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Power, Inequality, and Water Governance

The Role of Third Party Involvement in Water-Related Conflict and Cooperation

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ABSTRACT

Water governance reforms are underway in many parts of the developing world. They address the principles, institutions, and legal and administrative practices through which decisions are made on the development, allocation, and conditions of use of water resources at all levels of society. As such, water governance—and efforts to reform it—is shaped by and helps to shape the way in which decisions are taken and authority is exercised in fields that extent well beyond water. Based upon research conducted in Condega district, Nicaragua, this paper argues that community-specific power constellations may lead to the existence of radically different water governance regimes among neighboring communities, despite these communities sharing the same national and district-level water policy and associated legal and administrative framework. Moreover, the involvement of community-external third parties to mediate in situations where people's legitimate access to water is challenged provides a promising avenue towards ensuring more equitable water governance. However, institutions potentially serving as such community-external third parties are often too poorly staffed or their staff too poorly supported—technically, economically, and institutionally—to attend to calls for support. Furthermore, in contexts characterized by economic, social, and political inequality, the community-specific power constellations may limit opportunities available to different segments of the rural population for calling upon community-external third parties in cases when their legitimate access to water is hampered by the locally powerful. Ensuring that all rural citizens enjoy equal opportunities for calling upon third party institutions constitutes a challenge to local water governance.

Keywords: Water governance, conflict, power relations, Nicaragua, competition, third party mediation

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Ligia Gómez and Helle Munk Ravnborg[1]

1. INTRODUCTION

In February 2009, people in Daraylí, a small rural community of about 65 households in the eastern part of Condega district, Nicaragua, experienced eight days without water in their public water taps. Farmers in the upstream community Venecia had installed polythene tubes into the spring that feeds the water system in Daraylí in order to irrigate their vegetable crops, and thereby significantly reduced the amount of water running into tanks for the public water supply. The irrigated fields were visible from Daraylí, so a few members of the Daraylí water committee decided to climb the mountain to ask the vegetable farmers to reduce their use of water and thus allow the water tanks in Daraylí to fill up again, however, with no success. Hence they decided to call upon the district authorities to ask for their help in mediating between them and the vegetable farmers in Venecia. With reference to Condega district bylaw which prohibits irrigation in the dry season during day hours, the district environmental officer first instructed the vegetable farmers to remove their polythene tubes from the spring to allow the water tanks of Daraylí to fill up again and then succeeded in forming a written agreement between the parties to alternate in using the spring water, so that the vegetable farmers would irrigate their crops on even days, thus allowing the water tanks to fill up on odd days.[2]

Water governance can be defined as processes through which decisions are made on the development, allocation, and the conditions of use of water resources at all levels of society. It involves the interactions between political, social, economic, legal, and administrative institutions—statutory as well as customary or informal—that determine how decisions are taken and how authority is exercised (Graham et al. 2003; Rogers and Hall 2003; Cleaver and Franks 2005; Merrey et al. 2007; Ratner et al. 2010). As such, and as pointed out by several authors (for example, Graham et al. 2003; Cleaver and Franks 2005), governance is not intrinsically "good", but can be "bad" as well as "good" depending on the outcomes of these processes and depending upon who is asked to judge (Cleaver and Franks 2005:4).

Recent years' efforts to reform national water policies and the associated legal and administrative frameworks in a number of countries (Aagaard and Ravnborg 2006) can be seen as efforts to strengthen water governance, that is, to formulate policy objectives and ensure that legal and administrative frameworks at the various levels contribute to an achievement of these objectives. Yet, as pointed out in the 3rd World Water Development Report, many components of ongoing water reform are part of broader governance reform agendas, such as those related to decentralization and participation (WWAP 2009:246). Thus, at each level,

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[2] This series of events is illustrated in the video report "Competing for Water – the challenge of local water governance" (www.diis.dk/water/videoreports).

ranging from the family, over the community and district, to the national and international level, water governance is shaped by and helps to shape the way in which decisions are taken and authority is exercised in fields that extend well beyond water, such as allocation of land, public investments, and taxation.

Despite sharing the same national water policy and associated legal and administrative framework, and despite even being located within a single district and thus being subjected to the same district bylaws and the same level of enforcement of existing legal frameworks, the actual water governance regime in one community may turn out to be radically different from that in another community. This means that the extent to which fundamental principles written into national legislation, such as that of assigning priority to the domestic use of water over the use of water for productive purposes, are not equally adhered to at the community level and that the extent to which community members are able to call upon third parties to protect their legitimate right to water also varies from one community to another. Such differences, this paper argues, depend not only upon the characteristics of the hydrological resource and the actual water uses, but also upon the wider governance regimes and power relations that prevail in such communities.

