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Governing Water in the Andean Community of Cabanaconde, Peru

From Resistance to Opposition and to Cooperation (and Back Again?)

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Improving water governance in the Andes is one of Peru's biggest challenges. This article examines the state's role in the water supply of an Andean community. Thirty years ago the community resisted the state's interference in its water

management but now it has adopted a state model. The present article examines this change in the context of 2 occasions: the Peruvian state's investment in a new channel in the area and the community's confrontation with the state to gain access to this infrastructure. In the article, it is suggested that rather than viewing the confrontation as a form

of resistance against the state's interference in Andean irrigation, we can see it as a way of opposing the state's water policy that privileges Peru's coastal desert at the cost of the country's highlands. It argues that, paradoxically, the community's success in challenging this policy and gaining rights to new water sources has prompted it to recognize the state as a legitimate water governor. The article concludes that, to overcome Andean communities' distrust of the state, the state must allow communities to play an active role in water management and assure water equity in Peru.

Keywords: Water; state; community; resistance; cooperation; Peru; Andes.

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Introduction

Historically, Andean communities have resisted the Peruvian state's attempt to introduce formal water governance frameworks (de Vos et al 2006; Urteaga and Boelens 2006; Boelens 2009), and, in many parts of Peru, water user communities continue to manage water by use of collective practices such as electing their own water allocators and organizing communal works to maintain the irrigation systems (Poupeau and González 2010; Isch and Boelens 2012). However, Peru's recent economic boom has increased the demand for water and because the glaciers of the Andes that constitute the country's principle source of freshwater are melting (Vuille et al 2008; Bolin 2009), new water conflicts are occurring on a daily basis both within and among Andean communities (Oré et al 2009: 56; Lynch 2012). The question is whether the country's growing water scarcity and the conflicts it causes will prompt Andean people to recognize the Peruvian state as a legitimate water governor in their communities.

I will try to answer this question by examining the state's role in the water governance of Cabanaconde, a community located in the Colca Valley in Peru's southern highlands. By water governance, I mean the bureaucratic management of the water infrastructure and the social control of water distribution within an irrigation system.

The Peruvian state's presence in Cabanaconde is far from new, but it is only recently that a state model of water governance has been introduced in the community (see also Vera and Vincent 2013, in this issue).

I suggest that we view Cabanaconde's adoption of a state model in the light of 2 occasions: the state's investment in a new channel in the area and the community's confrontation with the state to gain access to this infrastructure. My argument is that this clash was triggered by Cabanaconde's opposition to the state's policy of channeling water from the country's highlands to the coastal desert rather than the community's resistance to a state presence in Andean water management. Moreover, I argue that, because Cabanaconde's protest bore fruit and the community now has more water than before, it has revised its ideas of power and legitimacy, and has adopted a state model of water governance. Paradoxically, then, rather than deepening the community's distrust of the state, the confrontation has led to a new relation of cooperation. At the same time, results of my study indicate that, even though Cabanaconde has adopted a state model of water governance, its water users continue to claim ownership to their irrigation system and maintain this through communal participation. In other words, to gain the trust of Andean communities, the state must allow the villagers to play an active role in their water management.

Methodology and structure

The article is based on a qualitative research methodology (Marshall and Rossman 1995). It reviews data collected in 2011 when doing a 1-month ethnographic field research in Cabanaconde. With the help of a local assistant, I conducted a survey among 100 households, which represented 18% of the 549 households that are members of Cabanaconde's peasant community (Bernard 1995; Babbie 2000). The survey was based on interviews with the household leader or the spouse of the household leader, which is a self-defined category in Andean communities. Of those interviewed, 65% were men, whereas 35% were women; their average age was 52 years, the youngest being 19 years old, and the oldest being 86 years old.

The research questions of the survey were as follows: who are the household members (age, sex, kinship relations, religion, place of birth, and residence), what are the household's landholdings (dry land, irrigated land, pastures, etc), how many and what kind of animals does it have, what is its annual income, what are its primary and secondary livelihoods, what crops does it grow, what is its use of water (irrigation, drinking water, domestic use, etc), what is its migration history, and what is its status as community member. Some of these questions are directly related to water governance. In most parts of the Andes, agriculture and cattle breeding require irrigation; information on landholdings, the number and kind of animals, crops, livelihoods, and water use, therefore, is critical for our understanding of how water is governed. Other questions are indirectly related to water governance. Thus, migration can be a consequence of water scarcity just as a lack of water rights and bad water management often cause income differences among households. In the survey, I also asked for the view of different household members on climate change, including questions about how the seasons, weather, rain, and water situation in the community have changed over the past 2 decades. In addition, the survey encompassed questions about household participation in communal works and community organizations.

