parks and some hotels for swimming pools and toilet use. Requested the construction of a reusable water pond to prevent reclaimed water from being dumped into the sea when the WWTP was in maximum production. This could cover the ecological flows of the rivers of the Marina Baja county.
	Callosa d'En Sarrià city council (CALL)	Municipality of 7522 inhabitants (2020). Wells (Estret de Sacos) and springs (Las Fuentes del Algar) used to supply irrigation and urban water demand. The Public Entity for Wastewater Sanitation of the Generalitat Valenciana (Epsar), responsible for the operation of the Altea WWTP, is studying the possibility of implementing new WWTPs that provide service in the municipalities of Polop, La Nucía and Callosa d'En Sarrià.

Table 1. *Cont.*

Stakeholder Group	Stakeholder Name	Stakeholder Description
	Finestrat city council (FIN)	Municipality of 7103 inhabitants (2020). The Marina Baja Water Consortium supplies the municipality through the Font del Molí spring and the Alfarella well, in varying proportions, coming from the Guadalest and Amadorio reservoirs. In the event of a persistent drought or emergency, the water would be supplied from the Rabasa-Amadorio transfer. Finestrat has six water storage tanks.
	La Nucía city council (NUC)	Municipality of 18,163 inhabitants (2020). Wells (San Antonio and Les Rotes) and water deposits (Forques and Tossal) supply urban water demand. The municipality is considering making a double circuit for reclaimed water from their WWTP: one for private gardening and another for public gardening.
	Polop city council (POL)	Municipality of 5064 inhabitants (2020). Wells (from Beniardà-Polop aquifer) and water deposits (Bacorero). The Marina Baja Water Consortium foresees the connection of the municipality with the Guadalest pipeline network to increase water security in water scarcity periods.
	Villajoyosa city council (VIL)	Municipality of 35,199 inhabitants (2020). A WWTP supplies Benidorm and Finestrat. In the upper part of the Amadorio reservoir, several wells were drilled to supply Villajoyosa. The municipality is supplied from the Guadalest reservoir, or the Amadorio reservoir through the Canal Bajo del Algar, but only in extraordinary situations, especially in summer due to the population increase.
Water managers	Júcar River Basin Authority (JRB)	Public autonomous organization assigned to the Ministry of the Ecological Transition to elaborate the river basin hydrological plan, as well as its follow-up and review; water infrastructures projection, constructions and development, and conciliate water demands. It coordinates the outline of important topics for the Marina Baja 2021–2027, in which the supply and protection of water sources for urban use is included.
	Marina Baja Water Consortium (WCO)	Local public administration created in 1977 to coordinate a comprehensive water system in which different water sources must be managed: surface water (Guadalest and Amadorio reservoirs, pumping stations and Canal Bajo del Algar), underground water (Beniardà, Algar, Polop and Aitana Sur aquifers) and non-conventional water resources (reclaimed water from WWTPs of Benidorm, Villajoyosa and Altea and the desalination plant of the Benidorm WWTP, named Marina Baja WWTP and located in the Muchamiel municipality. It is chaired by the Provincial Council of Alicante.
Agricultural sector	Canal Bajo del Algar irrigation community (CBA)	The irrigation community was created in 1945 and it covers about 2300 ha and is made up of about 1900 members. It belongs to the Júcar River Basin Authority and includes the municipalities of Altea, Alfàs del Pi, Benidorm, Finestrat, Villajoyosa and La Nucía. Gravity irrigation is the main irrigation method and the main crops are citrus and loquats. In water scarcity periods, an agreement is managed to exchange their surface water for reclaimed water from Benidorm WWTP.
	Callosa d'En Sarrià irrigation community (CAS)	The irrigation community was created in 1986 and it covers about 1200 ha and is made up of about 1000 farmers. It integrates 29 different communities and the city council of Callosa d'En Sarrià as a water user. Its main function is the management of water resources for agricultural and urban use. Only three communities are supplied from wells instead of from the river, and the dominant crops are medlar and avocado.
	Huertas de Villajoyosa irrigation community (HV)	The irrigation community was created in 1963 and it covers about 1500 ha and it is made up of about 1700 members. The main crops are citrus, although recently it is betting on promoting early varieties, such as mandarin. The community financed the construction of the Amadorio reservoir, although its ownership and exploitation correspond to the Júcar River Basin Authority.
	Young Farmers Agrarian Association (YF)	Union farm founded in 1980. Associated farmers do not consider the possibility of using reclaimed water for crop production, otherwise, they are investing in being more water-use efficient by promoting drip irrigation. The production area of the Callosa d'en Sarrià medlar is considered by protected designation origin and accounts for half of the harvest in Spain and 80% of the total produce is exported to Italy.

Table 1. *Cont.*

Stakeholder Group	Stakeholder Name	Stakeholder Description
	Union Farmers and Livestock (UF)	Union farm founded in 1976. Associated farmers consider that coexistence between urban and agricultural water demands could be directly addressed between Benidorm and the Callosa d'en Sarrià irrigation community, nor the Marina Baja Water Consortium.
Tourism sector	HOSBEC hotel association (HO)	The Benidorm, Costa Blanca and Valencia Region Hotel Association (HOSBEC) was created in 1977 as an established subject to the laws governing business associations to defend the interests of this sector. The association gathers together businesses dedicated to tourist accommodation, restaurants and bars and leisure venues that are located or carry out their activity within the Valencian Region, with a special focus in Benidorm.
Environmental sector	Xoriguer environmental association (XO)	Environmental association born in 1985, concerned mainly with environmental education and nature observation. Members collaborated with irrigation communities discussing about the urban water cycle or the Amadorio reservoir management.

Stakeholders collaborated voluntarily after providing their oral consent to participate in the study. Each actor was informed about the research and contacted by telephone or email to schedule the interview day. The main expert on the topic was interviewed (e.g., the president, the director, the coordinator, the spokesperson or the technician in chief). An interview script was used following the standard tenets of thematic analysis, a method used for identifying, analyzing, and reporting patterns (themes) within some topical data [61]. This method fits well with the aim of the discursive analysis, through which water systems management and governance can be interpreted within their historical, cultural, and political settings and by considering stakeholders discourses as categorizations and concepts that give meaning to physical phenomena and social realities instead of treating topics as universally valid knowledge claims [62].

The script was organized into three main topics: (1) water management (balancing water supply and water demands), (2) water exchange (including discussion about water infrastructures and reclaimed wastewater's role), and (3) water governance (discussing effects on urban resilience). These topics have been identified as the main driving factors explaining the nature of rural and urban-tourism stakeholders' interaction according to previous research [63,64], expert consulting, and the information published in the last ten years in two local newspapers (Diario Información and Diario Alicante Plaza). Each interview was conducted in Spanish or Catalan and was between 40 min and two hours in duration. All interviews were audio-recorded, transcribed, and translated to English for further analysis. Data collection has been triangulated following the recent works from [65,66], in which (1) multiple data sources containing different perspectives (from different stakeholders' groups), and (2) complementary qualitative methods and sources (including the interview and the questionnaire but also research observation by consulting the local newspapers and field notes) have been considered.

After the interview, each stakeholder answered a questionnaire to deepen collaborative governance through structured information about stakeholders' roles, actions, and alliances when addressing water scarcity and water management scenarios. The questionnaire was pre-tested in previous works [67–69] and updated to highlight stakeholders' behavior and interaction. The questionnaire contained 11 closed-ended questions to address five issues (Table 2): (1) relevance (stakeholder's role, importance, interest, and power in the decision-making processes), (2) representativeness (stakeholder's perception regarding being included in decision-making processes), (3) recognition (stakeholder's role importance based on others' perceptions), (4) assessment (stakeholder actions importance based on others' perception, including ignorance and unknown based on others' perception), and (5) collaboration (stakeholder's capacity to establish agreements). Each issue is considered when analyzing the triple-loop of water governance ('to be', 'to do', and 'to

share') conditioning stakeholders' interactions to improve water governance and increase urban-rural resilience.

Table 2. Questions included in the questionnaire to stakeholders.

Question	Answer	Issue	Factor
Q1. How important is your role in the integrated water resources management model?	Likert 1–5 (Essential—Dispensable)	Relevance	To be
Q2. Do you feel represented in the current water resources management model?	Likert 1–5 (Yes, absolutely represented—Not represented at all)	Representativeness	To be
Q3. If you feel represented, in your opinion, what does 'feeling represented' mean? [1,2]	To set the trend (to be the referent or leader) Influence on decisions (to put pressure) To be part of the decision-making processes (to negotiate) Share the discourse with the majority (positioning themselves) Present the own interests to the group	Representativeness	To be
Q4. To what extent do you 'feel represented'?	Likert 1–5 (Highest—Minimum)	Representativeness	To be
Q5. What could explain the 'unrepresented' feeling? [1,2]	Lack of political will Lack of technical/professional recognition Lack of social support Conflict of interest among stakeholders Leading role (no dialogue)	Representativeness	To be
Q6. How important is the role of the other stakeholders involved in the water management model? [3]	Stakeholders list	Relevance Recognition	To do
Q7. How important are the actions carried out by the other stakeholders?	Stakeholders list	Relevance Assessment	To do
Q8. In the case of prioritizing agreements with other stakeholders, what is benefiting these agreements? [1,2]	Compatibility of discourses (affinity) Predisposition of both parties (willingness) Common strategy or interest (necessity) Favorable/special treatment (influence)	Collaboration	To share
Q9. What is the time frame of these agreements? [2]	Permanent Periodic Timely	Collaboration	To share
Q10. What form do these agreements take? [1,2]	Verbal Signed Joint statement	Collaboration	To share
Q11. With which stakeholders would you be willing to establish collaboration and agreements?	Stakeholders list	Collaboration	To share

Note: [1] More than one option was possible. [2] Option 'Other(s)' has been provided but no answer was received. [3] This analysis also included the 'Do Not Know/No answer' option to check stakeholders' mutual knowledge.

