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EL ROL DE LOS GOBIERNOS LOCALES EN LA GOBERNANZA DE PROTECCIÓN DE HUMEDALES

EL CASO DEL HUMEDAL DE PICHICUY (CHILE)

THE ROLE OF LOCAL GOVERNMENTS IN THE GOVERNANCE OF WETLAND PROTECTION:
THE CASE OF THE PICHICUY WETLAND, CHILE.

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Los humedales son ecosistemas que están desapareciendo, principalmente, a causa de la actividad urbana, industrial y de su vulnerabilidad ante los efectos del cambio climático. En Chile se han generado normativas e iniciativas para su protección, las que están condicionadas por las influencias, intereses e interrelaciones de los actores involucrados en el sistema de gobernanza. Esta investigación analizó el caso del humedal de la localidad de Pichicuy, actualmente administrado por la Municipalidad de La Ligua, e indagó en el rol de los gobiernos locales en la gobernanza para la protección de humedales considerando la participación de la red de actores de diferentes esferas y escalas territoriales. Se utilizaron, para tal labor, métodos mixtos de investigación social, analizando las influencias, intereses, tipos de relación y medidas de centralidad a partir del Análisis de Redes Sociales y la plataforma UCINET 6. El gobierno local de La Ligua desempeña, a través de su Departamento de Medio Ambiente, roles relevantes en la gobernanza para la protección del humedal: (1) propiciando apoyo político para gestionar e implementar acciones sobre el humedal; (2) actuando como intermediario entre los actores de diferentes esferas de la sociedad; y (3) liderando alianzas con actores de escalas superiores. Estos roles se robustecen por el apoyo y recursos proporcionados por los actores de la red con alto interés e influencia en la protección del humedal. No obstante, existen desafíos en la dinámica municipal, entre ellos, la necesidad de atraer e involucrar más fuertemente al Concejo Municipal, ya que tiene una alta influencia en las decisiones del gobierno local. Es relevante fortalecer la gobernanza para la protección de humedales en localidades pequeñas y rurales, para lo cual el gobierno local debe jugar un rol muy importante, por ejemplo, mediante el reconocimiento institucional del humedal y facilitando la participación de actores de escala local.

Palabras clave: gestión municipal, gobernanza, actores sociales, protección, humedales.

Wetlands are ecosystems that are disappearing, mainly due to urban and industrial activity and their vulnerability to the effects of climate change. In Chile, regulations and initiatives for their protection have been created, which are conditioned by the influences, interests and interrelationships of the players involved in the governance system. This research analyzed the case of the wetland located in Pichicuy, currently administrated by the Municipality of La Ligua. It researches in greater depth the role of local governments in the governance of wetland protection, considering the participation of the network of players from different spheres and territorial scales. Mixed methods of social research were used to analyze the influence, interests, types of relationship and centrality measures using the Analysis of Social Networks and the UCINET 6 platform. The local government of La Ligua performs, through its Environment Department, roles that are relevant for the governance of the wetland: (1) gaining political support to manage and implement actions about the wetland, (2) acting as an intermediary between the players from different spheres of society, and (3) leading alliances with higher-scale players. These roles are strengthened by the support and resources provided by the players of the network with high interest and influence in the protection of the wetland. However, there are challenges in municipal dynamics, for example, the need to more strongly attract and involve the Municipal Council, since it has a great influence on local government decisions. It is relevant to strengthen governance for the protection of wetlands in small and rural locations, for which the local government must play a very important role, for example, through institutional recognition of the wetland and facilitating the participation of players at a local scale.

Keywords: municipal management, governance, social players, protection, wetlands

I. INTRODUCTION

Wetlands are ecosystems where land and aquatic environments meet, promoting important ecosystemic services, like housing biodiversity and migratory birds, reducing disaster risks on containing floods or strengthening the local cultural identity, among others (Hassan, Scholes & Ash, 2005; Valdovinos, 2006). In this way, wetlands have been defined as valuable socio-ecological systems yet, however, they are vulnerable to the constant pressures of human activities and the effects of climate change (Craft et al., 2009; Delgado, Tironi-Silva & Marín, 2019). In Chile, for example, the overexploitation of surface and underground water, the changes in rainfall patterns and the retreat of glaciers harm the state of wetlands (Ministry of the Environment, 2019). This, added to urban growth that destroys wetlands up and down the country (Mallega, Sánchez, Riquelme & Herreros, 2019). In the local context, these ecosystems are rarely valued by local authorities and are continuously disappearing, being replaced by dwellings and industries (Barbosa & Villagra, 2015; Novoa, Rojas, Ahumada-Rudolph, Sáez, Fierro & Rojas, 2020).

