

WATER CITIZENSHIP

Negotiating Water Rights and Contesting Water Culture in the Peruvian Andes

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Abstract: This article examines the implementation of Peru's new water law and discusses how it produces new forms of water citizenship. Inspired by the global paradigm of "integrated water resources management," the law aims to include all citizens in the management of the country's water resources by embracing a "new water culture." We ask what forms of water citizenship emerge from the new water law and how they engage with local water practices and affect existing relations of inequality. We answer these questions ethnographically by comparing previous water legislation and how the new law currently is negotiated and contested in three localities in Peru's southern highlands. We argue that the law creates a new water culture that views water as a substance that is measurable, quantifiable, and taxable, but that it neglects other ways of valuing water. We conclude that water citizenship emerges from the particular ways water authorities and water users define rights to access and use water, on the one hand, and obligations to contribute to the construction and maintenance of water infrastructure and pay for the use of water, on the other.

Freshwater has been a scarce resource in the western escarpment of the Andes ever since people settled there in agricultural communities. To ensure an efficient and fair use of water, Andean farmers have controlled and distributed it through hydraulic infrastructures and the allocation of rights through customs and legislation. Guided by shifting political ideologies and economic interests, the Peruvian republican governments have made several attempts to regulate access to freshwater in Peru's highlands. In the past century the demand for freshwater has increased dramatically and water legislation has changed from favoring private landowners to nationalization and granting rights to peasant and native communities, and finally to a water governance that promotes private responsibilities while giving priority to the mining and agro-export industries.

Peru's latest water legislation, called Ley de Recursos Hídricos (Water Resources Law, Law 29338), came into effect in 2009. It is presented as a response to the threat of climate change, urban population growth, and the increasing importance of the mining industry (ANA 2010; del Castillo 2011). Like the previous

tives to block one another generally increase along with the ideological distance between parties. For instance, Mexico's Partido Revolucionario Institucional (PRI) and Partido Acción Nacional (PAN) may very well block one another, but I expect this to occur less often than for the PAN and the Partido Revolucionario Democrático (PRD).

Several empirical studies both directly and indirectly support my reasoning on institutions, their occupants, and credibility. Keefer and Stasavage (2003) argue that strong differences among the preferences of veto players in the government bolster the institutions underpinning checks and balances: the greater the ideological distance between elected officials, the greater the impact that checks and balances have on policy outcomes. Stasavage (2002) identifies the importance of partisan interests for generating commitments to repay state debt amid numerous veto players. Frye (2002) showcases the role of agents within the court system as well as those enforcing bureaucratic regulations in securing property rights in Russia. Finally, Ugalde (2000) identifies the dramatic improvement in oversight of the executive branch as ideological pluralism increases in Mexico's legislature. The result is increased oversight through incentives to oppose rather than appease the executive branch and a break with the country's institutional collusion of the past.

In general, policy credibility is the key factor in many analyses of what creates commitments to investors' rights, including property rights and contract enforcement (North 1990; North and Weingast 1989; Henisz 2000, 2002; Henisz and Zelner 2007; Keefer 2004; Keefer and Knack 2002; Hicken, Satyanath, and Sergenti 2005; Andrews and Montinola 2004). In these studies (and many others) investors privilege the government that can do relatively less harm, given political constraints, over the government that has the relative freedom to help but also to hinder investment. The incentives pushing politicians to work together or to oppose one another are therefore important for investors because they generate expectations about how democratic institutions actually work—not how they are supposed to work. I contend that investors witnessing politicians' commitments to the rule of law assess the credibility of these commitments by determining whether politicians have incentives to honor their promises. Simply put, investors deem commitments to the rule of law more credible as politicians' costs of reneging on these commitments increase. My logic here is not new—James Madison presented it in 1788 in the *Federalist Papers*, No. 51—and Douglass North (1990), Barry Weingast (1997), and many others have argued for the utility of making unilateral policy change difficult. However, effective political constraints do not just prevent policy change: low policy volatility may benefit investors in and of itself, but the presence of political constraints also brings accountability to governance. Opposition politicians have fewer incentives to collude in corrupt activities than do politicians in the same party or those with a similar ideology. Furthermore, politicians have incentives to report corruption and hold the violators accountable if they represent another party or ideology. I contend that this argument is just as applicable for the rule of law as for corruption. This is not to say that politicians who disagree with one another always prefer to respect the rule of law—far from it. My argument is only that politicians who disagree have incentives to prevent

urban contexts? What ambivalences are inherent in water citizenship and how are they negotiated? What forms of water citizenship emerge with the Water Resources Law and how do these formations engage with local water practices and existing relations of inequality? How does the law affect these relations, and what new forms of inequality does it produce? We argue that vernacular modes of water citizenship intersect with regional, national, and international water policies and that these intersections frame ongoing negotiations between water users and different state institutions about the meaning of water citizenship.