I also conducted formal interviews with community, business, and religious leaders in Cabanaconde and asked about their role in and ideas about water governance. Moreover, I collected the life histories of a handful of older villagers whom I asked to comment on climate change and water scarcity in Cabanaconde's recent history. Similarly, I used participatory observation at community meetings and other public events in Cabanaconde and interviewed villagers in their homes and their fields on an informal basis. Finally, I mapped Cabanaconde's water infrastructure and irrigation canals, and recorded the specific water allocation routines of the village's agricultural areas.

Since 1985, I have conducted several long-term fieldwork studies in Tapay, Cabanaconde's neighboring

village, including a study of its irrigation management system (Paerregaard 1994, 1997). In this period, I participated in social events in Cabanaconde and interviewed the villagers on an informal basis on numerous occasions. I also carried out field research among Cabanaconde's community of approximately 800 migrants in Washington, DC, in 2005 and 2010 (Paerregaard 2010). The data collected during these stays serve as contextual information in the writing of this article. Finally, I drew on a previous study of Cabanaconde's irrigation and water management system from 1987 (Gelles 2000).

Irrigation in the Andes

In a number of Andean countries, irrigation is crucial to agricultural production (Gutiérrez 2006; Vos and del Callejo 2010). The need for water is particularly critical in Peru where rain falls only on the eastern part of the country and where the coastal plain relies entirely on irrigation. The pre-Columbian populations built complex irrigation systems, and today the inhabitants of Peru's rural highlands continue to use the canals made by their ancestors to irrigate the fields (Mitchell and Guillet 1994). In the rainy season, which normally lasts from January to March, Peru's Andean communities only irrigate briefly; but, when the crops are planted in the months before the rain starts and when they ripen after the rain stops, irrigation is necessary. In most parts of the Peruvian Andes, farmers use melt water from the glaciers or the snow-covered mountains to irrigate. The melt water is transported through canals to reservoirs, where it is stored overnight or led directly into the fields (Trawick 2003: 110–149).

In Peru, highland irrigation systems are usually small and decentralized, which means that each village taps water directly from nearby glaciers or mountains, and allocates water for irrigation according to its own customs (Guillet 1992: 47–65). In most places, the water users are organized locally in irrigation committees responsible for maintaining the canals and the reservoirs that they use to irrigate their fields. The committee appoints a water distributor (*regidor*) who is in charge of allocating water and assuring that everybody receives sufficient water to secure the crops. Until recently, the irrigation committee also appointed a water judge (*juez de agua*), whose job was to fine water thieves and solve conflicts between the users and the water distributor; but today a regional assembly of irrigation committees manages these tasks (Paerregaard 1994). Fights are particularly fierce in communities that distribute water on a first-come/first-served basis, but, because the fields differ in size and location and the users often plant different crops in the same irrigation clusters, tensions break out even in communities that allocate water on an egalitarian basis (Mitchell 1994; Boelens et al 2006).

The Peruvian state has tried to legislate Andean irrigation practices for many years but with little success. In the literature, this failure to reform water governance in the Andes is often viewed as an example of what Scott calls suppressed people's "hidden transcripts" (Scott 1990) and "the art of not being governed" (Scott 2009). Thus, Boelens claims that "adopting formal, uniform institutions of water control does not necessarily mean obeying (just) these rules and conforming to them"; rather, Boelens argues, they can be seen as "a conscious strategy of counter-identification" (Boelens 2009: 328).

There are numerous studies that demonstrated the Peruvian state's lack of credibility in the Andes (Garcia 2009); but what these studies also show is that Andean communities claim the state's presence as much as they oppose it. Terms such as "resistance" and "counter-identification," therefore, must be used with caution to examine water governance in the Andes, because they imply that water users refuse any form of state regulation. To capture the ambiguous relation between state and community in the Andes, I used Fletcher's distinction between *resistance* and *opposition* (Fletcher 2001). Fletcher states that "simply acting in opposition to something is not sufficient to identify that action as resistance" and adds: "resistance only occurs so long as the subject of power continues to recognize its legitimacy" (Fletcher 2001: 57). As I shall discuss below, Cabanaconde's confrontation with the state was an act of opposition to its policy stirred by the anger of having been denied what it considered its natural right to water, rather than yet another attempt to resist state interference (Gelles 2000: 64). Indeed, because Cabanaconde subsequently gained the right to more water, the villagers changed their ideas of power and legitimacy, and engaged in a new relationship with the state. Ironically, opposition thus led to cooperation rather than resistance.