To promote wetland protection, it is necessary to look into the governance processes, getting to know the articulation mechanisms between public, private and civil society players; their willingness, attributions and types of relationship (Delgado, Bachmann & Oñate, 2007). This governance is defined by the interaction among players from different territorial scales (national, regional, provincial, communal and local) and conditioned by the "rules of the game" of the regulations and legislation that affect the state of these ecosystems (Pastrana-Buelvas & Pacheco-Restrepo, 2010). At a local scale, the regulatory and institutional arrangements of local governments are just as relevant as those of a regional and national nature (Amstein, 2016). In Chile, the local governments are represented by the Municipalities, which can propose, approve and supervise regulatory instruments in the area of their jurisprudence (Fuentes, Allard & Orellana, 2007), which is why they are important players when it comes to making decisions about the territory and the environmental projects (Ruling N°82.960, 2013).

In Latin American countries, there are cases of local governments that have acted favorably to protect wetlands through the strengthening of policies, decentralization of administration, collaborative management and the formulation of alliances with community organizations (Freile & Rodas, 2008; Moreno-Casasola et al., 2019; Moschella, 2012; Pastrana-Buelvas y Pacheco-Restrepo, 2010). However, both in Chile and in other countries of the region, difficulties have been seen in the articulation of players and in the process of governance for the protection of wetlands, such as the lack of information and experience of local governments to take on environmental competences, which is added to the financial limitations that worsen in smaller and more rural municipalities (Cárdenas, 1995; Freile & Rodas, 2008; Fariña & Camaño, 2012).

This article analyzes the roles of local governments in the governance processes for wetland protection, using as a case study, the small locality of Pichicuy, which is part of the Municipality of La Ligua, in the Valparaíso Region. A Social Network Analysis was applied to a cluster of public, private and civil society players, considering attributes of a territorial scale and society sphere, as well as their relations, interests and influence. As a research hypothesis, it was considered that the most relevant local government roles correspond to key matters in the governance (Delgado et al., 2007), like providing political support, favoring the articulation between players and providing sustainability to possible alliances. With this, a reflection is presented about the roles of local governments and from there some recommendations are prepared.

II. THEORETICAL FRAMEWORK

Wetland protection in Chile

The protection of wetlands arises and is promoted from the international sphere with the signing up to the Ramsar Convention through Supreme Decree N°771 from 1981 of the Ministry of Foreign Affairs. Starting from this, the country currently has 16 Ramsar Sites, 9 of which are found within the State's National Protected Wildlife Areas System (SNASPE in Spanish) managed by the National Forestry Corporation (CONAF, in Spanish) (Ramsar, n.d.).

Policies, regulations and strategies have been created which, on the whole, indirectly apply to wetlands and refer to certain components like water quality or the protection of wildlife species (Möller & Muñoz-Pedreras, 2014). On the other hand, wetland protection is possible with figures that are available to public institutions like the National Assets Ministry through the Protected National Assets or the Ministry of Environment with the Protected Coastal Marine Areas (Sierralta, Serrano, Rovira y Cortés, 2011), also through private efforts like the case of the Salinas de Pullally Nature Sanctuary – Longotoma Dunes (Council of Ministers for Sustainability, 2019).

In general, wetlands without protection figures, have a lack of recognition in the national regulations, which favors a scenario of systematic degradation of these ecosystems through the urban and infrastructure growth that is happening in all the regions of Chile (Mallega et al., 2019). Facing this, initiatives like the National Wetland Protection Plan 2018-2022 emerge, and the recently published Law N°21,202 from 2020 of the Ministry of Environment applied to urban wetlands, although the effects of the latter are not yet visible. In addition, there is a bill to create the Biodiversity and Protected Areas Service, which could increase wetland protection; however, for years it has been in an inconclusive parliamentary process (Bulletin N°9.404-12, 2014).

In this way, it is clear how insufficient and disperse wetland protection in Chile is (Fariña & Camaño, 2012), leaving unprotected even a multiplicity of those located in wild and rural areas without official recognition, in particular those located in the Central area of Chile (Figueroa, Suárez, Andreu, Ruiz y Vidal, 2009). This can be confirmed in the Valparaíso Region, where only 10.5% of the wetland surface is protected (Ministry of Environment, 2019).

Governance for wetland protection

Governance is a decentralized and participative social organization model for decision-making that, in environmental terms, seeks a balance between the conservation of nature and the development of territories (Barriga, Corrales, Prins y Campos, 2006; Delgado et al., 2007). This concept promotes the adoption of bottom-up decisions, where local governments have the capacity to design and manage initiatives in line with their local needs (Esparcia, Escribano & Serrano, 2015). In this sense, local institutions can govern themselves and manage their own wetland ecosystems, enhancing the value of local knowledge as a protection mechanism (Bawa, Rai & Sodhi, 2011).