CITIZENSHIP AND FRICTION

The value and use of water is a highly contested issue in Peru, and water users tend to protest against paying for water. To understand this resistance we study how water citizenship is produced through discursive and material practices related to water tariffs and water culture, how it is understood as a political project seeking overall validity, and how it projects a predominant notion of citizenship (Castro 2007; Holston 2008; Neveu et al. 2011). The promulgation and implementation of the law take place in a terrain that is economically, politically, and culturally differentiated, and we use the concept of friction (Tsing 2005) to understand how inequalities and forms of resistance participate in the production of citizenship. While T. H. Marshall (1950) in his classic study defined citizenship as a status that is endowed with rights and duties and bestowed on those who are full members of a community, newer studies conceptualize it more dynamically by focusing on the practices and policies of citizenship. Citizenship can be fruitfully understood as the practice leading to the establishment of rights, access to participation, and belonging (Wiener 1997); as a historical construct and a political strategy expressing concrete interests and practices (Dagnino 2003); and as a bundle of practices that constitute encounters between the state and citizens (Lazar 2008). Following this line of thinking a growing body of literature employs the term “environmental citizenship” to explore the social and political conflicts over natural resources that Latin America currently experiences (Latta and Wittman 2012; Orlove et al. 2011). Similarly, the term “hydraulic citizenship” has been proposed to examine how negotiations of recognition and belonging to a city or a collective take place along material and political infrastructures of drinking water marked by inequality (Anand 2011, 2012). We draw on these conceptual contributions and use the concept “water citizenship” to scrutinize the ways community members and state institutions practice rights and obligations concerning water management. Moreover, we respond to the call by Catherine Neveu and colleagues (2011, 945) to “explore practices of citizenship in heterogeneous sites and scales,” which implies conceptualizing citizenship as an imperfect, unstable set of processes and practices always in the making, rather than a singular status being negotiated.

Historically, citizenship in Peru has been and is still pervaded by racism and the criollo-mestizo-indigenous divide. Ideas of equal rights and participation are therefore contested issues in Peruvian society (Garcia 2005), and dictates about water-based relations of power and water governance are no exception. Nikhil Anand’s concept of hydraulic citizenship is here helpful to explain the difficulties

theoretical ability to exercise checks and balances against the other branches. However, Hugo Chávez and his party, the Partido Socialista Unido de Venezuela (PSUV), governed Venezuela without a strong, organized opposition among elected officials to constrain them in the early part of the twenty-first century. The Chávez administration's policies generated regular disputes over investors' rights, and private-sector investment fled the country during his administration (Garay and González 2008; Stein 2011). PSUV members of the National Assembly were disinclined to challenge former president Hugo Chávez's actions during his tenure because political advancement theoretically depended on pleasing him and his party, the PSUV, which dominated the institution. This dynamic continues under current president Nicolás Maduro. President Maduro's policy commitments, including any promises to refrain from future violations of investors' rights, are thus not credible, because few other elected officials in positions of veto authority have incentives to constrain him. But suppose we could remove members of President Maduro's far-left PSUV from the National Assembly and repopulate the chamber with members of one of the parties opposed to Maduro's policies, *Un Nuevo Tiempo* (UNT), whose policy preferences are center-left. This new National Assembly might be more likely to block Maduro's far-left policies in some areas because of the UNT politicians' centrist positions on many policy issues. Yet any new Venezuelan commitment to protect investors' rights would only be somewhat more credible than under PSUV dominance of the presidency and the legislature, because members of the far-left PSUV and the center-left *New Era* coalition still agree fundamentally on many policies—potentially including nationalization or high taxation of private property. Now suppose we could repopulate the National Assembly with the center-right, pro-business *Primero Justicia* (PJ) party that oppose all of Maduro's preferences to nationalize private property.⁴ Investors might then be more confident that Venezuela's institutional checks and balances would become operational. Venezuela's commitment to the economics of the rule of law would be relatively more credible in this scenario because PJ members would have incentives to oppose Maduro. PJ politicians disagree fundamentally with Maduro's policies and would not likely work with him on future legislation. This party's opposition to the executive's policy preferences would thus send signals to investors that their rights would be more likely to be protected than under circumstances in which a single party governs the country or several ideologically similar parties occupy the National Assembly.

Left-leaning parties' commitment to property rights and contract enforcement may be entirely credible, but the parties may suffer from perceptual bias: many observers, especially investors, may simply trust right-wing parties' commitments to pro-business policies more. In this sense, a left-leaning party's commitment not to violate property rights would become more credible in investors' eyes when politicians with incentives to oppose violations of property rights are present in office. This reflects James Madison's sentiments in the *Federalist* No. 51, where "ambition must be made to counteract ambition" to achieve successful gov-

4. Venezuela's opposition coalition, *Mesa de la Unidad Democrática*, had recently won a supermajority in the National Assembly as this article went to press.

1993 to 2000, the Fujimori government proposed fifteen draft bills that aimed to privatize water yet failed due to strong opposition from the irrigation organizations (Oré et al. 2009, 52–53). The irrigation organizations, created by the 1969 law, were nevertheless affected by several legal decrees made to modify the law during the 1990s. For example, the introduction to the fifth edition of the legislative basis for the irrigation organizations—a publication that presents five supreme decrees made between 1990 and 2000—emphasizes that the organizations must develop a “modern perspective and business bias [óptica moderna y de sesgo empresarial]” (JNUDRP and PSI 2001, 1).