3.2. Data Analysis

Interviews were coded by the first author using the MaxQDA® Analytics Pro 2020 edition software. Five interviews (26.3% of the total) were coded a second time (four months after the first coding process) by the first author to establish intra-rater reliability (degree of agreement between different measurements done by the same person). Almost perfect agreement intra-rater reliability was achieved for both interviewer' utterances (Cohens' $k = 0.91$, $p < 0.001$; 96.4% of agreement). Both inductive and deductive research have been

applied when coding to avoid testing pre-conceived hypotheses instead of allowing the theory to emerge from the raw data's content (transcribed interviews).

Quotations (the shortest part of a text where the primary meaning could be understood without reading a longer part of the text) [70] have been hand-coded and grouped into main categories of topics (codes) [71]. Each code was based on the main keywords used by stakeholders during the interviews after being checked according to the topics previously identified in the local newspapers. An internal codebook with codes' descriptions, use/non-use, and examples was created as a *memo* in the MaxQDA® software. Coded quotations frequency and code coverage have been calculated, and main narratives have been highlighted. Furthermore, the Jaccard Similarity Index (JS), a well-known statistic coefficient, was used for gauging the (dis)similarity of sample sets (two underlying text excerpts). In this study, the JS was used to compare stakeholders' narratives through the number of shared codes with the total number of codes to be potentially shared, ranging from 0 (entirely dissimilar) to 1 (completely similar) [72]. The recorded interviews were transcribed to identify the narrative of each interviewee according to the three themes previously defined in the literature. Inductive hand-coding has been applied when deepening each theme to avoid testing pre-conceived hypotheses (Figure 2). The conceptual map for each stakeholder's narrative is provided as Supplementary Materials.

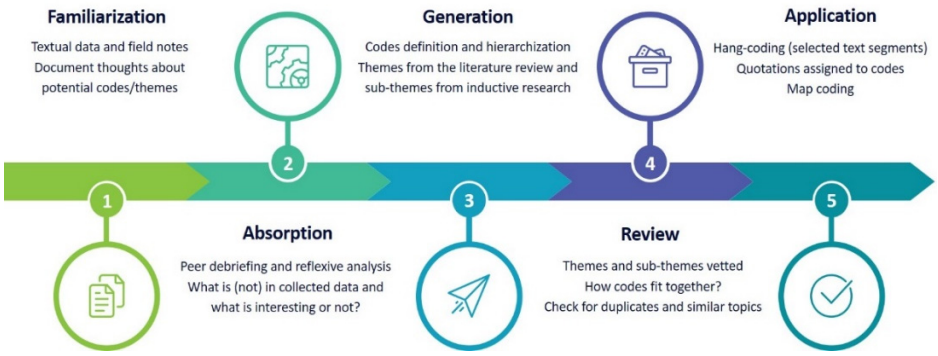

Figure 2. Thematic analysis process. Source: own elaboration.

Significant quotations (text segments related to pre-defined themes) have been hand-coded, providing 10 codes from used keywords related to each of the three themes previously identified (Figure 3). 'Agriculture' and 'coastal tourism' codes provide evidence of the challenging coexistence moving between competition and complementation. 'Water management', determined by 'water supply' and 'water consumption' patterns, justifies the nature of the coexistence between agriculture and tourism. 'Water exchange', conditioned by 'water infrastructure' promotion and 'reclaimed water' acceptance, exposes the main actions to address water scarcity and urban-rural water coexistence, while 'water governance' inspires or blocks 'urban resilience'. Finally, the stakeholders' interaction nature and typology were highlighted by defining their values, attitudes, interests, and demands regarding the natural park [73].

The questionnaire has been analyzed through descriptive statistics, duly represented in plots, and when appropriately considered, by matrices derived from stakeholder analysis literature [74] or original to visualize stakeholders' characterization according to their behavior and interactions, both individually and collectively (stakeholders' groups). Matrices contribute to the defining of stakeholders' typologies to compare their attitudes regarding water management and water governance issues. Three original matrices have been developed and applied: Recognition-Assessment Matrix and Disconnection Matrix (from Q6–Q7), and Agreement Matrix (from Q8–Q11).

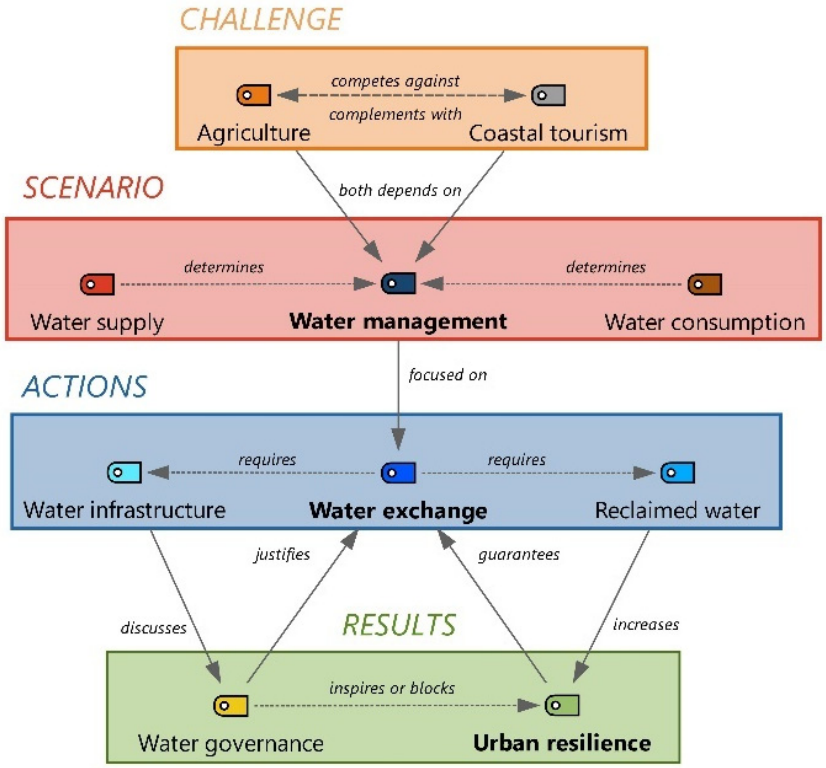

Figure 3. Coding map. Source: own elaboration.

4. Results

4.1. Water System Management from Stakeholders' Narratives

This section identifies key messages from stakeholders' narratives coexisting in the Marina Baja county regarding the urban-rural interface and Benidorm's urban water resilience. The similarity between stakeholders' discourses has been analyzed through the Jaccard index, while content analysis has been applied to characterize (dis)agreement on the main stakeholder narratives.

4.1.1. Code Coverage and Similarity

Inductive coding identified ten codes mainly focused on water issues ('water supply', 'water consumption', 'water management', 'water exchange', 'reclaimed water', 'water infrastructure', 'water governance') but also water users ('agriculture' and 'coastal tourism'), and water challenge ('urban resilience'). A total of 113 quotations have been collected, mainly covered by 'water supply', 'reclaimed water', 'urban resilience', and 'water governance' (19, 16, 14, and 13 quotations, respectively). The main contributors were the Canal Bajo del Algar irrigation community (18 quotations), the regional government—Generalitat Valenciana (13 quotations)—and the Marina Baja Consortium and the HOSBEC hotel association (11 quotations each one).

Figure 4 synthesizes the coverage of each code (considering coded text) by stakeholders, which can be related to their main concerns regarding water system management. It is interesting to note how Benidorm focuses its whole speech on 'urban resilience.' At the same time, the rest of city councils covered a diversified range of codes, including 'agriculture', 'water exchange' (Altea and Finestrat), 'reclaimed water' (Altea and Callosa d'En Sarrià), or 'water infrastructure' (La Nucía and Villajoyosa). Water managers shared interests regarding main water issues, including 'water management', 'water infrastructure', 'water governance' and 'water consumption', although they differ regarding 'coastal tourism) (only covered by the Marina Baja Water Consortium). Maybe surprisingly, the HOSBEC hotel association did not provide any reference to 'coastal tourism' (that is mainly covered by the Marina Baja Water Consortium, the Canal Bajo del Algar, and the Union

of Farmers and Livestock), but in 'water consumption' and 'urban resilience', sharing interests with Xoriguer environmental association. 'Water supply' is mainly covered by the Provincial Council of Alicante and agrarian associations, although this issue also concerned some city councils such as Polop, Altea or Villajoyosa.

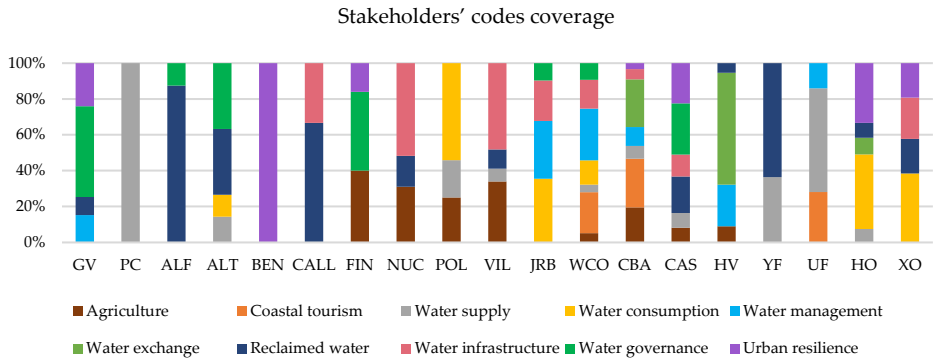

Figure 4. Codes coverage by stakeholder. Note: government officials (GV: regional government—Generalitat Valenciana, PC: Provincial Council of Alicante, ALF: Alfàs city council, ALT: Altea city council, BEN: Benidorm city council, CALL: Callosa d'En Sarrià city council, FIN: Finestrat city council, NUC: La Nucía city council, POL: Polop city council, and VIL: Villajoyosa city council); water managers (JRB: Júcar River Basin Authority, and WCO: Marina Baja Water Consortium); agricultural sector (CBA: Canal Bajo del Algar irrigation community, CAS: Callosa d'En Sarrià irrigation community, HV: Huertas de Villajoyosa irrigation community, YF: Young Farmers Agrarian Association, UF: Union of Farmers and Livestock); tourism sector (HO: HOSBEC hotel association); environmental sector (XO: Xoriguer environmental association).