This paper is based upon research conducted in Condega district, Nicaragua, between 2007 and 2009 as part of the Competing for Water research program.[3] Following brief descriptions of the methods employed and data produced as part of the research (Section 2), of the national and district level policy, legal, and administrative water governance framework in Nicaragua and specifically in Condega district (Section 3), and an overview of the extent, character and nature of water-related conflict and cooperation in Condega district (Section 4), the paper analyses the involvement of third parties in water-related events both in the district in general (Section 5) and specifically in two rural communities where in-depth research was conducted (Section 6).

The paper argues that in the context of inequality, leaving rural communities and their diverse segments of inhabitants and water users to deal with decisions about the allocation and the conditions of use of water provides no guarantee that domestic water use is assigned priority over productive water use, nor that all rural inhabitants enjoy equal opportunity to use water productively at a small scale, despite these being the intentions of the underlying national water policy, local cultural, religious or social norms, and international agreements (Gómez et al. 2007; Government of the Republic of Nicaragua 2007a). In line with insights gained from, for example, forest governance (Anderson and Ostrom 2008), the paper proposes that access to involve third parties, in particular community-external third parties, provides an important avenue for promoting more equitable access to water for domestic and productive purposes. Besides pointing to the importance that such external parties be available and adequately equipped both in terms of technical skills and institutional support from district and national administrative institutions as well as from legal authorities, this paper argues that community-level power relations influence the opportunities available to different segments of

[3] The research program is entitled "Competing for Water: Understanding conflict and cooperation in local water governance" (www.diis.dk/water).

rural communities for calling upon community-external third parties in cases when their access to water is hampered by the water abuses of others.

2. METHODS AND DATA

The paper draws on three sets of empirical data produced with reference to Condega district as part of the Competing for Water program. The first of these sets is an inventory of water-related conflictive and cooperative events and situations (Ravnborg et al. forthcoming; Rivas et al. 2010). The Competing for Water program defines a water-related event as "an action (or a set of actions) that seeks to secure one or more parties' access to or use of water by (i) challenging other parties' access or use; (ii) confirming own or other parties' access or use; or (iii) collaborating with other parties to secure access or use," while a water-related situation is defined as "a social situation where two or more parties have actual or potentially competing interests in the same water resource" (Ravnborg et al. forthcoming). Based on interviews with community members as well as a wide range of actors from outside the community undertaken in or with reference to 10 communities sampled through a geographically stratified sampling procedure, a total of 198 public, water-related events were identified to have taken place between 1997 and 2007. Using the proportion that the population of the sample communities constitutes of the total rural population of Condega district as the extrapolation factor, it is estimated that a total of 860 public water-related events took place in Condega district between 1997 and 2007.[4, 5] These events represented a total of 351 water-related situations.

The second set of empirical data is provided through a questionnaire-based survey on household poverty, access to water for domestic and productive purposes, and access to water governance institutions. The survey was conducted in 2008 and was administered to 395 households, selected a random sample of rural households in Condega district through a two-step sampling procedure (Paz et al. 2011). Inspired by the reservations expressed by Sen (1981, 1985) towards understanding and measuring poverty and well-being solely on the basis of income or expenditure data, the poverty profile was developed on the basis of people's own perceptions of poverty, identified through well-being rankings. The rankings were conducted in three communities, selected through a maximum variation sampling strategy with respect to factors which could potentially lead to the existence of different perceptions of well-being. The descriptions of different poverty levels resulting from the rankings were 'translated' into indicators. A set of 10 indicators was identified. The indicators cover aspects related to demography, sources of livelihood, and living conditions, and were made quantifiable through the formulation of a household questionnaire.

[4] The extrapolation factor was calculated as the inverse of the proportion of the sample population (= 3,863 persons) to the district's rural population (= 18,562 persons), that is, 1/0.2081= 4.8054.

[5] The term "public water-related events" refers to events which involve two or more parties of which at least one party represents or is comprised of individuals from more than five households, or involve at least three different types of parties, for example fishers, an industry and domestic water consumers.

A scoring system was designed according to which a score (33, 67, or 100) was assigned to each household for each of the 10 indicators depending on the characteristics of the household with respect to each of the indicators. For each household, the scores obtained on each of the 10 indicators were combined into a poverty index, calculated as the arithmetic mean of the scores obtained on each of the indicators. On this basis, three poverty categories were defined, namely the poorest, the less poor, and the nonpoor households. Following this procedure, qualitative poverty descriptions are turned into an absolute but locally informed poverty measure. For a more detailed description of the methodology, please refer to Ravnborg et al. (1999) and Paz et al. (2011).