New water sources, new water governance

Cabanaconde is situated between 3600 and 2200 masl in the Colca Valley and is part of the Arequipa region in Peru's southern Andes (15°37'17"S; 71°58'44"W). With a population of approximately 5000, Cabanaconde is the second largest village in the region (Figure 1). It also has more agricultural land than its neighboring villages. According to my survey, farming and herding is the principal occupation for the majority (83%), and, even though a small number of villagers have other sources of income, trade (5%), tourism (4%), construction (4%), technical consultancy (2%), and handicraft (2%), only 3% live entirely on nonagricultural activities.

Economically, Cabaneños belong to the poorest segment of the Peruvian population. The average annual income of Cabaneños is 2928 Peruvian Soles (US\$ 976), and, whereas one third do not have a regular income at all, only 30% make more than 5000 Peruvian Soles (US\$

1667) a year (Figure 2), which indicates that, to a large extent, Cabaneño households are self-subsistent. Cabaneños' low economic status is closely related to the fact that migration to the cities and destinations outside Peru is high (Paerregaard 2010) and, demographically, that the population is old. My survey shows that the villagers' average age is 38.5 years and that the average household has 3.1 members.

The rain season in Cabanaconde only lasts 3 months (from January to March) and precipitation is often unpredictable. Agriculture, therefore, needs irrigation, which has traditionally been fed by the melt water of Mount Hualca Hualca, the second highest mountain in the region (Gelles 2000: 50–54) (Figure 3). The melt water is led by a man-made canal from the mountain to the *campiña* ("open country"), the village's largest agricultural area, where most Cabaneños have fields and grow corn. In the *campiña* a labyrinth of smaller canals tap water from the main canal and direct it, first, into larger zones of cultivable land and then to the individual fields that are irrigated 4 times during the planting season. Most of the canals were designed and constructed in pre-Hispanic times, just as the villagers' ancestors made the terraces and the fields they still use to plant their crops.

Until recently, the irrigation system of the *campiña* (Figure 4) used a dual division to distribute irrigation water when the villagers plant their fields (Gelles 2000: 57). The irrigation zones of the *campiña* were divided into

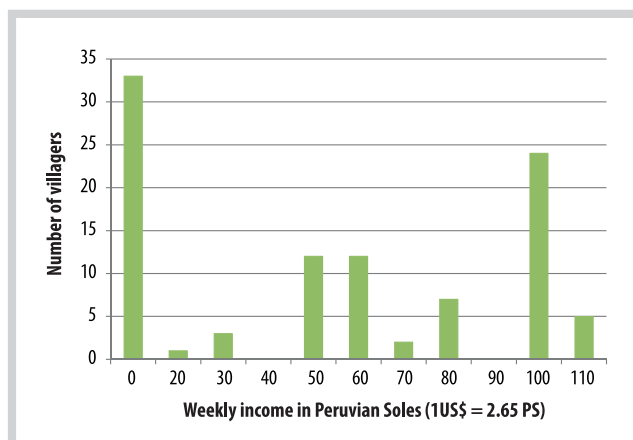
BOX 1: Water offering rituals

When I was young, we all used to walk to Hualca Hualca to make offerings to the mountain. The entire community participated, and people stayed up there for several days. At that time, Hualca Hualca was our main water source and water was always scarce. But now people don't walk up to the mountain anymore. After we started to receive water from Majes [Canal], the regidores paid a specialist to make the offering. Together they walk up the mountain but not to the top. Only half-way up. Today, many regidores don't even bother to make the offering anymore. But this doesn't mean that people make no offerings at all. Many villagers make offerings to their fields and to the abuelitos who live there. The abuelitos are the ancestors who hide behind stones and rocks, and who can attack you if you don't appease them with gifts. The villagers also make offerings to the water but only on their fields and the off-takes where water is led from the big canals to the small canals. When I was a child, my grandparents said we all descended from Hualca Hualca but no one believes that anymore. Really, the Majes Canal has changed all this. The President of the Water Committee in Campiña.