The Jaccard index (JS) was calculated to identify (dis)similarities between stakeholders' narratives through codes' coverage use (from 0 = dissimilarity to 1 = similarity). The highest JS values occurred between city councils (La Nucía with Villajoyosa and Callosa d'En Sarrià, JS = 0.75 and 0.67, respectively), the Júcar River Basin Authority with the Callosa d'En Sarrià irrigation community, and the Marina Baja Water Consortium (JS = 0.67 and 0.57, respectively), and the last one with the Canal Bajo del Algar and Callosa d'En Sarrià irrigation communities (JS = 0.56 and 0.54, respectively). Partial similarity values were identified between the regional government—Generalitat Valenciana—and Callosa d'En Sarrià irrigation community or Altea city council (JS = 0.57 and 0.50, respectively), between the Marina Baja Water Consortium and some city councils (Polop and Altea, JS = 0.43 and 0.38, respectively), and between HOSBEC hotel association and Xoriguer environmental association (JS = 0.50).

On the contrary, and once discarded bilateral relations with JS = 0 (being provided with the highest number by the city council of Benidorm), the lowest JS values were obtained between Callosa d'En Sarrià city council and the Marina Baja Water Consortium and the Canal Bajo del Algar irrigation community (JS = 0.13). It is also interesting to note how the three irrigation communities (Callosa d'En Sarrià, Canal Bajo del Algar, and Huertas de Villajoyosa) obtained low rates regarding their narrative similarities with the Júcar River Basin Authority (JS = 0.25, 0.22, and 0.14, respectively). Maybe paradoxically, the basin authority narrative is closer to the Marina Baja Water Consortium than the irrigation communities, although the latter are the only ones with water concessions managed by the river authority. This draws out two dynamics regarding internal and external stakeholders' groups' behavior. On the one side, some city councils can share joint interests at the internal level, while their ability to cover similar inputs with stakeholders from other groups is minimal. Conversely, water managers can fix internal issues while sharing mutual understanding with other stakeholders' groups (mainly with the agricultural sector).

4.1.2. Main Driving Factors

Ten issues have been identified as driving factors conditioning the Benidorm urban resilience from a water management and governance perspective. These issues are related to the 10 codes from used keywords previously identified from the stakeholders' interviews and checked by the local newspaper analysis.

- Agriculture

Most city councils (e.g., Finestrat, La Nucía, Polop) consider that agriculture is not productive, but it is for subsistence, with smallholdings and part-time or weekend activity. Hence, farmers tend to complement agricultural activity with other businesses in the tourist sector, services, or industry. Moreover, some farmers continue the agricultural activity by tradition, as a hobby or complementary income. Similarly, the Canal Bajo del Algar irrigation community recognizes that agriculture is disappearing in the county due to the lack of generational replacement and because professional farmers are declining year after year, as informed by the Callosa d'En Sarrià irrigation community. The Huertas de Villajoyosa irrigation community made some statistics in the same vein, and currently, less than 4% of young people are exclusively dedicated to agriculture. According to the Canal Bajo del Algar irrigation community, this lack of agricultural' attractiveness is explained by the unstable nature of agricultural activity: in no other economic activity does the risk of working day after day without being compensated at the end of the month exist, due to natural hazards or market imbalances.

- Coastal tourism

The Marina Baja Water Consortium considers that inland landscapes built and managed by farmers, such as green routes or rural corridors, are essential for coastal tourism. However, the public administration does not recognize these cultural and ecosystem services nor compensate farmers' role. Even tourists and visitors (but not most residents) use these hybrid landscapes. The Canal Bajo del Algar irrigation community's key issue is that although economic development depends on tourism within the county, most hotel owners or related tourism businesses in a coastal municipality are benefited from the countryside after buying second residences. However, this nexus and the proximity of Benidorm is not used to promoting local agriculture through which part of the farmers' role ensuring inland landscapes could be returned.

- Reclaimed water

Reclaimed water quality standards are among the main transversal concerns, including some irrigation communities (Callosa d'En Sarrià and Huertas de Villajoyosa), city councils (Altea, Callosa, Villajoyosa, Spain), and the Young Farmers Agrarian Association. The shared impression is that reclaimed water is accomplishing the quality standards established by Law (Spanish R.D. 1620/2007), but water is not optimal and cannot be compared to rainwater. For most farmers, reclaimed water will be used to produce food when citizens from Benidorm and other coastal municipalities are willing to drink reclaimed water. In the same vein, Callosa d'En Sarrià city council directly asks: 'If reclaimed water is not good to be drunk, why it can be good to produce food?' Although it is recognized as indispensable during water scarcity or drought periods, the lack of confidence in this alternative water resource is also motivated by the yuck factor associated with farmers' perceptions. According to the Villajoyosa city council, secondary wastewater treatment is not enough since it usually leads to emitting particles in suspension, and farmers need to see almost crystalline water to accept it instead of surface water.

- Water consumption

The Young Farmers Agrarian Association highlights the incomprehension suffered by farmers regarding water consumption: Benidorm takes water from the Algar River, uses the Guadalest reservoir, and dries the Beniardà wells, but farmers are seen as the primary water consumers and those wasting water resources. In the Altea city council, residents

and tourists are progressively more efficient in water use, but they use water for a more significant number of uses and services, thus making a decrease in consumption challenging. The Marina Baja Water Consortium provides some data in this respect: Domestic water consumption has dropped from 250 to 130 liters/person/day in Benidorm. According to the HOSBEC hotel association, the tourism sector has progressively installed efficient water systems. However, the key issue is the tourist's attitude: it is challenging to be water efficient during a vacation in a mass-tourism resort, even if the tourist is conscious of being in a semi-arid region. In line with the Xoriguer environmental association, maybe the key question is not about educating the tourist but about educating the resident when she/he is in a tourist mode.

- Water exchange

The Canal Bajo del Algar irrigation community justifies the usefulness of the water exchange between surface water from irrigation communities and reclaimed water from city councils: in scarcity periods, Benidorm would not exist without farmers' solidarity. In the same vein, the Callosa d'En Sarrià irrigation community considers that sometimes coastal municipalities negatively see farmers without knowing that the urban-tourist sector is drinking thanks to farmers' solidarity. Furthermore, the Huertas de Villajoyosa irrigation community highlights an additional benefit of this water exchange: the county's green urban corridor, benefiting Benidorm's landscape. However, the HOSBEC hotel association admits that some city councils and part of the tourist sector do not know or unvalue the benefits of this water exchange, which motivates the incomprehension between farmers and tourism managers. According to the Marina Baja Water Consortium, the added-value of this agreement between farmers and urban users is that it ensures farmers' activity because if desalinated water was promoted instead of the reclaimed water exchange, half of the county's farmers would disappear due to their incapacity to assume the desalination costs.

- Water governance

The Júcar River Basin Authority and the regional government, Generalitat Valenciana, agree that the Marina Baja county is an example of mutual understanding between confronted water users. However, the latter identifies a significant weakness: it does not include farmers in decision-making processes, so the problems, difficulties, and concerns are managed from the urban supply side. For the Marina Baja Water Consortium, if agreements between farmers and water suppliers are not reached, it is due to the lack of predisposition to accept changes and new challenges because each water user needs to overcome many preconceived ideas to ensure mutual understanding. However, according to the Altea city council, this mutual understanding is not always possible because the Marina Baja Water Consortium is not neutral. Benidorm concentrates more than half of the institution's representation, motivated by its population rate and their financial contribution, to the Marina Baja Water Consortium budget. The Finestrat city council agrees with this impression. However, it considers that the Marina Baja Water Consortium's main weakness is that sometimes, it seems to be an external entity because it tends to act without consulting the municipalities, just in crisis times (drought periods).

Another key issue was the solidarity between northern and southern municipalities. According to the Altea city council, the northern municipalities (with water resources availability) tend to be in solidarity with the southern municipalities to address water consumption, but when northern municipalities ask for water resources (due to water scarcity periods in the northern region), solidarity from those in the south is not received. From the irrigation communities' perspective, solidarity should also be rethought between farmers and urban users. For example, the Callosa d'En Sarrià irrigation community considers that if water is born in a municipality, why should it be part of an organization (Marina Baja Water Consortium) where other water demands and water users can have more influence in decision-making processes due to their population rate?

- Water infrastructure

La Nucía city council's vision is that, historically, managing water meant managing drought cycles, making it necessary to invest in water infrastructure. However, instead of investing in new water infrastructures, it seems more appropriate to ensure maintenance works limited in the last years. On the contrary, the Villajoyosa city council considers that new hydraulic infrastructures are needed because the county is unprepared to face a dry decade, so it is necessary to take advantage of water storage when heavy rains affect the county. This argument is in line with that of the Marina Baja Water Consortium: the county has a significant water infrastructure regulatory problem because reservoirs from the 1950s guarantee about 25 hm^3, but significant volumes of surface and reclaimed water (almost 100 hm^3) cannot be currently managed as additional water resources to address water scarcity risk.