The processes of governance around wetlands have been analyzed through the characterization of the structure of the network of players involved in the protection, identifying a diversity of relations (Velázquez & Aguilar, 2005). Progress has also been made in understanding aspects of the distribution of power and responsibilities at the different levels: local, communal, provincial, regional and national (Davidson y De Loë, 2016; Reyes-García, Andrés-Conejero, Fernández-Llamazares, Díaz-Reviriego y Molina, 2019).

Research by Navarro (2017) regarding urban wetlands in the city of Concepción, inquired into the relations of coordination, technical support, political support, financing, monitoring and antagonism, among the players involved in wetland protection. In this way, he identified the relevance of the associations of technical and political support among civil society, academia and local governments, and the challenges there are regarding public-private coordination.

Capacities of local governments in wetland protection

Strictly speaking, local governments can control urban growth and avoid the loss of wetlands through their territorial planning and local ordinances (D.F.L. N°1, 2006; (D.F.L. N° 1, 2006; Martínez, López, Rojas, Qüense, Hidalgo y Arenas, 2020), which must be flexible and coordinated with like-minded institutions and organizations to

generate an effective support of the urbanistic and conservation laws ((Rojas, Munizaga, Rojas, Martínez y Pino, 2019). The new Law, N°21,202 demands that municipalities generate recognition and ordinances for the protection of wetlands in urban areas (Mallega et al., 2019).

There are some cases in which specific ordinances have been decreed to protect wetlands, declaring them as Municipal Nature Reserves (RENAMU in Spanish), just as has happened in the communes of Arica in the Region of Arica and Parinacota and in Cartagena in the region of Valparaíso. The latter, also declared the wetland of Cartagena as a National Protected Asset, initiative that arose from the alliance with the National Assets Ministry, giving it its state character (Amstein, 2016).

Another example, is the project led by the Municipality of Valdivia in the Los Rios Region, which has been one of the pioneers in local wetland protection regulations, even ending up forming a technical committee between public institutions and civil society for its protection (Lara, 2017).

III. CASE STUDY

This research made a case study of the coastal wetland of Pichicuy. Unlike other sites in the central part of Chile, urban and industrial development are not strongly present as of yet in this wetland (Figueroa et al., 2009; Chile Ambiente, 2016), reason why, guaranteeing its protection is an opportunity for its long-term conservation. Likewise, the study of its governance system allows contributing with relevant information for local governments and the different players interested in the protection of this and other coastal wetlands of similar social, political and demographic conditions.

Pichicuy is a small locality of the commune of La Ligua, in the province of Petorca, on the northern end of the Valparaíso Region, Chile (Figure 1). This locality is characterized on having a fishing cove and around 530 inhabitants (National Statistics Institute, 2019).

Pichicuy wetland is located on State land, which is why its administration is handled by the National Assets Ministry. According to the survey of the National Assets Ministry (2015), this is unit N°50886, with a surface area of 18.85 ha, marked out as can be seen in Figure 1. This wetland is located at the southernmost point of the locality of Pichicuy and is an estuary lagoon of the mouth of the Huaquén estuary (Chile Ambiente, 2016), comprising dunes and water mirrors as can be seen in Figures 2 and 3.