FIGURE 1 The village of Cabanaconde, Peru. (Photo by Karsten Paerregaard)



FIGURE 2 Distribution of villagers' income in Cabanaconde.



2 moieties, called Hanansaya and Urinsaya, a division similar to that found in other Colca villages (Gelles 1994: 248–253; Paerregaard 1997). In this system, the water users of Hanansaya and Urinsaya each elected their own *regidores* (water distributors) every year to allocate water. By starting upstream, the 2 *regidores* engaged in a fierce competition, moving downstream to finish the allocation of water in their moiety first, a showdown that was repeated in the 4 irrigation rounds (Gelles 2000: 98–117). Older villagers recount that the competition served as a means to save water and ensure that everybody, including those having fields downstream, received an equal share. Nevertheless, they also recall that people fought over the smallest drop of water. Indeed, many state that the *regidor*, a duty that all men had to assume once in their lives, was the most onerous office that they had ever occupied in Cabanaconde (Gelles 1994: 248). Similarly, they relate that, during the rainy season, from January to March, when the villagers were free to take water from the canals and irrigate their fields, disputes over water were very common, particularly in years with little or no rain.

FIGURE 3 The glaciers of Mount Hualca Hualca are an important source of water. (Photo by Karsten Paerregaard)



According to Gelles's study of 1987, the Peruvian state made numerous attempts to introduce a state model of water governance, with the aim of making water distribution more efficient; but it encountered stubborn

resistance from Cabaneños (Gelles 2000: 69–74). A small group of villagers supported the state's attempt to modernize water management, but the majority opposed it, pointing to the advantage of using a dual model that

FIGURE 4 The *campiña* of Cabanaconde, the village's largest agricultural area. (Photo by Karsten Paerregaard)



encourages competing *regidores* to make their utmost to reduce water waste. Gelles wrote: “Although the state model has gained ground over the years, many aspects of the local model remain firmly entrenched” (Gelles 2000: 71).

However, when I conducted fieldwork in Cabanaconde in 2011, the president of the water committee in the *campiña* told me that the water users had replaced the communal with a state model of water governance. A locally elected water committee now administers the new system, selling tickets to the villagers and thus authorizing those to claim water from the *regidores*, and whereas the village authorities previously appointed these *regidores*, the water committee now hires them. Moreover, in contrast to the old dual model that was based on a principle of competition and that followed a dual classification of water users, in the new system, the *regidores* allocate water sequentially, that is, from one plot to the next. Finally, the local water committees of Cabanaconde now participate in the regional association of water users based in the provincial capital of Chivay. To acquire membership, Cabanaconde’s water committee pays an annual fee to the association, which, in turn, represents the local water users’ interest in the government-controlled regional and national water institutions (Oré et al 2009: 47–89).

Twenty-five years after Gelles conducted his study in 1987, Cabaneños have become part of a larger institutional structure of water authorities and they now accept to pay tariffs and fees on their use of water. The villagers’ view of this shift is reflected in my interviews with community members and leaders in Cabanaconde. They told me that they approve of the new water governance model because it has helped to solve the many water disputes that the village traditionally experienced. Moreover, they stated that they now have more trust in the state and its capacity to manage water. To understand how this shift in Cabaneños’ irrigation system and in the villagers’ understanding of water governance has been possible, we need to take a closer look at the community’s changing water situation.

In the 1970s and 1980s, the Peruvian state constructed a canal (Figure 5) that leads water from the Colca River through the villages on the southern bank to the coast where it is used to irrigate the fields of Majes. When the project was completed in 1983, it caused much anger in Cabanaconde because villagers were denied water from the canal. The same year, a group of villagers, therefore, took action and made a hole in the canal to access the water. A few days after the action, a local police force arrived at Cabanaconde to arrest the lawbreakers, but they escaped by going into hiding among the rest of the villagers. In the aftermath of the event, the state granted Cabanaconde (and the rest of villages on the south bank of the Colca River) rights to water, and today Cabaneños remember the men who made the hole in the canal as community heroes who bravely stood up against the state

because it denied them the water rights to which they believe they were entitled. More specifically, Cabanaconde has been given the right to tap water from 4 valves in the Majes Canal. Water from the canal is partly directed into the *campiña*, which alleviates the constant demand for water in this area, and is partly used to irrigate more than 1000 ha of abandoned terraced fields and place them back into production.