- Water management

The Marina Baja Water Consortium recognizes that its primary role guarantees urban water supply. However, landscaping provision is one of the main collateral effects of this water management model in which reclaimed water plays a key role. One of the main challenges in this line is recognizing farmers' role in hinterland landscape management, as promoted by the Xoriguers environmental association. According to the Júcar River Basin Authority, in territories such as the Marina Baja county where different water users coexist, sometimes technical issues are less relevant than social issues, so water management should also include specific measures to put into value direct and indirect benefits provided by each water user. Nonetheless, the Union of Farmers and Livestock considers that this is impossible because the current water management system allows Benidorm, a municipality without water resources, to decide the dynamic and future road of the whole water system without providing enough compensation to farmers for their solidarity.

- Water supply

The Provincial Council of Alicante recognizes that, different from what is usual in a rural-urban water consumption ratio (a ratio of 80–20%), in this county, the ratio is 50–50% mainly due to the water demands led by Benidorm being a mass-tourism destination. Although drinking water is prioritized, this equal distribution generates disagreements during water scarcity or droughts. For example, the Altea city council witnessed how farmers do not understand how drinking use priority can be applied to filling swimming pools or watering private gardens while their crops are suffering from a lack of water supply. On the contrary, the Polop city council thinks that a topic by which water is taken to Benidorm is alive, but the reality is that about half of the county's population work in Benidorm or for Benidorm, so farmers are also part of this water balance. The Canal Bajo del Algar considers that there must be harmony between 'water for eating' (agriculture) and 'water for drinking and swimming' (tourism) because as long as Benidorm has residents and visitors, water to farmers will be guaranteed through reclaimed water.

- Urban resilience

The Callosa d'En Sarrià irrigation community understands the need to ensure Benidorm's urban water resilience and highlights the key role of the Marina Baja Water Consortium to guarantee water for urban-tourist use. In their opinion, this implies that the Marina Baja Water Consortium must ensure that the maximum number of irrigation communities join the institution through agreements and subsidies. However, the Finestrat city council is worried about how the need to ensure urban resilience can harm farmers: Citizens and tourists can be concerned by water resources supply, but farmers are obsessed with it. In the opinion of the Canal Bajo del Algar irrigation community, maybe a solution to increase the recognition of farmers' role in Benidorm urban water resilience could be ensuring that citizens and tourists know about where the tap water comes from, or where and who produces the food from the pantry or refrigerator. In this vein, the HOSBEC hotel association recognizes another weakness to ensuring urban water resilience: Part of the tourist sector does not assume

that water resources must be returned to the sewage system with the highest water quality standards. This will guarantee subsequent water use for agriculture, motivating farmers' concerns and putting at risk the water exchange agreement that is crucial for Benidorm's urban water resilience, as also recognized by the Xoriguer environmental association.

4.2. Water System Governance from Stakeholders' Behavior

This section characterizes the nature and meaning of stakeholders' interaction when addressing decision-making processes affecting the urban-rural matrix and Benidorm's urban resilience. Stakeholders' behavior from interests, expectations, and influences are considered to highlight concerns and challenges from a water governance perspective. Outcomes duly organized in the triple loop ('to be', 'to do', 'to share') contribute to identifying current (dis)connections among stakeholders' interests and conflictive topics affecting urban resilience from an urban-rural nexus perspective.

4.2.1. 'To Be': Relevance and Representativeness

According to answers provided in Q1, the overall stakeholders' self-evaluation of their interest in the water management system of Marina Baja county to ensure the urban resilience of Benidorm is high, with a rank of values between 4 (Necessary) and 5 (Essential) (Figure 5). Half of the city councils (Benidorm, Finestrat, La Nucía, and Polop), the Júcar River Basin Authority, the Canal Bajo del Algar irrigation community, and the Young Farmers Agrarian Association are self-considered as essential. At the same time, the environmental and the tourism sectors, together with the Provincial Council of Alicante, are conscious of their complementary or unhelpful role in decision-making processes, partially motivated by the lowest correction factor values after being unknown by the others. The level of knowledge about other stakeholders' importance and actions in the system affects its empirical interest in the system itself. Indeed, they cannot accurately assess their importance in the water management system without considering others' importance. Some stakeholders, like the Júcar River Basin Authority or the Villajoyosa city council, have a clear overview of all the involved stakeholders, and therefore, they can accurately place themselves in the complete picture of the system. Others, especially those from the agricultural and the tourism sectors, lack some knowledge about the other stakeholders, particularly the Xoriguer environmental association—the stakeholder least known after obtaining punctuation lower than their self-evaluation.

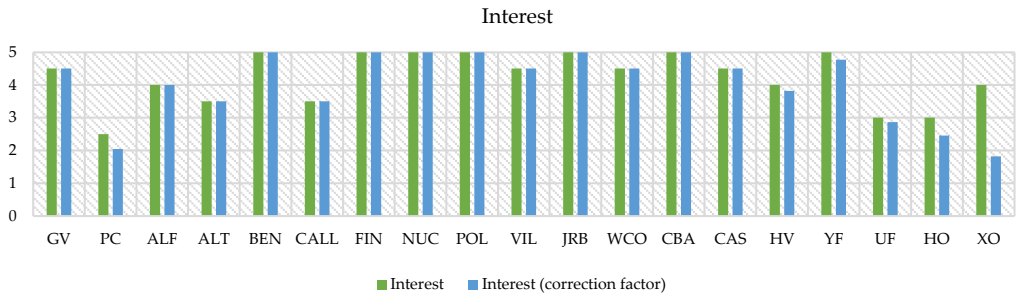

Figure 5. Interest and interest after correction factor is applied. Legend importance/influence: 0 (do not know/no answer), 1 (dispensable), 2 (unhelpful), 3 (complementary), 4 (necessary), and 5 (essential). Note: government officials (GV, PC, ALF, ALT, BEN, CALL, FIN, NUC, POL and VIL); water managers (JRB and WCO); agricultural sector (CBA, CAS, HV, YF, UF); tourism sector (HO); environmental sector (XO).

Interest also affects the stakeholders' importance and influence in the water management system. Importance or theoretical power is related to how the stakeholders' role is perceived by others (Q6), while influence or practical power is about the perception of actions carried out (Q7). Figure 6 shows stakeholders' interest, importance, and influence values. Regarding importance (Figure 6a), the average value was 3.79 (more necessary

than complementary). The highest-rated stakeholders are the Marina Baja Water Consortium, the Canal Bajo del Algar irrigation community, and the Altea city council. On the contrary, the Provincial Council of Alicante, both agrarian associations, and the Xoriguer environmental association obtained the worst results (among 2.0 and 2.41).

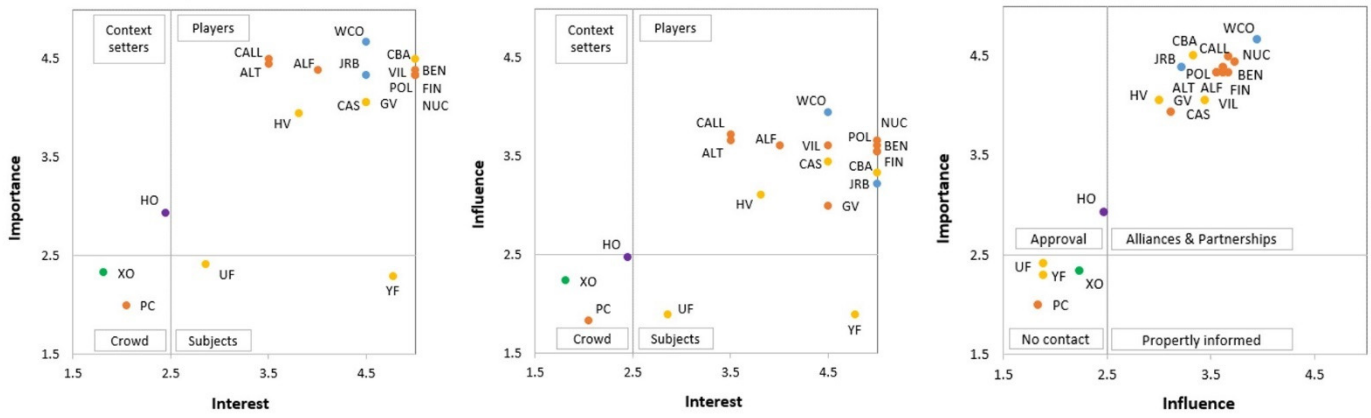

Figure 6. Importance and influence plots regarding stakeholders' behavior. (**a**) provides importance-interest matrix; (**b**), influence-interest matrix; and (**c**) importance-influence matrix. Legend importance/influence: 0 (Do not know/no answer), 1 (dispensable/awful), 2 (unhelpful/bad), 3 (complementary/neither right nor wrong), 4 (necessary/good), and 5 (essential/excellent). Note: Color shows stakeholder group members: government officials (orange), water managers (blue), agricultural sector (yellow), tourism sector (purple), and environmental sector (green). Government officials (GV, PC, ALF, ALT, BEN, CALL, FIN, NUC, POL and VIL); water managers (JRB and WCO); agricultural sector (CBA, CAS, HV, YF, UF); tourism sector (HO); environmental sector (XO).

Most stakeholders are considered players (high interest and high power), among which collaboration tends to be guaranteed due to their relevant role or theoretical power. The Marina Baja Water Consortium and the Canal Bajo del Algar irrigation community were in leadership positions, while city councils shared similar importance but different interest levels. Both agrarian associations are considered subjects (high interest and low power), being involved in some key decisions suggested by players. However, both differ in terms of interest, which means that just one of them (Young Farmers Agrarian Association) influence decisions even though both are affected by them. HOSBEC hotel association is the only one considered as context setter or referee (high power and low interest), which means that they tend to be consulted, and their opinions, concerns, and ideas should be considered, although no direct involvement is expected. Finally, the Xoriguer environmental association and the Provincial Council of Alicante are considered crowd members (low power and low interest), which is enough to provide them with information about specific decisions, but no direct role is expected.