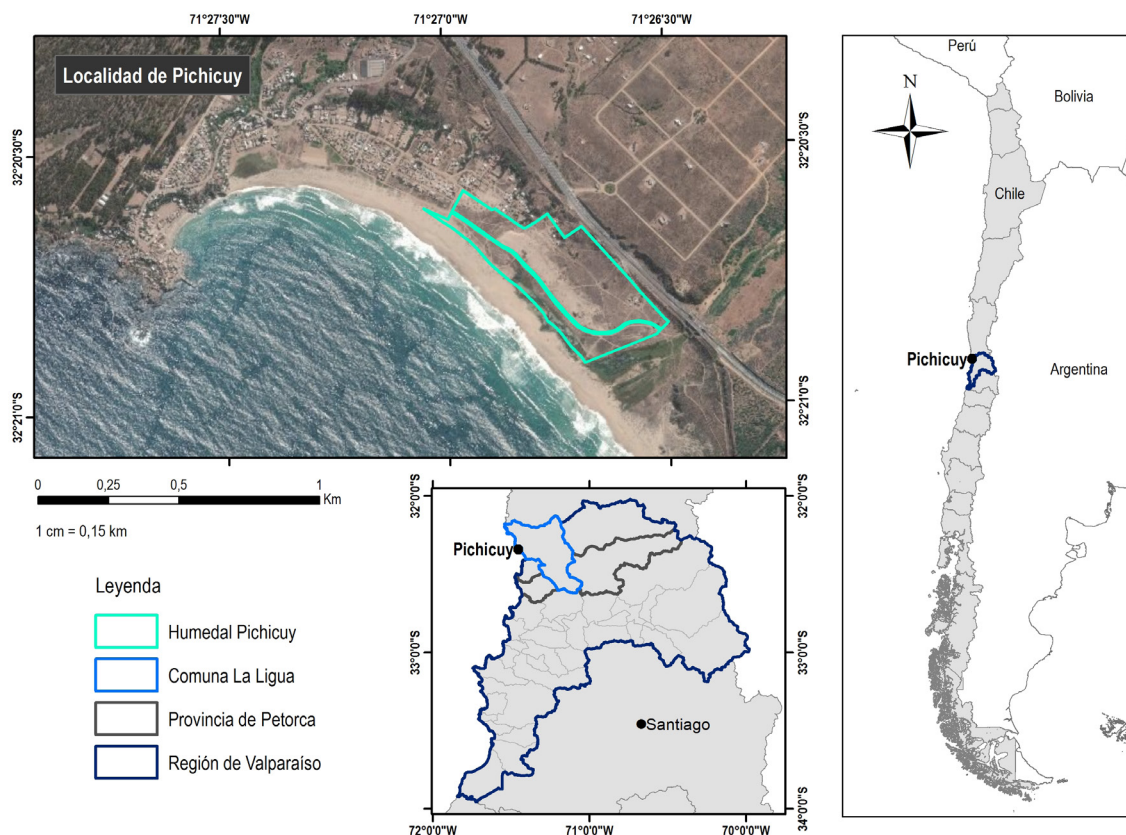


Figure 1. Area of Study: Locality of Pichicuy. Source: Geospatial Data Infrastructure, 2019; Ministry of National Assets, 2015.



Figure 2. Pichicuy Wetland, dunes. Source: FPA 5-G-025-2017, 2017.



Figure 3. Pichicuy Wetland, water mirrors. Source: FPA 5-G-025-2017, 2017.

This wetland is considered as a relevant case for the analysis of governance, given that its protection was initially promoted in the context of the Chile-Mexico Joint Cooperation Fund of the Chilean International Cooperation Agency (AGCI) (Ministry of Environment, 2015) and was officialized by the Ministerial Regional Secretaries (Seremi) of Environment and National Assets of the region of Valparaíso, who set up agreements with the Municipality of La Ligua and the La Ligua Communal Environment Council (CAC).

Said agreements deal with the granting of the wetland use concession to the local government, along with the National Protected Asset declaration, the establishment of a management plan, the creation of a specific local ordinance on wetland protection and measures like the installation of perimeter infrastructure and hiring of security guards (Ministry of Environment, 2016).

IV. METHODOLOGY

This research used qualitative and quantitative social research methods (Hernández, Fernández & Baptista, 2014), using methodological references of the studies of Davidson & de Loë (2016), Maya Sen, Singh, Varma, Sharma y Kansa (2019) and Reyes-García et al. (2019). The local government and players from the public, private and civil society were considered, who were consulted during November-December 2017 and January-February 2018.

A Social Network Analysis (SNA) was made based on the references of Clark (2006) and Velázquez & Aguilar (2015) in order to identify the roles of local governments in governance for wetland protection. In this, they examined: (1) influence and interest, (2) types of relationship and (3) centrality in the network of players; and finally, comprehensively through a critical analysis, the roles of local government in the governance of the Pichicuy wetland were identified.

According to Clark (2006), the network comprises a) players or nodes and b) relationships or ties, which serve to calculate the centrality measures using UCINET 6 tools and its Netdraw platform.

Identification of players

The players considered in the SNA were those with competences and/or participation in the protection of the wetland at a local, communal, provincial and regional scale (Reyes-García et al., 2019). The players were identified using the snowball technique (Martínez-Salgado, 2012).

A semi-structured interview (Hernández et al., 2014) and a questionnaire were applied to 17 players face-to-face, to

qualitatively characterize the interactions between players and to quantitatively analyze the ties and nodes of the governance system (Davidson & de Loë, 2016), paying special attention to the results regarding local government. These consultations were recorded and transcribed using informed consent (Miguélez, 2016).

Influence and interest

The participation of the local government and players in the network was estimated based on the level of influence over decision-making regarding the wetland and the level of interest estimated from the actions carried out in the wetland. These levels were defined for each player for themselves and for all the others using a Likert scale (Asún, Rdz-Navarro & Alvarado, 2016) with values of 0 to 4, 0 being does not know/does not answer, 1 with no influence/with no interest, 2 with low influence/with low interest, 3 with medium influence/with medium interest and 4 with high influence/with high interest. The final values were calculated using an arithmetic mean.

Types of relationships

The types of relationship describe the ties between the local government and the other players of the network, for which each player was asked about the following two-way relationships and their frequency: coordination, technical support, political support, financing, monitoring and antagonistic (Maya et al., 2019; Navarro, 2017).

Centrality measures

The centrality measures correspond to the degree of connectivity of the network, the type and number of interactions, and the players with the highest amount of relationships (Velázquez & Aguilar, 2005). This allowed identifying the key (degree of centrality) and intermediary (degree of intermediation) players of the network using the UCINET 6 software tools.

