

THE CONCEPT OF HYDROSOCIAL CYCLE APPLIED TO THE CONFLICTS CAUSED BY ACCESS TO WATER. THE CASE OF THE DISPUTE BETWEEN THE ARGENTINE PROVINCES OF LA PAMPA AND MENDOZA OVER ATUEL RIVER

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1. INTRODUCTION

Since the end of the last century the availability of fresh water has been altered by the variability in the climatic cycles and in turn, for the intensive use of the resource for various purposes, as a result there was a worsening of conflicts to access it.

According World Resources Institute By the year 2040 the countries with water stress at world level will be those located in the equatorial zone of the planet and in low rainfall areas, like Bahrein, Kuwait, Palestina, Qatar, San Marino, Singapur, EmiratosÁrabesUnidos, Israel, Arabia Saudita, Omán y Líbano⁴ (LUO, YOUNG y REIG, 2015). In the future, the Mediterranean area, which also receives the pressure of mass tourism, will also be affected, as is the Spanish coast case, that has allowed for important advances in terms of water management (MOROTE SEGUIDO, 2016; MOROTE, SAURÍ y HERNANDEZ, 2016; OLCINA CANTOS y VERA REBOLLO, 2016a y 2016b). In case of Latin America and Argentina, the alarm over the excessive use of fresh water is related to the resource overexploitation to meet the demands of the neo-extractivist model, promoted since the end of the eighties within the framework of the implementation of neoliberal policies and by means of activities such as megamining and industrial monocultures (PERALES MIRANDA, 2010; YACCOUB, DUARTE y BOELENS, 2015; IVARS, 2015).

In this context conflicts are generated, for MERLINSKY (2013) are in a way a tool that allows the "discussion on states of possible worlds" between different subjects that add, in addition, demands and tentative answers. In relation to water conflicts can be differentiable. On the one hand, those produced in urban environments where the water supply for the entire population is altered by different interests and factors. And on the other, those that affect the economies of rural spaces derived from the alteration of the course of rivers, water pollution, flood threats among so many.

In these conflicts there are two positions with opposing interests on the part of the actors involved: On the one hand, those who need and demand water to live and the other, who appreciate or consider water an economic good to generate wealth from a according to a productive way. In the same way, the rural spaces are in conflict for the water by the construction of clandestine channels outside all management and control and they potentiate the conflict in itself. These conflicts have introduced new perspectives, including studies in the field of political ecology, which have opened a research line called political ecology of water, characterized by its interdisciplinarity, The

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⁴Surgen algunos países que han logrado un crecimiento rápido en las últimas décadas, vinculados a la explotación petrolera y a la expansión financiera. Un ejemplo son los E.A.U. donde además ha aumentado la población y las actividades ligadas a turismo y servicios financieros, lo que ha elevado las demandas de agua potable y para riego con el fin de producir de alimentos y el mantenimiento de los espacios verdes urbanos. Para lograr este abastecimiento se han construido unas 100 plantas desalinizadoras y se planean nuevas técnicas para obtener agua en un medio signado por la aridez. No obstante, el funcionamiento de estas plantas está generando cuestionamientos dado que funcionan con carbón que es un alto contaminante ambiental.

referents are SWYNGEDOUW (2009, 2013, 2015), LINTON (2010), BOELENS (2015, 2016), ILLICH (1974).

The axis of this field, is articulated in the power relations established by different actors in the process of appropriation of this resource or common good. The contribution of SWYNGEDOUW (2009) is based on the concept of power geometries in reference to the strategies interests at risk in the process of water distribution: "The political-ecological examination of the hydro-social process reveals the inherently conflict-ridden nature of the process of socio-environmental change and teases out the inevitable conflicts (...) It is these power geometries and the social actors carrying them that ultimately decide who will have Access to or control over, and who will be excluded from Access to or control over, resources or other components of the environment" (SWYNGEDOUW, 2009, 57).

In the initial conceptualization process of the hydro-social cycle, SWYNGEDOUW (2009) that this can be understood as the project through which a socio-environmental organization is created around water with the objective (nowadays from the political ecology) of achieving a more democratic access to the resource. Historically, multiple hydro-social cycles can be identified according to place (region, country, continent), which have responded to diverse interests and technologies. It is possible to study power and tensions relations that have been brewing and manifesting. On the other hand, the author states the following "Landless, peasants, smallholders and large landowners alike, workers and capitalist, political affiliations and visions of what is right or wrong, a wide range of institutional constellations, geopolitical tensions and alliances, the heterogeneous physical and ecological acting of water and all sorts of other non human things and organisms, and much more, coalesce in the production of hydroscape, the hydro-social assemblage that capture, transforms, metabolizes, moves and distributes to quench the thirst of cities, to fertilize the fields and to permit all manner of other production processes to unfold" (SWYNGEDOUW, 2015, 24). The hydro-social cycle is an instrumental concept that allows to approach the problem of access and distribution water, from a perspective that contemplates the complexity and questions concepts and ideas given and used as universal terms.