As a result, Cabanaconde has doubled its land base (Gelles 2000: 66–68); according to my survey, the households now have an average of 1.75 ha of irrigated land compared with less than 1 ha before the community gained access to the Majes Canal. In fact, Cabanaconde now has more land under irrigation than any other community in the region. In the past 2 decades, the state and the regional government have also financed the improvement of the community’s irrigation canals and the construction of several water reservoirs that spare the *regidores* the work of irrigating at night and minimize the waste of water. Moreover, the Peruvian state is planning to add more volume to the Majes Canal. Even though the project is still in the initial planning phase, it has already caused the anger of the population of the neighboring region of Cusco, who say it will tap water from their water sources. In the Arequipa region, however, the affected communities see the project as a future provider of water. Among these communities are Cabanaconde, where several community leaders I interviewed told me that they plan to make new claims to water from the Majes Canal when the project has been completed, just as the village did in 1983. One leader pointed out to me: “The Majes Canal goes through our community and when they enhance the water flow, we have the right to more water.”

Like other Andean communities, Cabanaconde has experienced recurrent periods of water scarcity, and, in 1983, when the community gained access to the Majes Canal it experienced a particularly severe drought (Gelles 2000: 46). At that time, the community’s only irrigated area was the *campiña*, where the average household had less than 1 ha of cultivable land. In the past 30 years, the water situation in Cabanaconde has changed and so has the villagers’ perception of water. In my 2011 survey, 97% of those interviewed affirmed that irrigation water is plentiful throughout the year (Vera Delgado and Vincent 2013: 195–206, in this issue). However, those interviewed entirely agreed that the temperature has increased and that the nearby glaciers and snowcaps that constitute their traditional water source have diminished in the past 20 years. Moreover, 51% affirmed that the duration of the dry and rainy seasons has changed and 47% stated that the rain has decreased in the same period. Analysis of the data indicates that, even though 1 of 2 villagers are concerned about climate change in the form of rising temperatures, melting glaciers, and decreasing rain, there is a consensus that the water situation has improved

FIGURE 5 The Majes Canal. (Photo by Karsten Paerregaard)



significantly since Cabanaconde began to receive water from the Majes Canal.

Although Cabaneños now remunerate the *regidores* and pay for the water that they use to irrigate their fields, they continue to participate in the irrigation committees and cooperate to maintain the canals and reservoirs. My 2011 survey showed that 86% of the villagers are members of Cabanaconde's peasant community; likewise, it revealed that 40% of the water users are, or recently have been, members of Cabanaconde's irrigation committees and participate in the communal works these committees organize to make the community's irrigation system operable. In other words, even though the water users have adopted a state model of water governance, they still have a strong sense of ownership of the irrigation system, just as they continue to perceive water as a common property. Cabanaconde's newly gained access to the Majes Canal may have induced them to recognize the Peruvian state as a legitimate water governor, but the villagers' memories of the 1983 incident and ideas of community

autonomy and reciprocity remain intact, and, as some villagers pointed out to me, they are ready to once again confront the state if they are denied access to the new Majes Canal.

Conclusion

Even though Cabanaconde has resisted outside interference in irrigation for many years, it has now adopted a state model of water governance. The 1983 confrontation with the state through which Cabanaconde gained the right to water from the Majes Canal constitutes a key event in this development. Rather than viewing the incident as a form of resistance against any form of regulation as described by James Scott and reflected in the work of some Andean scholars, I have suggested that we see it as an act of opposition to a water policy that, in the eyes of the water users, is illegitimate. Thus, by taking direct action against the state, Cabanaconde not only accessed new water sources but also revised its own ideas

of power and engaged in a new relationship with the state based on cooperation rather than resistance.

Analysis of my data showed that new forms of cooperation in water management are possible given that Andean communities rethink conventional strategies of resistance and opposition and that the state provides these with new water sources. Cabanaconde has shown how this can be achieved, but it also reminds us of just how thin the line is between cooperation and confrontation. The 1983 incident is still recalled by both water users and authorities in the area, and, as the villagers in Cabanaconde pointed out to me, new conflicts

may be waiting once the new Majes Canal starts operating. Analysis of my data also suggests that, although it is warranted that the Peruvian state invests in water infrastructures, it is equally important that it gives Andean communities a voice in the planning of new water management projects and assures that such projects continue to be based on the cooperation and participation of water users. More bluntly, to overcome Andean communities' distrust, the state must not only provide these communities with more water but also recognize them as key actors in the planning of Peru's future water management.

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