V. RESULTS AND DISCUSSION

The Players Social Network

The network of the players involved in the protection of the Pichicuy wetland comprises 20 players where those from the public sphere (14) predominate, over civil society (5) and private (1) ones (Figure 4). Regarding the territorial scales, a similar distribution was distinguished between the regional (4), provincial (6), communal (5) and local (5) scale. From these, two represented the La Ligua local government: Department of Environment, Cleaning and Decoration (hereinafter Department of Environment) and the Municipal Council.

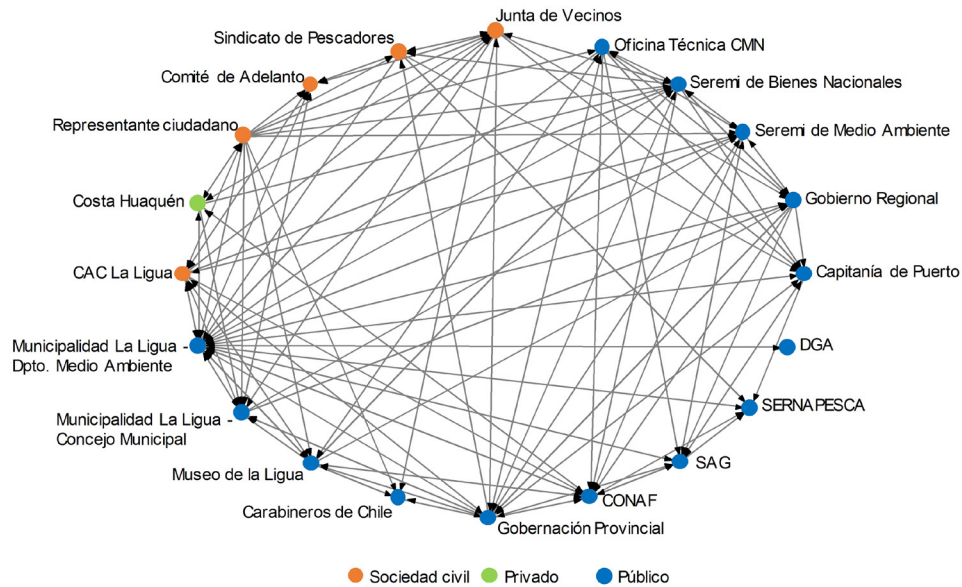


Figure 4. Network of players for the protection of the Pichicuy wetland. Source: Own preparation, UCINET 6, 2020.

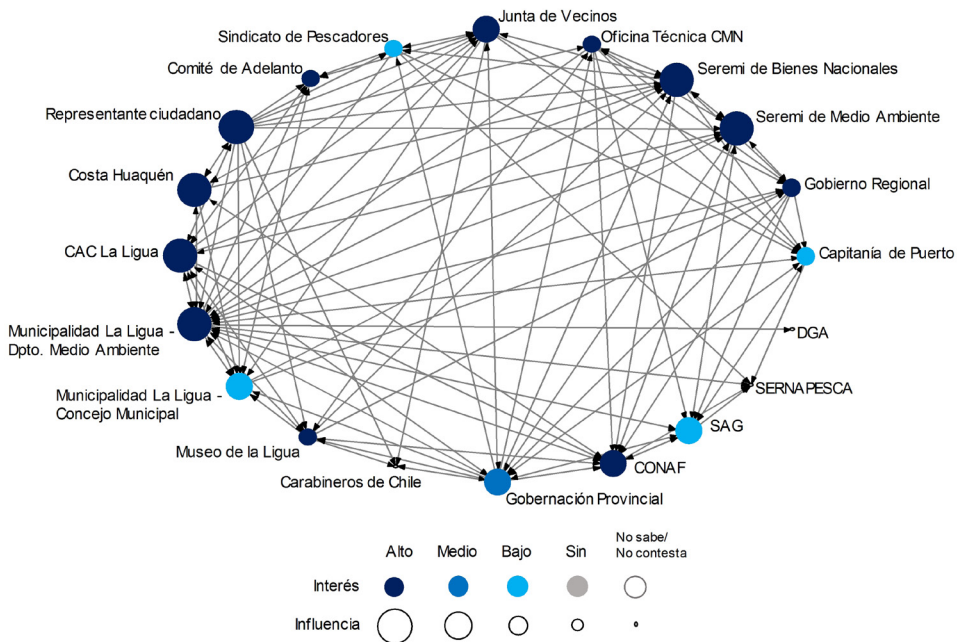


Figure 5. Levels of influence and interest that the players have regarding the protection of Pichicuy wetland. Source: Own preparation, UCINET 6, 2020.

Political willingness backed for the protection

In this case study, the local government demonstrated a significant political willingness manifested in the agreements and commitments taken on to protect Pichicuy wetland (Ministry of Environment, 2015). However, the influence and interest about the protection of the different municipal departments varied (Figure 5), the Department of Environment had a high influence and interest, while the Municipal Council had a medium level of influence and a low interest for the protection of the wetland.