In 2007, the government of Alan García adapted the law to the Free Trade Agreement with the United States (del Castillo 2011, 94–95), and in 2009 García succeeded in passing the new law on water resources (ANA 2010). While the General Water Law primarily dealt with water for agricultural use, the 2009 Water Resources Law integrates all uses of water, including human consumption and industrial use. However, although all forms of water are still acknowledged as state property, the Water Resources Law has been adapted to a neoliberal project that induces the state to downplay its role in economic and social politics. The state has therefore given ample space for private companies to intervene and invest in water management (del Castillo 2011). Moreover, the new law is accompanied by a Water Resources Management Modernization project financed by loans from the World Bank and other agencies. This project is a product of integrated water resources management, a new global paradigm for legitimizing and implementing water management policies that dictates a multisectoral approach to integrate the needs and demands of all water users (Orlove and Caton 2010, 408). In Peru, integrated water resources management and water resources management modernization have not only influenced the creation of the Water Resources Law but also prompted the conception of a new national system of water resource management that “comprises the set of institutions, principles, standards, procedures, techniques, and tools by which the state develops and ensures the integrated, participatory, and multisector management, sustainable exploitation, conservation, preservation of quality, and increase of water resources” (ANA 2010, title 2). The responsibilities for water management are now divided between various institutions: the National Water Authority (ANA), several ministries, the local and regional governments, agrarian and nonagrarian user organizations, hydraulic operators, peasant and native communities, and public entities involved in water resources management. The Water Resources Law also promotes the formation of regional and local organizational structures to ensure the participation of Peru’s many water users. Farmers and peasants are encouraged to form irrigation commissions to share canals and the right to use water. These irrigation commissions are joined in user councils (*juntas de usuarios*), private nonprofit organizations that represent the interests of the users of irrigation water. At a higher organizational level the law establishes watershed councils (*consejos de cuenca*) to obtain “active and permanent participation” of regional and local authorities, users’ organizations, civil society, peasant and native communities, and other sectors of society in water management within each watershed or river basin, an organizational framework conceived by integrated water resources management.

gal equality, the judicial system—even the police. The Worldwide Governance Indicators (WGI) project compiles material from thirty-one different surveys and polls, such as Afrobarometer, Freedom House, Gallup International, the US State Department, and so on (Kaufmann, Kraay, and Zoido-Lobaton 1999; Kaufmann, Kraay, and Mastruzzi 2012). The WGI then generates a variable, the rule of law, consisting of a weighted average for survey responses on property rights, contract enforcement, legal equality, and prevalence of crime. The surveys result in an aggregate measure covering an average of 182 countries at two-year intervals between 1996 and 2002 and annually through 2014. The cross-national breadth, temporal depth, and sophistication of the measure demonstrate why the WGI indicator is one of the most frequently employed governance measures worldwide (Kaufmann, Kraay, and Mastruzzi 2007c). Rule-of-law scores range from -2.31 (no rule of law) to $+2.36$ (perfect rule of law) and are scaled to a zero mean and a constant standard deviation (SD) for each year of data.⁶ Scores vary dramatically from one region to the next. Europe has the highest mean score at 1.65 while Africa has the lowest at -1.43 . Latin America's mean score is -0.61 . Chile has the highest mean score in the region, at 1.26, while Haiti has the lowest at -1.48 . There are 280 total observations among Latin American countries in the data set for this article.

Independent Variables: Political Constraints

My primary independent variable stems from Witold Henisz's (2000) efforts to create a cross-national measure of political constraints on government. Henisz's Political Constraint Index (POLCON) measures the extent to which any individual actor is limited in pursuing his or her preferred policies by the structure of a country's political institutions and the inferred preferences of politicians occupying those institutions. The first step in constructing the measure identifies the number of purely institutional, *de jure* veto points in a country's political system. Specifically, Henisz uses the Polity database (Marshall, Jaggers, and Gurr 2002) to identify the number of independent branches of government (executive, lower and upper houses of a legislature, judiciary, and any subnational entities) with theoretical veto power over policy making in a given country.⁷ Then Henisz codes data on the political parties in the system and their distribution within an independent executive and the legislative branch of government. The next step is an assessment of the relative alignment of political parties represented by politicians in these branches. The level of political constraints increases with each *de jure* veto point whose majority inhabitants are not members of the executive's political party. For example, a year in which a country features independent executive as well as lower and upper legislative chambers in complete political

6. A full discussion of the World Governance Indicators and their critics includes Kaufmann, Kraay, and Mastruzzi (2007a, 2007b, 2007c) and Kurtz and Shrank (2007a, 2007b).

7. Presidential systems, by construction, do have an additional *de jure* veto point compared to parliamentary systems. However, this is of no concern for my data, because all the Latin American countries in my data set use presidential systems of government (with Haiti as a slight exception) and there is wide variation in POLCON scores among these countries.

processes are locked in a “perverse confluence” of two distinct political projects. On the one hand, there has been an increasing involvement of civil society in public discussions and decision making, but at the same time, the neoliberal project is bent on achieving a minimal state that progressively abandons its role in guaranteeing universal rights by rolling back its social responsibilities and transferring them to civil society. The perverse nature of the confluence between the participatory and the neoliberal projects lies in the fact that both require a vibrant and proactive civil society and share several core notions, such as citizenship and participation, but these are used with very different meanings. The political meaning of participation has been reduced to management, and concerns with efficiency have come to replace the political debate on inequality and social justice (Dagnino 2003, 2007). With these historically constructed notions of citizenship and culture in mind, we ask: How does the official version of a “new water culture” meet local worlds? How do these ideas shape the rights and responsibilities of Peru’s Andean population? And how are these ideas productive of redefinitions of particular forms of water citizenship? These are the questions guiding our three case studies.

COLLABORATIVE FIELDWORK IN THE AREQUIPA REGION

As part of an anthropological research project about climate change, water scarcity, and conflict solution, we compare field data from three localities within the department of Arequipa in southern Peru. In each location we have engaged a similar scale of ethnographic observation (Neveu et al. 2011) by describing how the local water users define and value water. The three sites offer different complexities in terms of political and social organization and economic activity and in physical and technical capacity to access and distribute water. Although water users in all three sites are dependent on rainwater and melt water from glaciers, their infrastructures to capture, store, and distribute the water are different.