Influence or practical power values (Figure 6b) present a behavior similar to that of importance or theoretical power, especially regarding maintaining members included in each profile. However, some differences in behavior between relevance and actions can be highlighted. For example, the HOSBEC hotel association is moved from context setter to crowd, which means their actions are considered worse than their theoretical function in the system. Likewise, players and subjects' members received worse rates for their actions than their relevance. The comparison between importance and influence is shown in Figure 6c, where three profiles are highlighted: (1) most stakeholders which alliances and partnerships are currently carried on (players), (2) few stakeholders with which no contact or minimal contact is provided (crowd + subjects), and (3) one stakeholder (HOSBEC hotel association) to ask for approval (context setter or referee).

Stakeholders' importance and influence can be determined by stakeholders' representativeness in decision-making processes. Stakeholders can feel more or less represented in the system (Q2 and Q4). Figure 7 shows how seven stakeholders (five city councils—including Benidorm—and the two water managers) feel absolutely represented in the water management system. Likewise, Benidorm city council and water managers considered the highest extension level. Feeling represented values tend to be equal or higher than represented extension values, except for the regional government—Generalitat Valenciana and the Alfàs city council—following an opposite tendency compared to other government officials' profile members.

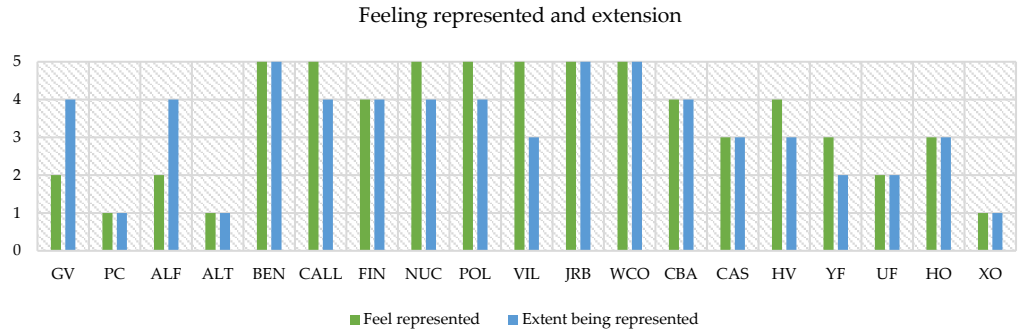

Figure 7. Feeling represented and extension. Legend: 0 (do not know/no answer), 1 (not represented at all/minimum), 2 (not enough represented/low), 3 (partially represented/medium), 4 (quite represented/high), and 5 (absolutely represented/highest). Note: government officials (GV, PC, ALF, ALT, BEN, CALL, FIN, NUC, POL and VIL); water managers (JRB and WCO); agricultural sector (CBA, CAS, HV, YF, UF); tourism sector (HO); environmental sector (XO).

An interesting issue about representativeness is to check the nexus between representation (Q2 and Q4) and importance or theoretical power (Q6) as a mechanism to identify the distance between the self-evaluation about feeling represented and the importance or theoretical power provided by the others. In general terms, there is a match between both tendencies, especially for most of the city councils, the water managers, and the HOSBEC hotel association (Figure 8). In some few cases, feeling represented significantly exceeds importance (Benidorm city council and both water managers), while in some others, it is the theoretical power that exceeds representation (regional government—Generalitat Valenciana, Alfàs and Altea city councils, Callosa d'En Sarrià irrigation community, and Xoriguer environmental association). In the second case, stakeholders can feel uncomfortable due to the lack of representativeness, indicating the need to reinforce their role in the water management system by increasing interaction with stakeholders or solving any current or latent conflict. This is the case of city councils that tend to address issues collaboratively as members of the Marina Baja Water Consortium. In this regard, the situation of the city councils of Alfàs and especially Altea, which are far towards being well-balanced as the rest of the city councils, highlights internal incomprehension or opposed interests. The situation of the Xoriguer environmental association is also worrying when considering their isolated role as the representative of environmental defenders.

Assessing stakeholders' meanings towards 'feeling represented' in the water management system (Q3) is fundamental to understanding the difference among previous results. The most frequent response regarding the connotation of feeling represented was 'negotiate decisions', identified by 74% (14 out of 19), including water managers, agricultural sector members, and most city councils besides Benidorm (Figure 9a). Less than half of the stakeholders considered 'pressure decisions' and 'be the referent or the leader', including the Júcar River Basin Authority, the regional government—Generalitat Valenciana—the Canal Bajo del Algar irrigation community, and the Marina Baja Water Consortium. Likewise, some stakeholders combine different answers, such as the Marina Baja Water Consortium, the

HOSBEC hotel association, and the Benidorm city council, for whom feeling represented also requires positioning themselves to share their interests and expectations among the others.

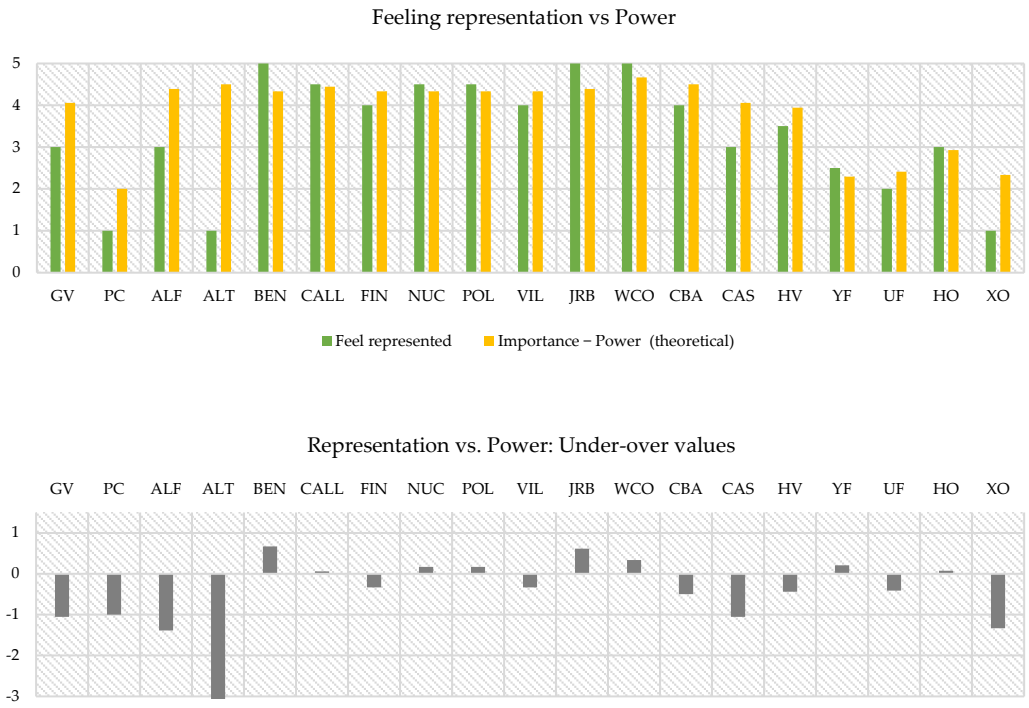

Figure 8. Representation vs. power (**upper figure**), including under-over values (**lower figure**). Legend: 0 (do not know/no answer), 1 (not represented at all), 2 (not represented enough), 3 (partially represented), 4 (quite represented), and 5 (absolutely represented). Note: government officials (GV, PC, ALF, ALT, BEN, CALL, FIN, NUC, POL and VIL); water managers (JRB and WCO); agricultural sector (CBA, CAS, HV, YF, UF); tourism sector (HO); environmental sector (XO).

However, relevant differences have been observed regarding the extent to which stakeholders feel represented (Figure 9b). Once discarded, the three stakeholders who do not feel represented (Provincial Council of Alicante, Benidorm city council, and Xoriguer environmental association), half of them feel highly or medium represented, and no stakeholder self-considered themselves as minimally represented. Water managers feel the most represented, followed by government officials, while 4 out of 5 members of the agricultural sector feel medium or low represented, similar to the tourism sector which feels partially represented. Figure 9c deepens some reasons, explaining this unrepresented feeling (Q5), being polarized by the lack of political will to increase decision-makers in the water management system (63%, 12 out of 19), followed by the leading role of one member that does not facilitate the dialogue between participants. In terms of shared decisions between city councils, 6 out of 8 considered that this leading role is exercised by Benidorm, which motivates a division among city councils when it is required to defend a common interest. Furthermore, city councils like Polop, Finestrat, Callosa d'En Sarrià or Altea related this division with conflict of interests. However, the Benidorm perspective is quite different as it does not feel represented in the system, as recognized in the previous question. Finally, the lack of technical/professional support as a motivation to feel unrepresented in the water management system is mainly recognized by the Júcar River Basin Authority. In contrast, the Canal Bajo del Algar and Callosa d'En Sarrià irrigation communities highly considered the lack of social support, in line with their concerns about the agricultural sector's future in semi-arid regions where tourism activity is highly dynamic, as occurs with Benidorm.