As can be seen in the following quote, the regional authority assigned key importance to the interest of the local governments to start protection processes, in particular through the role these must take on in the local upkeep and management of the protection initiatives that come from regional collaboration (Jorquera, 2011).

Here the role of the councils is tremendously important. Pichicuy has a really good alliance through the Municipality (La Ligua). It is fundamental that the municipality is interested, because many of them are voluntarily going to manage these places (Local Environment Officer, interview 05/12/2017, Valparaíso).

However, the Municipal Council declared themselves distant regarding the wetland's protection, with the levels of interest being equivalent to players like the Farming and Agriculture Service (SAG), the Harbor Master and the Fisherman's Union (Figure 5), who manifested developing limited or no initiative despite their faculties related to the wetland.

In the study of Navarro (2017), the Municipal Council of the Municipality of Concepción had a low level of influence and interest regarding wetlands, which complicated the actions of the Environment Department that required their approval to plan and carry out protection actions. This may be influencing the high urbanization and the scarce protection wetlands there are in the metropolitan area of Concepción, where urban growth figures of up to 238% are expected along with a 32% loss in wetland areas (Rojas et al., 2019).

Although urban growth and wetland loss in Concepción is significantly greater than the case of the Pichicuy wetland, the internal disagreements of local governments were similar. For example, it has not been possible to have a stable municipal officer in the Environment Department in charge of the protection of Pichicuy wetland, situation where the Municipal Council can intervene given their faculties in the municipal structure (D.F.L. N°1, 2006).

From 2010-2011 when the departments were created, those in charge of the (Environment) department have been in the position for a short time, two-three, only one year. We had a way to work and now once again, the head is going (...). Hopefully the municipality in the future has a person directly linked to the wetland and this doesn't happen again (Citizen representative, interview 13/02/2018, Pichicuy)

The Communal Regulatory Plan (1980), regarding current territorial planning instruments, does not include the locality of Pichicuy and, therefore, does not recognize the Pichicuy wetland. However, the locality is defined as an urban extension area by an Intercommunal Regulatory Plan (1965 and its modification, 1996). This aspect even opens up the possibility of urban growth in the locality of Pichicuy and, therefore, to one of the main threats for coastal wetlands (Novoa et al., 2020).

This shows how in Chile, local territorial planning is a debt, especially in the rural communes and in the official recognition of relevant areas for the protection of wetlands (Mallega et al., 2019; Maturana, Fuenzalida, Arenas y Henríquez, 2017). This may be attributed to limited municipal financing, to the competition to obtain public investment funds and that to the fact that the Municipal Council defines priorities that, in many cases, do not consider wetland protection, but rather health, education or urban infrastructure (Amstein, 2016; Orellana & Marshall, 2017).

Delamaza (2011) indicated that placing issues on the public agenda in many cases depends on social sensitivity, since these scale in priority more as a response to the needs of the citizenry when these are demanded. Along this line, the civil society players with high interest (Figure 5) like the La Ligua Communal Environmental Council (CAC), the Citizen Representative and the Advance Committee, have demanded efficiency in the administration and compliance of the wetland protection measures (Jorquera, 2011).

In this case study, a relevant political willingness of the local government was identified, based on the interest of the Environment Department to raise and maintain the wetland protection efforts (Barriga et al., 2006), which is strengthened with the support of civil society, private and public players, who are influential at different scales and with have high interest in the protection (Espinoza, 2019; Jorquera, 2011). These aspects are discussed in the following sections.

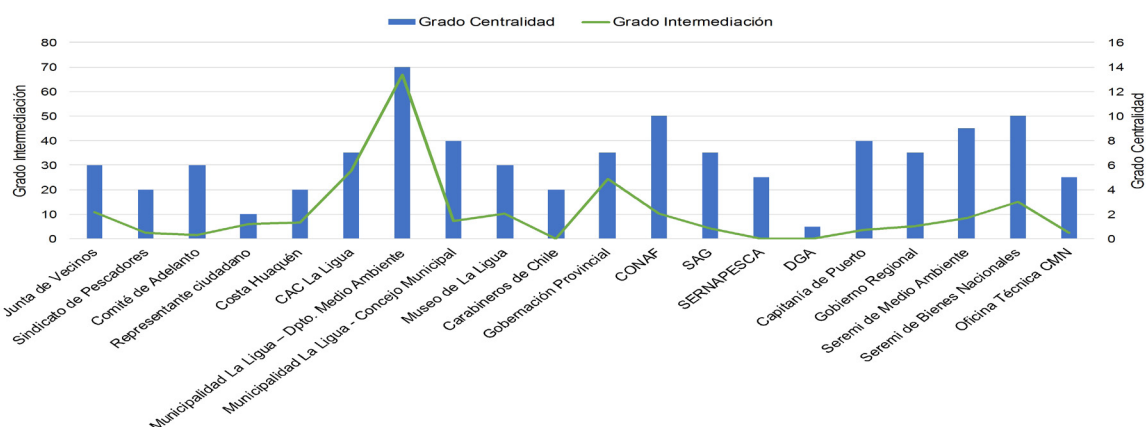


Figure 6. Centrality measures for the network's players. Source: Own preparation, UCINET 6, 2020.