The first case describes how water is valued in the rural district of Tapay and how the state since the 1990s has tried to impose its authority as water governor by introducing water tariffs. The second case scrutinizes the implementation of state licenses on water use in Colca Valley since 2004 and discusses responses to the introduction of modern technology that is embedded in the discourse of the new water culture. Finally, we move to the regional capital Arequipa, where we find a complex institutionalization of water management. This case discusses how the city farmers, who once belonged to the influential classes but now feel increasingly marginalized, and the urban newcomers, who have recently gained political voice, experience the Water Resources Law and how they practice water citizenship.

The authors conducted collaborative ethnographic fieldwork throughout 2011, employing a coordinated methodology for generating data. This methodology included 202 household surveys (24 in Tapay, 80 in Chivay, and 98 in Arequipa); 78 interviews with local leaders, state employees, NGO workers, and activists; mapping of water sources and infrastructure; ethnographic case studies; and par-

ticipant observation in water users' organizations, NGOs, the state administration of water, and with local farmers and urban dwellers.

CASE ONE: LOCAL WATER DISTRIBUTION AND DISTRUST OF THE STATE IN TAPAY

Tapay is located between 2,300 and 5,400 meters above sea level in the bottom of the Colca Valley. The district has no road connection and can only be accessed on foot or by mule, lending the villagers a sense of isolation from the outside world. Up to the late 1990s, the villagers still collected their drinking water from the irrigation canals, but today most households have piped drinking water. The main occupation in Tapay continues to be agriculture and fruit growing. As rain is scarce and only falls between December and April, these activities depend entirely on irrigation water.

In most Colca districts, irrigation systems are supplied by water from a few main surface or ground sources. A hierarchy of water authorities at a local as well as a central level organize the maintenance of the irrigation system and manage the distribution of water (Gelles 2000; Guillet 1992; Paerregaard 2013b). In Tapay, by contrast, there are fifty-three sources, of which twenty-one are springs and thirty-two are offtakes from six rivers and streams that carry melted snow from the surrounding mountain peaks to the Colca River. Moreover, a total of twenty-one reservoirs have been constructed in the district's main hamlets, allowing water users to capture the snowmelt overnight. The many water sources and reservoirs make irrigation management a decentralized activity organized by the local users with little or no interference from the village's political authorities (Paerregaard 1997). Conventionally the users maintain their canals, allocate water, and resolve water conflicts without the need of any superordinate authority. Tensions over water are therefore few.

The dispersed nature of Tapay's irrigation system and the lack of conflict are reflected in the traditional organization of water allocation. The basic unit is the irrigation cluster of the specific area irrigated either by a spring, an offtake, or a reservoir. Two *regidores* (water allocators) are elected in each irrigation cluster during annual cleaning and water ritual celebrations. The *hatun regidor* (the principal water allocator) is in charge of water allocation from July until January; the *huch'uy regidor* (the supplementary water allocator) holds office during the rainy season from January to April. Hatun regidor is a mandatory task that moves by turn among the water users; refusing to assume it can ultimately lead to exclusion from the village irrigation system. A responsible and efficient regidor will be remembered and respected for many years. At the end of his term, the regidor is responsible for arranging the *yarqa aspiy* (ditch cleaning), an event that is both a mandatory workday, in which all users participate in cleaning the canals and reservoirs, and a ritual to celebrate the outgoing regidor.

In addition to the water allocators, the water users of each irrigation cluster elect a *comité de riego* (irrigation committee) and a *juez de agua* (water judge) at a communal assembly. The function of the irrigation committee is to oversee the work of the regidor, while the water judge resolves conflicts arising between the regidor and the water users. Conflicts normally occur because the users are

absent at the time when the regidor allocates water to their fields. Many villagers report that they often spend hours waiting for the regidor to appear at one field, while water is being distributed elsewhere. To prevent such confusion, rules concerning water distribution in Tapay are very strict. If landowners are not present when a regidor appears, they may not have water allocated until the following round, which means waiting up to one month before irrigating. Depending on the crop and the irrigation cluster, such a sanction can have serious consequences for the owner. At some clusters where water is plentiful, the crop may recover after the following irrigation round, but at others the owner may face the loss of the entire crop.

Even though the Water Resources Law and the new water culture have not yet been implemented in Tapay, the district's irrigation management has undergone a major change over the past twenty-five years. The allocation of water was previously free of charge, but due to out-migration and the growing use of money, water users have started to pay the regidor in cash or to contract someone else to irrigate the fields. As a result, water rights and obligations have become increasingly commercialized. In 1986 Peru's Ministry of Agriculture visited Tapay to institute a tariff (*tarifa*) on water and to call on the villagers to form irrigation committees according to the 1969 water law. The authorities assured the villagers that 90 percent of the tariffs would remain in the hands of the local authorities in Tapay and that the rest would be managed by the Junta Directiva de Regantes (now called Junta de Usuarios Valle del Colca or JUVIC) located in the provincial capital of Chivay, a regional institution attending to the interests of the water users in the Colca Valley. The villagers had paid land taxes for many years, but many refused to join the newly formed irrigation committees and objected to the idea of paying water tariffs (Paerregaard 1994, 198). Another important change is that the organization of the irrigation clusters for almost two decades has followed the norms dictated by the state and not the local water users' customary practice. On request by the regional office of the Ministry of Agriculture in the mid-1990s, a new *comisión de riego* (irrigation commission) has replaced the water judge office. The idea of this institution, which is a private nonprofit organization and a subdivision of the regional Junta Directiva de Regantes, was to link Tapay's irrigation commissions to the national system of water commissions and in this way submit the district's irrigation management to the legal water framework dictated by the Ministry of Agriculture. However, due to Tapay's remote position and physical isolation it is difficult for the state institutions to enforce their authority in the district. Even though a new *comisión de riego* formally has been created in several of its irrigation clusters, they continue to work in much the same way as did the irrigation committees. Moreover, because the leaders of these new commissions rarely attend the meetings arranged by JUVIC in Chivay, the water users of Tapay have no way of influencing the way this institution uses the water tariffs it collects. As a result, they have little incentive to pay this tariff even though JUVIC is a nongovernmental organization representing the interests of the water users in the region. A final example of the many obstacles the state encounters in assuming authority of water governance in Tapay is the registration of the district's water users. In most Colca districts the Ministry of Agriculture has