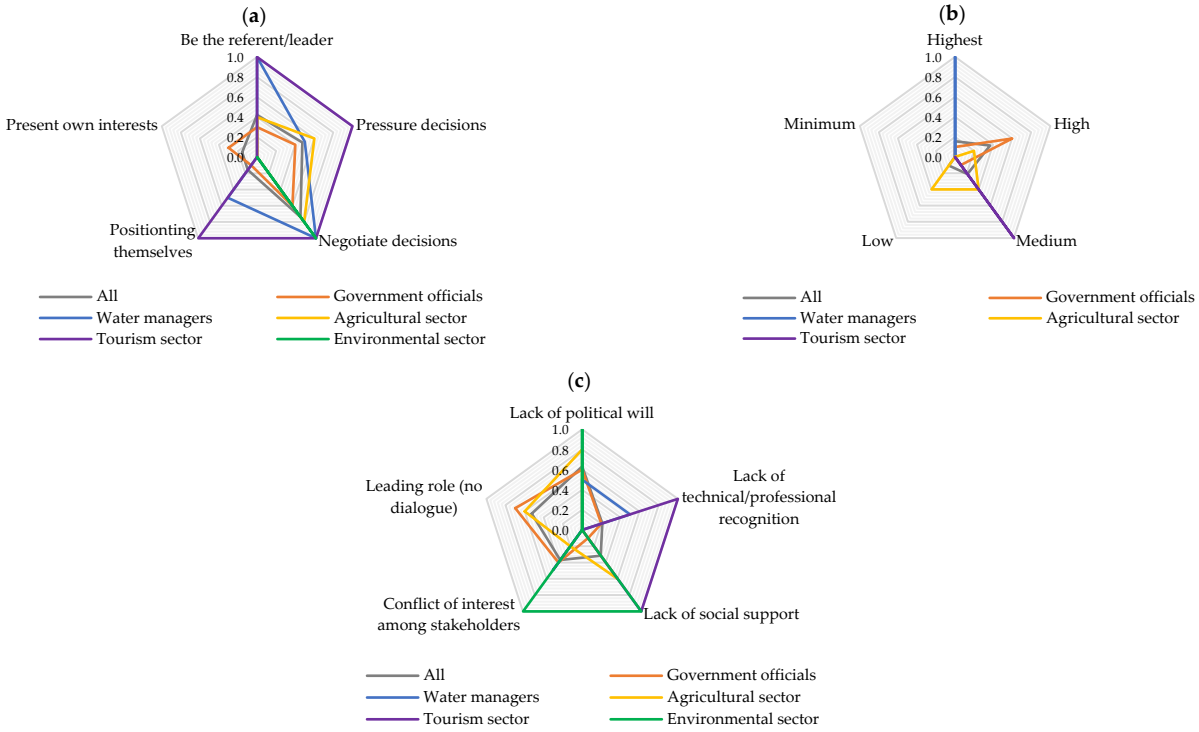

Figure 9. Feeling represented meaning and extension, while unrepresented reasons. (**a**) 'Feeling represented' meaning; (**b**) 'feeling represented' extension; (**c**) 'unrepresented feeling' reasons. Note: The numerical values on the vertical axis are the percentage of stakeholders who provided a certain response. It should be borne in mind that the percentages are not self-excluding, as one answer does not preclude another answer since it was possible to give several answers to the question. In (**a**,**c**) all stakeholders are considered, even those who do not feel represented or those partially or completely represented, respectively.

4.2.2. 'To Do': Recognition, Assessment, and Knowledge

Bilateral or lack of recognition/importance (Q6) among stakeholders may be related to current or potential conflicts, predefining the nature and closeness of their relationship. Comparing received and given values on stakeholder importance, most of them received higher recognition than provided (74%, 14 out of 19), being the higher difference among received-given values from Canal Bajo del Algar irrigation community, Marina Baja Water Consortium, and Benidorm, Alfàs, Finestrat and Altea city councils. On the contrary, the Provincial Council of Alicante, Young Farmers Agrarian Association, and Xoriguer environmental association provide higher punctuations than those received (they received the worst punctuation). Figure 10 synthesizes stakeholder groups' behavior regarding importance (recognition) and performance (assessment). According to the five variables (mean, median, mode, highest and lowest values) (Figure 10a), similar profiles are observed between government officials and water managers, while the agricultural sector obtained lower values in all categories except the highest value received and given.

Results for the tourism and the environmental sectors are limited to their isolated representative. Both accumulate a higher number of unknown answers (0) regarding recognition (12 out of 18 for Xoriguer environmental association), which affects the median and mode scores they received. Some particularities can be highlighted: (1) HOSBEC hotel association recognized the higher number of stakeholders' unknowledge (especially those of the agricultural sector), (2) Union Farmers and Livestock, and the Provincial Council of Alicante are the only ones who received the highest number of dispensable (1) considerations, and (3) Provincial Council of Alicante, HOSBEC hotel association, and Xoriguer environmental association are the only ones who did not negatively value any stakeholder.

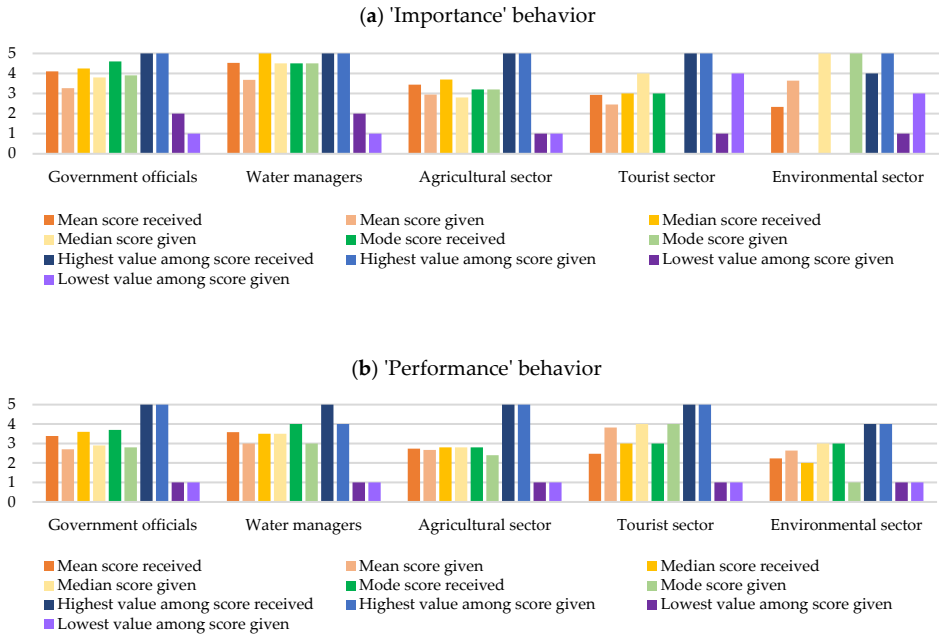

Figure 10. Comparison between Recognition—Importance (**a**) and Assessment – Performance (**b**) behaviors behavior. Legend: 0 (do not know/no answer), 1 (dispensable), 2 (unhelpful), 3 (complementary), 4 (necessary), and 5 (essential).

Otherwise, bilateral or lack of assessment/performance (Q7) among stakeholders can exemplify specific weaknesses to overcome and some practical milestones to face current or potential conflicts between stakeholders. When valuing stakeholders' actions (performance or assessment), similar behavior is observed, especially for government officials and water managers, although both concentrate the most significant loss in terms of received and given valuation (Figure 10b). The agricultural sector mainly maintains the tendency fixed with 'importance' values. In contrast, the tourism and environmental sectors improved their results, overcoming the lack of recognition and following the tendency of both the government officials and water managers, and the agricultural sector, respectively. However, it is interesting to note the difference among the values stakeholders received in importance analysis, given the highest score (5, essential), compared to lower values when addressing 'performance' analysis, including punctuation between 3 (neither right nor wrong) and 4 (good) for city councils (not Benidorm), the Marina Baja Water Consortium, or the Júcar River Basin Authority.

Stakeholders' recognition and assessment behavior are cross-referenced in Figure 11 to highlight evidence regarding low values showing the disappointment between stakeholders' perceptions. The recognition-assessment matrix accentuates the domain of negative values in terms of actions (performance/assessment) rather than roles (importance/recognition), as the first one doubles the second in the number of bilateral ties. The nexus between 'dispensable' and 'awful' (the worst combination between importance and performance) focused on the Provincial Council of Alicante and the two farmers' associations (they received the worst punctuation). On the contrary, the Marina Baja Water Consortium and city councils are less undervalued. Likewise, city councils are those who most underestimate the rest in terms of recognition and assessment, followed by the Callosa d'En Sarrià and Canal Bajo del Algar irrigation communities, in addition to the Union Farmers and Livestock, while Huertas de Villajoyosa irrigation community, Young Farmers Agrarian Association, and HOSBEC hotel association are those awarding lowest scores.

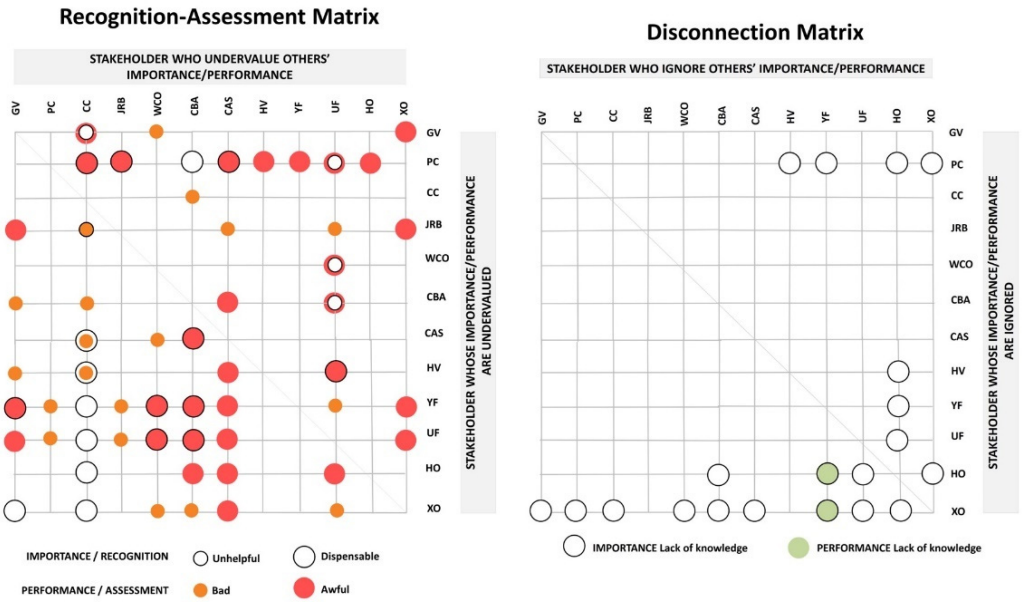

Figure 11. Recognition-assessment and disconnection matrices. Note: government officials (GV, PC, and CC, that includes the 8 city councils); water managers (JRB and WCO); agricultural sector (CBA, CAS, HV, YF, UF); tourism sector (HO); environmental sector (XO).