Intermediary in the articulation of the network of players

In the case of the Pichicuy wetland, it was confirmed that another relevant role of local government is as an intermediary in the relations of the public, civil and private players. Also, the Environment Department acted as intermediary in the bottom-up articulation of players (Esparcia et al., 2015), which is considered as important to strengthen the collaborative management of wetland protection (Bawa et al., 2011; Freile & Rodas, 2008).

Figure 6 shows that the local government, through its Environment Department, obtained the highest degree of centrality and intermediation in the network of players, being even higher than those of the provincial and regional public institutions, and the players with high influence in ecosystem protection like the National Forestry Corporation (CONAF) or the Ministerial Regional Secretary (Seremi) of Environment.

This role is confirmed by the private player, Costa Huaquén, who indicated having sought coordination with civil society players through the Environment Department to carry out protection actions. An articulation between local government and the private sector favoring protection was seen in this way, which can facilitate the consensus of the diverse interests of the players (Jorquera-Jaramillo et al., 2012). This is considered as a particular case in the national context, as in general, there are obstacles regarding the participation of private players in the protection because of their dependance on their personal interests (Rojas et al., 2019).

From the sphere of civil society, the Citizen Representative and the La Ligua CAC player are related to local government and with the public players, seeking to supervise compliance of the agreements on wetland protection, and with this strengthening participation in the public administration (Martínez, 2016).

Those from La Ligua's CAC have had a high influence, they take part in all the administration that's been done and the supervision there's been about the commitments the Municipality (of La Ligua) and National Assets (Local National Assets Authority) have taken on for Pichicuy wetland (Citizen representative, interview 13/02/2018, Pichicuy).

This role of the intermediary could also be seen in the case of the Municipality of Valdivia, where the local government provided a space for articulation and dialog regarding the wetlands on facing the constant pressure of the citizenry, managing to get different organizations from civil society and public services to take part in agreeing upon protection actions (Lara, 2017).

Leadership in agreements with higher scale institutions

The third role of the local government identified in the case of Pichicuy was to lead a multiscale public administration and to facilitate the adoption of regional public protection policies in the local context (Espinoza, 2019; Jorquera, 2011; Moreno-Casasola et al., 2019), especially the interventions promoted by the Local Authorities for Environment and National Assets from Valparaíso.

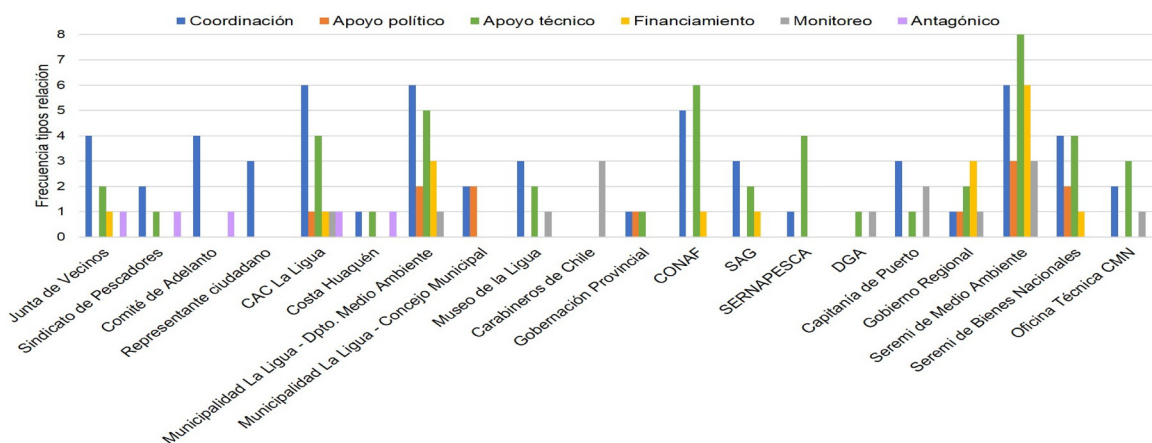


Figure 7. Frequency of types of relationship between the network's players. Source: Own preparation, 2020.

Recent studies, like that of Espinoza (2019), show that in Chile there is a lack of governmental intersectorial articulation to ground the regulatory policies and instruments for the protection of ecosystems from a national to a local scale. This still represents a great challenge for the country due to the hierarchical, centralized and disperse nature of the sectorial institutions related to environment matters (Espinoza, 2019; Heinrichs, Nussli y Rodríguez Seeger, 2009).