conducted a program, PROFODUA (Programa de Formalización de Derechos de Uso de Agua), that lists the local water users and authorizes them with the license to use irrigation water; according to Vera Delgado and Vincent (2013, 198) this has caused resistance in several Colca communities. However, no such registration of water licenses have been produced in Tapay, and the local irrigation commissions still use their own local lists of water users. As these often are flawed and not up to date, many water users avoid paying the water tariff.

At the heart of the water users' reluctance to join the new irrigation commissions and pay water tariffs lies a deeply felt distrust of the state and its attempt to take over the management of irrigation in Tapay. Furthermore, a strong feeling of autonomy is widespread among the district's water users, who view any outside interference with suspicion and who make little effort to distinguish non-government organizations such as JUVIC from state institutions such as the local water administration. Tapay's irrigation infrastructure was built by the villagers' ancestors, just as the water users are responsible for allocating irrigation water and maintaining the canals and the reservoirs. The many rituals attached to irrigation, including the ditch cleaning and the annual offerings to the mountain deities, are evidence of the villagers' sense of ownership of the water that feeds irrigation in Tapay and the infrastructure that leads water to the fields (Paerregaard 2013a). When drinking water facilities were established in the district in the late 1990s, the water users were responsible for transporting the pipes to Tapay from nearby Arequipa and installing them. Similarly, the villagers provided the labor to modernize Tapay's canals and reservoirs, improvements financed by the Ministry of Agriculture and other state institutions. Local participation and communal ownership are therefore still strong in Tapay, suggesting that it may take a long time before a new water culture and water citizenship will be created in the district.

CASE TWO: WATER PAYMENTS AND FORMALIZATION IN CAYLLOMA PROVINCE

The Junta de Usuarios Valle del Colca (Water Users' Organization of Colca Valley or JUVIC) represents the thirty-one *comisiones de usuarios* (water users' commissions; earlier called irrigation commissions) in the Colca Valley. JUVIC's main office is in Chivay, the provincial capital of Caylloma, located at 3,600 meters above sea level. Created in 1993 as a private nonprofit organization with a mandate from the state, JUVIC often cooperates with the regional state administration of water (Administración Local de Agua, or ALA) in promulgating the Water Resources Law through seminars and meetings with district mayors and the leaders of the water users' commissions. Both JUVIC and ALA use the concept of a new water culture to teach responsible and efficient water management in irrigation and household usage. But even though both institutions agree on the importance of educating the local water users, they compete as much as they cooperate in gaining influence and control in decision-making processes. ALA has its main office in the Majes irrigation project several hours from Chivay, and as most of its engineers come from other places in Peru, people in the area perceive them as quite distant both geographically and culturally. By contrast, the leader and board

members of JUVIC have been elected from the local commissions, and the engineer who has worked for them as a manager since 2003 was born and raised in Chivay. As a result JUVIC has more direct and personal contact with the farmers.

The water tariff, based on the amount of irrigated land, is paid to JUVIC, which gives one part to the National Water Users' Organization in Lima, keeps another part for its daily expenses, and distributes the rest to the thirty-one local commissions. In the beginning, farmers refused to pay because they perceive water to be given to them by the mountains, but this changed when they saw that JUVIC worked to support them. JUVIC's main role is to represent the commissions in negotiations with the regional and national governments to obtain support for large projects, like small dams and irrigation canals that benefit several communities. As a result, the number of water users who pay the water tariffs has increased significantly, reaching 83 percent in 2010, an increase JUVIC has presented as a great achievement and a main reason why the World Bank selected the Colca Valley to implement the irrigation modernization program PSI (Programa Subsectorial de Irrigación).

PSI aims to achieve more efficient water use by making the farmers change from traditional irrigation methods based on gravity and furrows to drip and sprinkler systems; technologies embedded in discourses about modernity, rationality, efficiency, and the idea of a new water culture. However, the drip and sprinkler systems have been criticized for not being easily adaptable to the highlands, where the terrain is steep with tiny fields and terraces. Moreover, in order to obtain these high-tech systems, the commissions need to finance 10 percent of the installation, a very high sum for peasant farmers. Nevertheless, the PSI managers claim that by using their own money, the farmers will create a stronger feeling of ownership of the technology and be more responsible, which also is evident in the payment of the water tariff. Therefore one of the main requirements for being allowed into the PSI program is that 50 percent of the users in the commission have paid the tariff.