In relation to tensions and conflict, LARSIMONT (2014) adds to the analysis of the hydro-social cycle the strategies by which water is manipulated, not only by means of water infrastructure, but also by the elaboration of legal frameworks, the influence of cultural institutions and practices, "the circulation of water brings political, economic, social and ecological processes to different scales" (LARSIMONT, 2014, 4). BOELENS (2015) made "Throughout Latin America, growing demand and declining availability bring about escalating water conflicts. Inequality is very deep indeed. From Argentina to Mexico, water is reduced to an economic resource allocated to the 'most profitable users and uses' in the win-or-lose-market. Water dispossession is now tan ever" and in other studies made "Territories although often considered natural, are actively constructed and historically produced through the interfaces amongst society, technology and nature. They are the outcomes of interactions in which the contents, presumed boundaries and connections between nature and society are produced by human imagination, social practices and related knowledge systems. This is clearly manifested in how river basin management, water flows, water flows use systems and hydrological cycles are mediated by governance structures and human interventions that entwine the biophysical, the technological, the social and the political" (BOELENS *et al.*, 2016, 2).

These concepts allow to approach the problematic of the water access in the western pampeano and to establish the aspects of suitable analysis. These are: the actors, the imaginary ones around the water, the tensions, the conflict and the specific hydro-social territory. The objective of the present work is to analyze the hydro-social cycle and its application to the problem for a sector of the pampean west of Argentina. Also, to study the interprovincial conflicts that are generated and the aspects that make up this cycle. It is intended to contribute to the contribution of a perspective in this conflict, allowing, in the future, to outline an alternative solution that may also be useful in similar conflicts.

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The methodology used is based on the triangulation of quantitative sources (statistics) with qualitative sources (complaints, letters, cartography, reports and journalistic notes). This methodology consists of the combination of theories, data sources, research methods, in the study of a singular phenomenon. The critical reading and contrast of the studies carried out on the population and occupation of the study sector, provide data on periods of population settlement and those in which it begins to retract.

The methodology advantages is that when two strategies have similar results, the phenomenon studied is corroborated; But when the results are not, it presents the opportunity to elaborate a new perspective, it is possible to point out the complexity of the study object and provide the opportunity for new approaches. As a result of this triangulation, the hydro-social cycle was defined and the aspects that allow analysis in this particular case were obtained.

2. CHARACTERIZATION OF THE STUDY AREA

The river Atuel is an interprovincial river, it is born in the Mendoza province and flows to the La Pampa province. The river forms the Desaguadero basin, one of the most extensive in the country, it forms in the La Rioja province and runs southwards with an extension of about 1000 km. In its route receives the contribution of seven main rivers fed by the melting of the mountain range of the Andes: Bermejo, Jachal, San Juan, Mendoza, Tunuyan, Diamante y Atuel. The first four rivers reach their base level in the Guanacache lakes, while the other three do so in the Desaguadero-Salado-Chadileuvú river which, in turn, reach it in the Pampa lakes of La Dulce, La Amarga and UrreLauquen. It is an endorheic basin, only on occasion of exceptional water contributions, the complex of pampeanas lakes has overflowed bringing water to the Curaco River, to thereby drain into the Colorado River and thence into the Atlantic Ocean.