In parallel, the disconnection matrix emphasizes stakeholders' ignorance regarding roles and actions carried out by stakeholders. Lack of knowledge in terms of stakeholders' importance is higher than in terms of performance, which can be explained by the absence of direct interaction between stakeholders, although the results of their actions can be observed through secondary data (e.g., newspapers, reports). When comparing both matrices, an incongruence appears: All stakeholders except the Provincial Council of Alicante, the Júcar River Basin Authority, and the Xoriguer environmental association provided a negative overview of recognition and assessment even when they did not know the related stakeholders' role and actions.

4.2.3. 'To Share': Collaboration

Stakeholders tend to promote and formalize mutual knowledge and interests (partially or completely based on recognition and assessment values) through agreements, which can be used as a guide to plan or deepen collaborative water governance. According to answers provided in Q8–Q10, agreements (including current and potential) tend to be benefited by the predisposition of both parties (willingness), which has been considered as the first option by 14 out of 19 stakeholders (Figure 12a). This includes at least 50% of each stakeholder group and members of the tourism and environmental sectors, which symbolize a general accordance meaning. In addition, half of the stakeholders considered the compatibility of discourses (affinity) and the technical-management facilities (viability), especially those members from government officials and water managers groups.

Regarding their time frame (Figure 12b), periodic and permanent agreements (74% and 53%, respectively) commanded stakeholders' preferences. Although no stakeholder applied for the three agreements' time frames, some stakeholders combined both dominant typologies: Provincial Council of Alicante, Callosa d'En Sarrià irrigation community, and the city councils of Benidorm, Finestrat, and La Nucía. On the contrary, four stakeholders prefer timely agreements, partially motivated by their secondary role in recognition and assessment values considered in previous analyses: Huertas de Villajoyosa irrigation community, Xoriguer environmental association, HOSBEC hotel association, and Callosa d'En Sarrià city council.

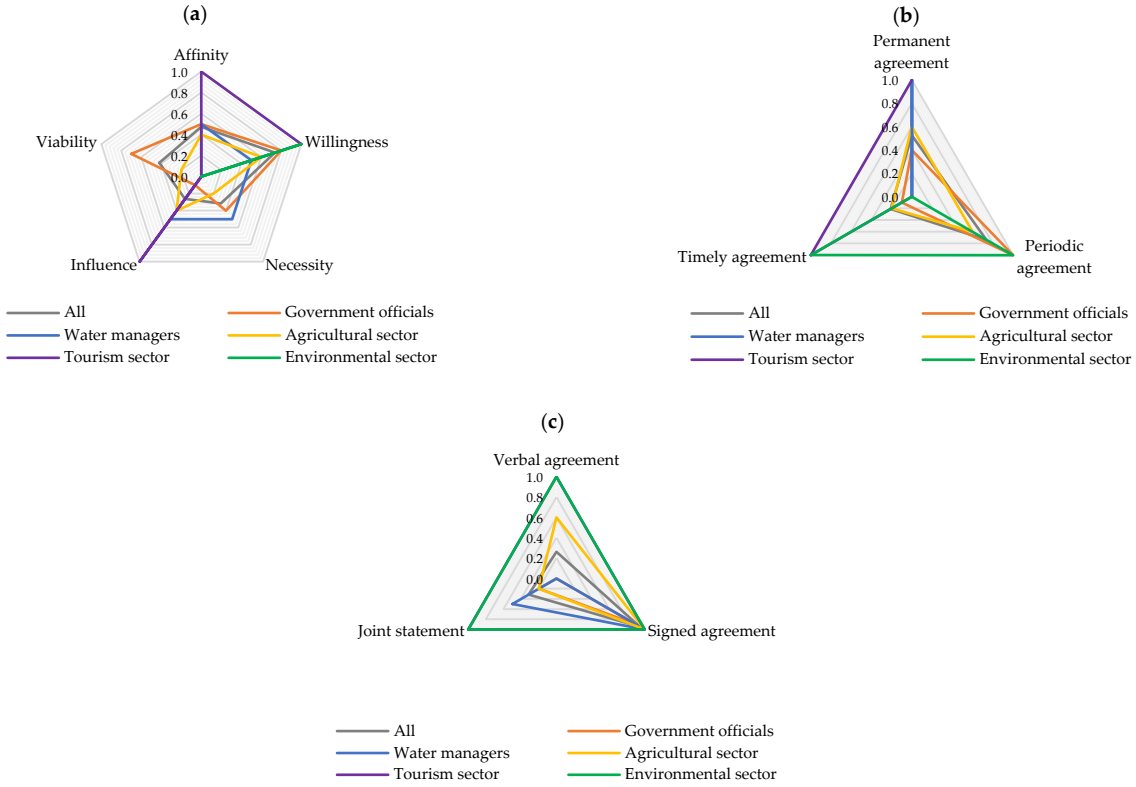

Figure 12. Agreement characteristics according to stakeholders' perception. (**a**) Agreements benefited by; (**b**) Agreements time frame; (**c**) Agreements form.

Finally, results about agreements' typology (Figure 12c) highlighted an undeniable domain of signed agreements, considered by all stakeholders (reaffirmed by more than 90% of members of each stakeholder group), except Altea city council. Furthermore, this typology is considered as the only one possible by nine of them: most government officials (city councils of Alfàs, Callosa d'En Sarrià, La Nucía, Polop, and Villajoyosa, the Provincial County of Alicante, and regional government—Generalitat Valenciana), the Júcar River Basin Authority, and the Canal Bajo del Algar irrigation community. Verbal agreements were mainly considered by members of the agricultural sector (Callosa d'En Sarrià and Villajoyosa irrigation communities, and Union Farmers and Livestock). Most stakeholders combined both types of agreements, while four (Benidorm and Finestrat city councils, HOSBEC hotel association, and Xoriguer environmental association) are also open to promoting joint statements to improve their involvement in the water management system.

Previous questions (Q8–Q10) have been complemented with the last question of the questionnaire (Q11), which asked about the intention and the willingness to establish future collaboration and define potential agreements between stakeholders (Figure 13). Regarding agreements' intention, the Marina Baja Water Consortium is the only one predisposed to establish agreements with the rest of the stakeholders, regardless of the stakeholder's membership, in the form of a permanent and signed agreement or joint statement. The three irrigation communities (Canal Bajo del Algar, Callosa d'En Sarrià, and Villajoyosa) were synchronized about the stakeholders' profile with whom they are predisposed to reach agreements, except in one case: while the first one aims to interact with the city councils, the next two prefer contacting the Xoriguer environmental association. The agreements' form and time frame are pretty different too: All prefer signed agreements but differ in their time frame, while Huertas de Villajoyosa is the only irrigation community that considers future verbal agreements (although their current agreements are signed).

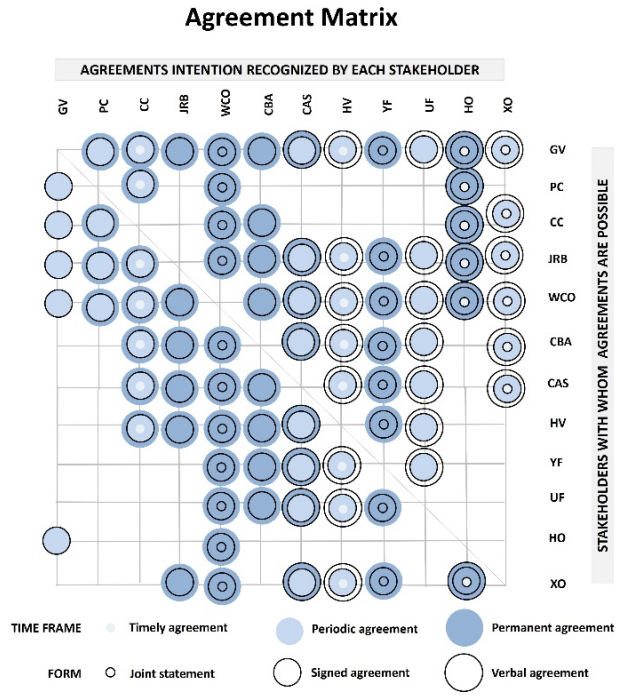

Figure 13. Time frame and form of potential agreements regarding stakeholders' intention. Note: government officials (GV, PC, and CC that includes the 8 city councils); water managers (JRB and WCO); agricultural sector (CBA, CAS, HV, YF, UF); tourism sector (HO); environmental sector (XO).

When considering those stakeholders predefined as potential partners, water managers, and irrigation communities, plus the regional government—Generalitat Valenciana—are those more requested to define collaborations and formalize future agreements. Furthermore, three of them accumulated the highest number of potential collaborators: regional government—Generalitat Valenciana, the Júcar River Basin Authority, and the Marina Baja Water Consortium. Agreements tend to be signed rather than verbal, and permanent rather than periodic (except in the case of the regional government—Generalitat Valenciana—who only offered periodic agreements. On the contrary, an intention to establish collaboration mechanisms was not provided to the HOSBEC hotel association. In contrast, the Xoriguer environmental association, even though it was considered the stakeholder least relevant of the system according to previous results (including 12 unknown answers), is recognized by water managers and some members of the agricultural sector and the tourism sector.