In addition to the water tariff, the national water authority ANA requires that all water users pay an annual state license fee to ANA for the right to use water. The license is calculated according to the purpose and the amount of water used. The formalization of water rights for agricultural use was stated in the 1969 General Water Law but not applied in Colca Valley until the PROFODUA formalization program was conducted in 2004–2005. Today, the majority of the farmers in Colca have a license for agricultural use, with the exception of districts such as Tapay, where PROFODUA never completed its work. In 2011 farmers without formalized licenses were told they could get into serious trouble in case of future water scarcity.

The Water Resources Law introduced the formalization of all uses of water, human and industrial consumption included. District municipalities and hotels are now required to obtain a water license for human consumption, and mining companies must obtain one for industrial use. In practical terms this implies that every drop of water is measured and every use registered in formal national registers, while in political terms it means that water use becomes legible and easier to control for the state administration. In 2011, ANA called a meeting by sending

out invitations to all the districts in the region in order to inform them about the new law. However, to ALA's surprise, nobody showed up. Following JUVIC's advice, an engineer from ALA visited most of the districts (but not Tapay) to inspect the drinking water and sewage systems and to measure and register drinking water intakes and offtakes of used water. He also gave the districts a short introduction to the Water Resources Law and informed them about the formalization of water licenses, emphasizing that this should be seen as a way of protecting their rights to use water.

In one district the engineer told the water users that they need to not only apply for a license but also invest in a valve to measure the water they take from the spring that supplies them with water for human use (during the day) and for agriculture (at night). According to the engineer the aim of the valve is to calculate the amount of water the villagers consume during the day. The water users pointed out that measuring water on a daily basis implied more control, less flexibility, and new conflicts. They were especially worried that the installation of a measuring valve would allow the public potable water company SEDAPAR to start operating in the district and eventually lead to the commercialization of the water supply. For many years, the population has been organized in a democratically elected commission that administers the district's drinking water (Comisión Administrativa de Servicios de Saneamiento). The inhabitants have done all the work, including the installation of water reservoirs and pipes, and everyone pays the same minimum amount—1 *sol* (US\$0.38) a month—for maintenance. During the engineer's visit the district leaders pointed out that they indeed worry about the future provision of clean water in the district but that charging a license is not the right way to solve the problem. They argued that the majority of the inhabitants live in extreme poverty and that the district operates on a very low budget. Finally, they argued that instead of threatening the water users with fines the central state should support them with money and expertise. And even though the engineer insisted that the water users should think of their children, as little by little the water sources will dry out, the leaders refused to sign any records of the inspection, claiming that this required the consensus of their constituency at a general assembly.

This case shows us that ALA's implementation process for drinking water licenses meets the same problems that JUVIC ran into when it tried to introduce tariffs on irrigation water in Tapay and other districts in the 1990s. People in Colca Valley have strong feelings of ownership of the infrastructure that they have constructed and paid for themselves. Moreover, they complain that even though the government has never helped them before, ANA now claims that only by buying a license can they ensure their water rights against mining companies and the threat of global warming. In their view, it is not the state but the surrounding mountains and springs that provide them with water. Therefore, they do not trust future governments to protect them against a future water crisis. The farmers, townspeople, and local leaders in Chivay and other districts in the area negotiate rights and obligations in their practices and interactions with JUVIC, ALA, and PSI. While the modern water culture promoted by PSI and ALA is associated with individual payments and efficiency, the traditional water culture is charac-

terized by collective labor and reciprocity. These two water cultures are conflicting insofar as they resonate with different ideas of water citizenship; one based on individual responsibility and the other on collective solidarity. However, the two water cultures are not necessarily mutually exclusive, and many farmers negotiate between the two kinds of citizenship. The farmers pay the water tariff as long as they receive support to build infrastructure and strengthen their local organizations, a logic that seems to be based on ideas of mutual reciprocity.

CASE THREE: PRESSURE AND WATER CITIZENSHIP IN AREQUIPA CITY

Located 2,400 meters above sea level, the regional capital Arequipa is Peru's second largest city, with one million inhabitants. The city has been growing fast since 1960, mainly due to migration from higher and rural Andean regions. Its main challenge is therefore to ensure the water supply to expand the frontiers for agriculture, population, and industry. The rainy season spans from December to April; the rest of the year is sunny, warm, and dry, which makes it crucial to store huge volumes of water. Water is used to generate electricity, in agricultural irrigation, as drinking water, to produce industrial goods, for tourism, and in extraction of minerals. It originates from the same few sources in the highlands and reaches Arequipa via the Chili River. A grand hydraulic system consisting of seven dams, rivers, and canal connections regulates, transports, and releases the water to its functional destinations in the city. This material system involves several public and private institutions in the operation and management of water. The big water consumers in the city, and hence the most influential, are the copper mining company Cerro Verde, the electricity company EGASA, and the city farmers, who hold collective licenses and are grouped in user councils (*juntas de usuarios*), as described in the previous cases. Other less powerful but nevertheless politically important water users are the growing number of rural-urban migrants who come from the Colca districts and other parts of Peru's Andean highlands and settle on Arequipa's outskirts.

Since the 1960s, Arequipa's farmers and other influential water users have been coming together in a multisector committee (*comité multisectorial*) to decide the volume of water to be released from the dams, to make decisions about distribution and point out infrastructure needs, and to take action in emergencies. Besides the mentioned water users, the committee is formed by several public institutions. State and nonstate institutions engaged in water governance in Arequipa city are thus many, divided in various sectors and with different interests and levels of influence.