In the case of the protection of Pichicuy wetland, a technical round-table was set up with players from the regional and provincial public sector with influence in environmental matters. The Environment Department played a leading role in this discussion as it is the only communal level player who took part and is the entity given the responsibility to administer the wetland, to close the protection plans, as is presented in the following quote.

During the last few years we've been working, we set up a technical round-table which the Municipality (La Ligua Environment Department) and the Local Health Authority take part (...) Even CONAF took part, the DGA (Water Authority) too (...) we have handed over administration to the Municipality and while the round-table discussions progress, giving it in a long-term concession to the Municipality with a specific use and an associated management plan (Local National Assets Authority, interview, 04/12/2017, Valparaíso).

It is considered relevant that players from higher levels act as guarantors of agreements and the coordination of protection (Barriga et al., 2016), thus giving an institutional acknowledgment about the importance of the wetland (Moreno-Casasola et al., 2019). In this case study, the support of regional players allowed the local government to access tools that facilitate the sustainability of the ecosystems (Martínez et al., 2020), for example, technical support to assess the ecological status of the wetland, just as can be seen in Figure 7.

In Figure 7, it can be seen that the coordination was one of the more frequent relationships in the network. With this, regional players like the Local Environment Officer stood out with technical support, coordination and financing. From local government, the Environment Department stood out above the Municipal Council, maintaining alliances with regional players to cover both the technical and financing shortcomings, aspects that are quite common in domestic municipalities (Orellana & Marshall, 2017).

A concrete technical support action fostered by regional institutions to the local government was the provision of an international cooperation fund to address wetland issues, promoting the development of capacities that facilitate local government and local players in the implementation of the protection for Pichicuy wetland. This can be confirmed, for example, with the installation of control infrastructures and the allocation of security guards (Figure 8 and Figure 9).



Figure 8. Pichicuy Wetland entrance without control and access infrastructure, 2017. Source: FPA 5-G-025-2017, 2017.

Figure 9. Pichicuy Wetland entrance with control and access infrastructure, financed by local government, 2018. Source: Own preparation, 2018.

VI. CONCLUSIONS

This case study shows how important local governments can end up being in wetland protection in Chile. The Municipality of La Ligua, in particular from the Environment Department, manifested a significant political willingness (due to their high interest and influence) to administer the protection actions agreed with the Valparaíso National Assets and Environment authorities. Likewise, the local government exercises the role of intermediary between public, private and civil society players, with special attention on involving the participation of local players; along with a fundamental leadership to set up alliances with regional public players, thus allowing that the regional protection policies reach the local scale.

In this way, three roles of the La Ligua local government were identified, that provide a positive scenario for governance processes, favoring the articulation and coordination of players for the protection of Pichicuy wetland. In concrete terms, the local government managed to maintain the wetland usage concession granted by the National Assets authority, build protection infrastructure and provided security personnel for its upkeep. This means that, if the local government manages to establish continuous and stable interactions with key players of the network on multiple levels, it can obtain the technical and financial support needed for the success of wetland protection efforts.

On the other hand, in this case study, similar challenges to those described in other cases in the country were found. For example, the need to encourage the interest and participation

of key players in municipal administration, like the Municipal Council, to position wetland protection on the municipal agenda and to encourage territorial planning focused on explicitly recognizing the environment, social and ecosystemic value of wetlands at a local level. According to the revision of the literature, these challenges seem to be common at a Latin American level and emphasize the need of a decentralization in decision-making, along with a greater articulation with the interested players.

It is expected that the recent Law N°21.202 on the protection of urban wetlands strengthens the three roles of local governments examined in this research, permitting an empowerment of the municipalities over the administration of wetlands and their greater acknowledgment in the territorial planning instruments and local regulations. In this sense, it is relevant that the local wetland protection covers the problems of urban growth and considers the effects of climate change that threaten the status of wetlands. It is no less important, that local protection reaches the localized wetlands in rural territories outside official protection and the area of action of the regulatory plans, as in these territories, there are still sites of great value and, therefore, with high conservation potential.

It is worth stating that there has been progress in the protection of the Pichicuy wetland by the Municipality of La Ligua in the period after this research, for example, the launch in April 2018 of a work plan for its conservation and the passing of a Municipal wetland protection Ordinance (Decree of the Mayor's Office N°388 from January 2019). However, the declaration of it as a National Protected Asset is still pending.

Finally, it is important to strengthen and guarantee the continuity of the roles of local governments in governance processes for wetland protection. Thus, the institutionalization is suggested along with greater depth of the wetland protection actions by means, for example, of the declaration of a Municipal Nature Reserve or National Protected Asset, alongside the strengthening and consolidation of participative governance with local players for its management.

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