3. RESULTS AND DISCUSSION

The sources worked so far allow to identify various aspects that interact and become complex over time. The water circulation in the Pampas west in prehistoric times is verifiable, as much by the marks in the relief (channels and wetland area marked in the zone of entrance to the Pampa), as in the existence of human settlements near the banks and in the testimonies of the colonial period that have been recorded. The hydro-social cycle began to change when new economic interests arose that involved new uses. In this case Mendoza with the development of fruit production and water management to create oasis areas in a semi-desert zone. This economic and production logic occurred in a context of population growth and occupation of new territories by the national State that was consolidating, thus generating imbalances in access to water in the case of this area. The Pampa happened to be one of the new national territories to which it was not given impulse from the State and its water problem became recurrent. In this context, the problem of access to water in a semi-arid space such as the Pampas west, which has deepened throughout the 20th century, continues to be unresolved today. The different aspects are: actors, representations around water, social tensions, conflicts and the characteristics of the hydro-social territory. The actors within this cycle have different dimensions and degree of intervention in the conflict. They are the collective subject with their own identity that, from the possession of certain resources, acts within a society in defense of the interests of the members that compose it to give answers to specific needs. On the one hand, there are those who are immediately affected by the lack of circulation of the river, as in the case of stallholders, producers (small and medium) and the inhabitants of Algarrobo del Águila and Santa Isabel. They manifest their first claims that they bring to the national authorities through the governor of the territory. On the other hand, there are intermediate organizations (assemblies, technical, professional) and the provincial State that participate through their knowledge, mediation and direct claim to provincial governments as national to achieve a solution. In the case of the State in particular, it can act as a mediator through legislation, control or water management.

Another component of the hydro-social cycle is the imaginary around water. The imaginary or representations created in relation to water are subjective according to each social actor. They range from sacralization, identification with water territories, the interrelation between water and water, to value water as a commodity and a resource that can be manipulated through different strategies.

As for tensions, it is those emergent situations that precede a conflict or indicate that it is latent. These situations generate frictions and struggles between the power relations of the different actors involved. In this case a chronology can be established where the points of greatest tension are represented by the claims of the villagers and the Pampas government. In 1921 began to develop the colony of Carmensa in Mendoza that produced the first Atuel water division's. In 1937, the circulation of water was impeded again. This led to the claim of the residents of Santa Isabel by the "Tapón de Ugalde" in the Loncovaca area and on the interjurisdictional boundary. The projection and subsequent construction of the Nihuil dam in the 1940s created new frictions. In 1942 the Santa Isabel residents asked for the construction of an irrigation canal necessary for the place, but it is not feasible for being in course the project of the Nihuil dam. Between 1948-49, the National Water Administration began to see that the waters were interprovincial, by which time the El Nihuil dam was in operation. After the provincialization of La Pampa (year 1951) the claims for the river became part of the political agenda. In the year 1979 Mendoza rejected that Atuel is interprovincial. As a consequence, the judicialization of the conflict took place. In 1987, the Supreme Court of Justice establishes that the river is interprovincial and that Mendoza must make an annual release of the waters, this is not fulfilled. At the same time, an environmental conscience was strengthened that cemented the organization of assemblies and supported the demand that became more intense for a large part of the Pampa population. In this context, between 2008 and 2016, the Pampas claims increased in the context of the struggle for common goods, in this case water. The non-recognition of the interprovinciability of the river and its consequent use of exclusive form by Mendoza, leads to the conflict.

4. FINAL CONSIDERATIONS

The need to understand how water flows in urban and rural environments and under what networks of power, makes it necessary to consider the circulation of water in nature no longer mediated only by physical issues (climate, relief, etc.) but by Social elements that determine the relations of power around the water appealing to diverse strategies that range from the legal to the cultural, forming a hydro-social cycle. Here we can also differentiate and analyze those constituent elements: actors, tensions, conflicts, representations and hydro-social territories. The case of the river Atuel in La Pampa is an exponent of this problem and the possibility of beginning to understand water flows as flows of power, not only as an element of the nature foreign to human intervention. The understanding and use of the concept of the hydro-social cycle can help to understand conflicts over water, as well as to consider the territories from a broader perspective that exceeds the jurisdictional limits and listens and integrates the demands of the inhabitants of the place. A constructive alternative is this aspect, it would be that the pampeanas assemblies and southern mendocino dialogue assemi-arid space settlers where, although for the Pampas the access to the Atuel flow is denied, the residents of Mendoza are not insured either, Especially in this context of climate change and the intensification of extractive activities involving large quantities of fresh water. In these power geometries the participating actors must apprehend the hydro-social territory from a perspective that tends to distension and dialogue to distribute water equitably between two provinces. In this way, we try to restore to the river Atuel its old dynamics of circulation. In this case where the hydro-social territory exceeds the provincial limits, one should think about how to articulate the demands of water for both Mendoza and La Pampa. In this case, it would be necessary for actors directly affected as small and medium-sized producers from Mendoza, as well as settlers and settlers from the localities of the west, to be an area for dialogue to mobilize and address their claims. The continuity of the conflict leads on many occasions, to the

confrontation between them. It is necessary, in a solution search for to the water conflict, to start thinking and acting no longer from a provincial position, but hydro-territorial. The rivers generally, and in this case in particular, cross or are shared by several provinces realizing diverse uses.

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