The Water Resources Law has enhanced the complexity of water governance by further widening the institutional landscape of water management in Arequipa. Arequipa's local farmers in particular have criticized these changes at the meetings and workshops that ANA has organized in Arequipa to introduce the law and new water culture. To the farmers such a culture and its requirement to use water more efficiently will imply a change from gravity-fed irrigation, which is common in Arequipa, to modern technologies such as sprinkler and drip irrigation. Even though the farmers are assured that their irrigation commissions will

maintain their status as independent water operators as long as they use water efficiently and are capable in organization skills, the farmers worry that such a shift in water management will allow private companies to control the city's irrigation infrastructures.

"Water is a public common good, it belongs to the state," ANA officials state over and over again at the workshops and meetings they organize. Nevertheless, the farmers who participate often express their mistrust of the water authorities, and many openly question the Water Resources Law, which they find has disempowered them. The farmers have always had six representatives in the multisector committee, while in the new watershed council they have only one. Their critical view of the law reflects a more general sense of losing power. Farmers know they have little to say when it comes to the law, the new water institutions it has introduced, and the "modern" scheme for water management.

In the past decades the city's population has exploded due to rural-urban migration, causing a growing demand for drinking water. As a result, Arequipa's farmers experience less water flowing through the irrigation canals, a situation made worse by the Water Resources Law, which states that drinking water use has the highest priority when it comes to water distribution. To legitimate their continued claim to Arequipa's water the farmers have begun to practice their own form of water citizenship by using their organizational leverage to forge new political alliances within the agricultural sector. As stated by the technical manager of one of Arequipa's user councils: "If we don't have a strong organization, we cannot put pressure on the government. We need our organization, which is the total sum of users, to be strong. If strong, we can become a group that makes demands. The government, you know, only sees the masses. If a strong mass protests, the government pays attention. If it is a weak mass that protests, the government does not pay attention."

While most farmers accept paying licenses and tariffs as a part of the mechanism of receiving water, many affirm that they do not know where the money goes or in what it is invested. Some even claim that with less water flowing through the canal, licenses and tariffs lose their meaning. As the technical manager of one of Arequipa's user councils comments: "We still pay our tariff and have our water licenses, but every day we have less water."

In contrast to the city farmers, who are struggling to keep water flowing to their fields, urban dwellers in Arequipa struggle for access to fresh drinking water. Thirty percent of those living on the fringes of the city do not have running water in their homes. They therefore practice an alternative form of water citizenship by creating water committees, building infrastructure collectively, and pressuring municipal and regional authorities in various ways to ensure a stable water flow to their settlements (Anand 2011). In contrast to the water citizenship practiced and envisaged by the farmers, the newly arrived urban dwellers do not direct their water claims toward the Water Resources Law and the national water authority but toward the local and regional institutions and agencies they know have the capacity to build and maintain the infrastructure that is needed to provide their settlements with fresh drinking water. In Arequipa City, then, competing actors engage in different kinds of water citizenship, depending on their

particular needs and desires. However, despite the law's participatory emphasis, the water authorities neglect this when implementing it. For instance, although the demands, interests, and level of influence of urban dwellers and mining companies are radically different, and although the law recognizes the two groups as distinct categories of water users (population use and productive use), in the new watershed councils they are merged into in a single category, "nonagricultural use" (*uso no agrícola*).¹ As a result, the influential mining company Cerro Verde now represents all nonagricultural water users, including poor urban dwellers, in the new watershed council of the Chili River watershed.

ANA, ALA, and other water institutions are working to create a new water culture in Arequipa. On World Water Day (March 22, 2011), ANA organized a public event to "sensitize the Arequipa public to the importance of conserving and preserving natural springs of water; as well as to achieve commitment and citizen participation in water care" (ANA invitation letter). All speeches in this event repeated the urgency for every *arequipeño* to start changing attitudes toward water use, to become responsible and conscious and to use water rationally in order to save water for future generations and future development. The speeches were followed by a march with five hundred school children carrying banners with drawings and messages: "Water is life, take care of it"; "Water is progress, don't let Peru stay behind." However, on the same day an environmental movement organized an alternative event with the headline: "Water is a right, not a commodity." The speeches of the event were all critical of the government, the law, and ANA and opposed mining companies, extractive neoliberal politics, and the understanding of water as a commercial good and economic resource.

As the city's infrastructure is highly visible and needed to obtain water for irrigation and population use, few people question the tariffs introduced by the water authorities. Yet water is valued very differently: as an economic good, a basic need, or a human right. The new water culture is therefore highly disputed, and even though Arequipa's farmers and rural-urban migrants represent opposing and conflicting groups, both groups are critical of the Water Resources Law. In a context of potential water scarcity where demands, needs, and interests vary extensively and where the flow and allocation of water reproduce socioeconomic inequalities, tensions and conflicts over water will hardly be resolved by governing water through a law that proposes participation and integration through a singular water culture and the exclusion of the water users who suffer most from water scarcity.

CONCLUSION

We began by posing questions about the ambivalences and negotiations around water citizenship in Peru. We then discussed three ethnographic cases from the Arequipa region that in different ways demonstrate how people relate to water and how they respond to water tariffs and the new water culture. Our

1. The categories of water users represented in the watershed council are agricultural use, nonagricultural use, municipalities, universities, professional colleges, and native or peasant communities.

cases show that the management, use, and governance of water in Peru are highly heterogeneous and that implementing the Water Resources Law implies a journey through a terrain marked by social as well as physical verticality. They also reveal that implementation produces friction because of the different ways the state and different water users value, manage, and allocate water. Finally, the cases demonstrate that water citizenship emerges from the particular ways water authorities and water users define rights to access and use water, on the one hand, and obligations to contribute to the construction and maintenance of water infrastructure and to pay for the use of water, on the other. While the law has introduced a new set of rights and obligations for Peru's water users, in many places people continue to follow their own water governance practices. Moreover, the law has paved the way for a new water culture that views water as a measurable and quantified substance that water users must pay to consume, but this new water culture nevertheless neglects the many other ways water is valued.