5. Discussion and Conclusions

The scientific literature frequently refers to water as a limited and limiting resource for urban growth, especially in those areas where water is scarce, owing to climatic factors or competing for water demands. However, this has not been an obstacle for developing water-intensity activities, such as tourism, even when this has caused an intense spatial urban-rural interface transformation and entailed consuming natural resources, like water and land [75]. Likewise, identifying and deepening which pathways are followed in these hybrid systems where different water demands and natural risks coexist will be decisive for the overall capacity of mass-tourism cities to ensure urban resilience and sustainability [76]. In this vein, Marina Baja county is a prominent example of why urban water resilience analysis needs to look at systems rather than isolated elements. Assuming that neighboring and connected elements are isolated might provide misleading impressions of how and why urban water resilience is ensured. Consequently, our triple-loop approach, in line with the waterscape approach but focused on water governance, integrated water resources management, and stakeholders' interaction, intended to bring attention to the complex and

often subtle ways in which urban-rural interfaces interact, promoting social-learning and exposing unequal power relations dynamics [77].

Scholars use the waterscape approach to address central concerns in political ecology such as 'who controls, who acts, and who has the power' [78]. Our results highlighted how one stakeholder, the Marina Baja Water Consortium, can perform this triple role. The dominant role is confirmed by relevance and representativeness, with maximum accuracy in recognition and assessment and the highest requests to formalize agreements. However, its role is not exempt from criticism about the internal decision processes or the strategies to ensure Benidorm's urban water resilience. In this vein, and according to members from the agricultural and environmental sectors, one of the main weaknesses of the water management system is that Benidorm's urban water resilience is not guaranteeing peri-urban agriculture survival, even when agricultural activity is providing not only local food but landscaping and greening, which are appreciated by the tourism sector. In this context, some authors [79] promoted the evolving idea of benefit sharing in terms of financial compensation, new infrastructure development, and alternative water supplies, which have also been demonstrated as mechanisms to enhance stakeholders' cooperation. However, our results show how cooperation should be based on farmers' role recognition in promoting Benidorm's urban water resilience and the Marina Baja county water resilience. Considering that in general terms, the representativeness of the agricultural sector is lower than that of government officials and water managers, some stakeholders request that mutual understanding must be achieved by increasing negotiated processes to return solidarity capacity to farmers, exemplified through the water exchange agreement.

Related studies attempt to incorporate water and societal interactions in dynamic peri-urban landscapes to generate interesting implications for the waterscape [80,81]. Our results highlighted four main learnings from stakeholders' perceptions and interactions that can affect the waterscape management and Benidorm's urban water resilience. Firstly, 'feeling represented' is conditioned by the capacity to 'negotiate decisions' according to water managers, agricultural sector members, and most city councils besides Benidorm. Secondly, the lack of political will to recognize complementary stakeholders' roles and the leading role exercised by Benidorm city council increase stakeholders' feelings of underrepresentation and motivate power imbalances. Thirdly, stakeholders' actions are less valued than stakeholders' roles and functions, especially those with greater decision-making power (government officials and water managers). Finally, agreements among stakeholders tend to be benefited by the predisposition of both parties (willingness), but also by the compatibility of discourses (affinity) and the technical-management facilities (viability), notable by those members from government officials and water managers groups. The information provided through the recognition-assessment and disconnection matrices can be used to identify which type of interactions should be promoted to reduce the lack of representativeness, especially among tourism and environmental sectors, and configure reasons for water conflicts [82].

The ability to anticipate and respond to various stressors is considered a central tenet for aligning complex urban-rural interfaces in the face of uncertain futures, like climate change [83]. Our approach and the obtained results elicited and discussed how different stakeholders' perspectives could expand knowledge about uncertainty related to hydrological patterns and hydrosocial dynamics and reduce exposition to oncoming challenges [84]. In this vein, authors such as [85] suggest conducting perceptual models to summarize the uncertainties inherent in stakeholders' knowledge about the water system management characterizing the urban-rural interface by helping to structure dialogue, communication, and understanding among stakeholders and decision-makers. From a methodological perspective, the triple-loop analysis of water governance applied in this research can be seen as the first attempt, in this vein, to discuss in terms of to what extent it is capable to: (i) identify and analyze differences in stakeholders' perception and behavior regarding water system management; (ii) raise awareness of what may be managed in terms of benefits and trade-offs regarding water exchange and agreements, detailing why (and when)

they could result from collaboration and agreements implementation; and (iii) resolve potential conflicts by reconsidering future values on relevance and representativeness ('to be'), recognition and assessment ('to do'), and collaboration ('to share').

Likewise, accounting for the differences in stakeholders' behavior in terms of involvement and interaction can be the key to enhancing urban water resilience beyond the 'technical desk' (hierarchical command and control regulatory regime) of water systems management [86]. In this sense, the five behavioral issues and triple-loop analysis combined in this study can complement the 'technical desk' by deepening the 'social' side of stakeholders' interaction by highlighting the reasons why the participation process is complex but also how this complexity could be analyzed in a simplified way to increase stakeholders' motivation to be involved in decision-making processes [87]. Furthermore, this approach could provide an updated framework combining conceptual and methodological issues with fixing main stakeholders' roles ('to be'), actions ('to do') and alliances ('to share') in a replicable, integrated, and non-static way according to the spatial and temporal dynamics that characterize peri-urban interfaces. Additionally, it can be useful when applying the polycentric governance approach, in which multiple centers of decision-making across different levels coexist, thereby relying on the distribution of responsibilities, multiple sources of information, and the cogeneration of knowledge [88]. In our approach, these multiple centers could be identified through the five behavioral issues (relevance, representativeness, recognition, assessment, and collaboration) and the triple-loop analysis, but also from the Jaccard Index results through which levels of affinity among stakeholders' narratives were identified to reduce the current or potential disagreements between stakeholders' interests. However, this approach may be limited if the triple-loop analysis is conditioned by an imbalance in the number of members included in each stakeholder group, as occurred in our case study, in which the environmental and the tourism sectors were each represented by just one member. Although this imbalance between stakeholder group members does not have to determine the qualitative analysis from the interviews data, it can condition some quantitative results from the questionnaire analysis when extracting conclusions at the stakeholder group level to build the multiple centers or decision-making.

Future research to deepen urban water resilience could be focused on applying the urban water metabolism evaluation, which provides a big-picture perspective of urban water performance in urban-rural interfaces. It generates a comprehensive account of all flows of water (natural and anthropogenic) between an urban area (as cities and metropolitan areas) and the supporting environment to produce an urban water mass balance [89]. However, some authors suggested that urban water resources should be managed at the city-region scale [90]. City-regions are larger in scale than individual cities, often composed of multiple metropolitan areas, regional centers, and hydrological catchments, including urban areas and surrounding peri-urban and rural areas. This seems adequate to deepen the water management of Marina Baja county and Benidorm's urban water resilience. Consequently, a three-point plan could be focused on: (1) demonstrating and emphasizing that stakeholder collaboration can both address existing problems and identify new, previously unknown challenging issues at the urban-rural interface; (2) promoting individual learning in and out of stakeholder groups to deepen conflicting interests and power imbalances; and (3) developing bottom-up dialogue structures (e.g., focus groups, informal meetings) to discuss joint actions, even when different power-relationships exist, and in line with the European Water Framework Directive.

Supplementary Materials: The following supporting information can be downloaded at https://www.mdpi.com/article/10.3390/land11010121/s1, Figure S1: Regional government—Generalitat Valenciana's narrative; Figure S2. Provincial Council of Alicante's narrative; Figure S3. Alfàs del Pi city council's narrative; Figure S4. Altea city council's narrative; Figure S5. Benidorm city council's narrative; Figure S6. Callosa d'En Sarrià city council's narrative; Figure S7. Finestrat city council's narrative; Figure S8. La Nucía city council's narrative; Figure S9. Polop city council's narrative; Figure S10. Villajoyosa city council's narrative; Figure S11. Júcar River Basin Authority's narrative; Figure S12. Marina Baja Water Consortium's narrative; Figure S13. Canal Bajo del Algar irrigation

community's narrative; Figure S14. Callosa d'En Sarrià irrigation community's narrative; Figure S15. Villajoyosa irrigation community's narrative; Figure S16. Young Farmers Agrarian Association's narrative; Figure S17. Union of Farmers and Livestock's narrative; Figure S18. HOSBEC hotel association's narrative; Figure S19. Xoriguer environmental association's narrative.

Author Contributions: Conceptualization, S.R.; methodology, S.R.; software, S.R.; validation, S.R. and A.M.R.-A.; formal analysis, S.R.; investigation, S.R.; resources, S.R. and A.M.R.-A.; data curation, S.R.; writing—original draft preparation, S.R.; writing—review and editing, S.R. and A.M.R.-A.; supervision, A.M.R.-A.; funding acquisition, S.R. and A.M.R.-A. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the Spanish Ministry of Economy and Competitiveness (Juan de la Cierva postdoctoral research fellow, grant number FJCI-2015-24346) and by the Interuniversity Institute of Geography, University of Alicante (grant number I-PI-88-18), both awarded to the first author. The research is partially supported by the SIMTWIST project (ERA-NET Water JPI 2018) funded by the Spanish Ministry of Science and Innovation (PCI2019-103395).

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki. The Ethics Committee of the University of Alicante reviewed the data collection process without considering the need to establish a specific data protection protocol. Data collection process has been verified to guarantee stakeholders' roles and functions instead of personal names as their involvement in the research was accepted as spokespeople.

Informed Consent Statement: Oral and informed consent was obtained from all stakeholders involved in the study.

Data Availability Statement: Data supporting reported results can be requested from the first author.

Acknowledgments: We appreciate the implication of local stakeholder participation and their predisposition to collaborate in this research by sharing their experience and time.

Conflicts of Interest: The authors declare no conflict of interest.

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