In Peru, water is public property, and as successive Peruvian governments have aimed for neoliberal deregulations in the last thirty years, sustainable management is now the responsibility of individual citizens and local communities rather than the state. As Dagnino argues, the neoliberal meaning of citizenship displaces the idea of rights and collective solidarity and emphasizes private moral responsibility (Dagnino 2005, 4, 19–20). An ideal water citizen takes care of the water, uses it efficiently and rationally, does not spill it, registers its usage, and pays for the right to use the water, which is property of the state.

In Tapay the state is hardly present, and the villagers therefore manage local affairs in their own way. In effect, the introduction of the water tariff has met with considerable resistance, and many villagers have refused to pay it. As shown in the second case, the water users in Chivay also resisted the water tariff initially, but most of them have now agreed to pay. This shift in attitude toward the water tariff has been encouraged by the water users' organization JUVIC, which in many ways has succeeded in gaining trust by collaborating with the farmers and by giving financial, technical, legal, and moral support. Since the promulgation of the Water Resources Law, the state institution ALA has promoted a new concern for climate change and water scarcity, but the institution has also aroused new tensions by introducing license payments for water use rights. In the city of Arequipa state institutions are rather strong and present, and tariffs are not disputed but acknowledged as necessary. Here the state institutions promote a new water culture that incites people to be mindful of their use of water. However, as access to water is distributed unequally and many peripheral dwellers are not yet connected to the public water infrastructure, the idea of a single shared water culture has met resistance.

Many people and leaders in the Peruvian highlands see the introduction of water license and tariffs as the start of privatization of water, which they think is morally wrong. In Tapay, where the villagers have a strong sense of communal ownership of water and their own ideas of water culture and water citizenship, it has taken several decades to make the villagers accept the water tariff, and many continue to evade it. Neglecting to pay the tariff or license can of course be understood as a form of resistance, but it can also be seen as a highly pragmatic prac-

tice in a situation where poor people have to make the most of their money and prioritize expenses. Essentially, most villagers distrust the central state, which they regard as distant and insensible to their needs and problems, but at the same time they want it to play a more important role in their lives. Hence, even though many find it ironic that they now have to pay a water tariff to a state that is incapable of ensuring the village's water supply, they are also aware that it might be a necessary evil to solve the growing water scarcity.

People's ambiguous image of the state is also evident in the second case study. Most farmers in Chivay and the neighboring districts pay the water tariffs in order to receive support from the water organization JUVC and the irrigation program PSI. The district authorities pay for the license to avoid getting fined by ANA. Not having paid the tariff and license can cause deeper problems for a person or a district municipality in case of a conflict over the right to use the water from a specific source. Nevertheless, many are reluctant to pay for water, which they see as part of nature and not the market. Their protest against impositions of more payments is therefore based on moral grounds. Moreover, while supporting the ideas inherent in the water culture discourse, such as the need for more sustainable water management and efficient water use, they often disagree with the way state officials seek to achieve sustainability and efficiency. Water users tend to pay if they get something in return, but in their view such a relation should be based on trust and the anticipation of reciprocity. In both the first and second case studies people resist the Water Resources Law because they value water differently than the state and because they contest the state's right to grant mines and other industrial water users access to water. But even though the threat of global climate change and a future water crisis deepens these frictions, it also makes people realize that they have no choice other than cooperating with the state. It is hardly possible to oppose a water culture that posits a common responsibility for the future generations.

In the third case study, the Water Resources Law and the institutions that promote it have tried to create a new water culture in Arequipa, a neoliberal idea that depoliticizes the local understandings of participation and citizenship. The conflicts discussed in the third case also demonstrate how the implementation of the law relies as much on an "active, proactive civil society" (Dagnino 2005, 18) as on the state's own institutions. Even though the law and the new watershed council reduce forms of water citizenship through the merging of various water users into one category, farmers and urban dwellers practice vernacular forms of water citizenship through forms of organization and through the exercise of pressure on decision-making authorities in marches and protests. Hence the future success of the law requires more than tariff-paying water users and singularized notions of water culture and water citizenship.

We have shown that the law's participatory and democratic intentions are full of contradictions and that the new water culture and the water citizenship it promotes gloss over new as well as old social conflicts involving the mining industry, rural and urban farmers, city dwellers, and state institutions. According to the Water Resources Law and integral management, all citizens are expected to participate and commit equally. Nonetheless, Arequipa's water users have diverging

interests. Even though the law establishes that water is state property and a public good, it gives ample space to private interests. At the same time the law invites the participation of people without previous access to decision-making processes, and they therefore need time to formulate their needs within the law's new institutional context. In Peru, as our data suggest, there are many water cultures, and the introduction of a new national water culture is therefore a much contested issue. Still, the urgency of water scarcity makes changes in water management necessary. How such changes should be carried out and, particularly, who should pay the price for solving Peru's water scarcity and how high this price should be are questions that currently are articulated at various levels in Peruvian society and that may become the foci of political struggles in the coming years.

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