Apart from the questions necessary to quantify the poverty indicators, the questionnaire contained sets of questions aimed to establish the access enjoyed by the household to water for different purposes such as domestic (drinking, washing, and bathing) and productive uses (for example, irrigation, livestock, and fishing), and contact with water governance institutions.

The third and last set of empirical data was made available through qualitative inquiries conducted in the communities, San Isidro and Los Claveles, in Condega district during 2009.[6] Based on the inventory of water-related events, a number of themes that seemed to be associated with water-related conflict and cooperation had been identified. One of these themes was the importance of the community-specific configuration of power relations in determining how conflict and cooperation evolve when individuals and groups of individuals have their access to water for domestic purposes denied. San Isidro and Los Claveles were identified as two among the 10 communities where inventory work had been conducted which resembled each other with respect to the character and nature of the water-related events, but differed with respect to the configuration of power relations. Thus, the qualitative inquiries were conducted in order to provide more detailed understanding of the processes and relationships through which access to water is obtained, secured, and lost in the two communities. A range of techniques were employed as part of this inquiry, including mapping of social, economic, and political relationships, livelihood mapping, and focus group interviews with different types of community members such as community leaders, de facto single female household heads, newcomers, and so on. (Paz et al. 2010a; Paz et al. 2010b).

3. THE WATER GOVERNANCE FRAMEWORK IN NICARAGUA AND IN CONDEGA DISTRICT

In May 2007, the Nicaraguan Assembly approved the National Water Law which had been under way for some years and shortly after, in November 2007, the regulation of the National Water Law was issued and published (Government of the Republic of Nicaragua 2007a; 2007b). The National Water Law establishes water as "a national patrimony held in custody by the state to promote economic and social development through the protection, development and sustainable use of water while preventing its privatization." A central—and much disputed—feature of the Nicaraguan water law is the introduction of a water use permit system to be

[6] The names "San Isidro" and "Los Claveles" are fictive names, adopted in order to protect the identity of individuals mentioned and interviewed.

administered by the National Water Authority, a new organizational figure, through watershed and catchment organizations. The law establishes that in the allocation of water use permits, priority should be assigned to water for human consumption over other uses such as agricultural, ecological, and industrial uses.[7] It moreover exempts individuals from having to apply for a water use permit for their use of water for domestic purposes and for watering animals, as long as water is made available manually or mechanically using human or animal traction.[8] Farmers who wish to use water for small-scale irrigation are exempted from the need to obtain a water use permit for which an annual fee should be paid, but should instead apply for an authorization from the district administration, provided that the district administration has a signed collaboration agreement with the National Water Authority.[9, 10] In addition, the district governments have the faculty to develop and seek approval for district bylaws with respect to water governance within the overall framework of the national water law.

Community-level organizations play an important role in negotiating and establishing access to water. Nicaragua has approximately 5,000 community-based water committees administering rural drinking water supply schemes (Enlace 2008). During the past decades, these committees have received support to varying degrees from the district governments, from the national water supply agency (ENACAL), and from national and international development agencies and NGOs. Following the passage of a recent law, these drinking water and sanitation committees, known as CAPS, are intended to receive support from the Nicaraguan Institute for Water and Sewages (INAA) and are requested to obtain legal status to allow them to own, administer, and maintain drinking water supply systems (Government of the Republic of Nicaragua 2010). Often it has been the task of the drinking water committees to negotiate the rights of access to the water source feeding the community drinking water supply schemes, whether through oral or written agreements, at times requiring some form of compensation to the owner of the land of the water source. In addition, drinking water committees often play a role in the allocation of drinking water within the community, and are envisaged to continue doing so according to the new law, as well as in representing the community to external parties in water-related issues.

Despite the approval of the National Water Law in 2007, several of the key instruments envisaged in the law, including the water permit system, have not yet been put in place and it was not until mid-2010 that a director general was appointed for the National Water Authority. Thus, to a large extent, rights to water continue to be established through land ownership-based claims to water. Those who do not enjoy land ownership-based access to water may establish water access through negotiated agreements with those who do, either sanctioned by oral agreements or through more formalized but not fully legal agreements sometimes signed in front of a notary (Ravnborg 2006; Gómez et al. 2007). As the example below illustrates, water governance is thus performed on an ad hoc basis by

[7] Articles 46 and 66

[8] Article 67

[9] Small-scale irrigation is defined as less than three hectares of land or less than 3,000 m3 of water per month (article 43)

[10] Articles 41 and 43

community-based organizations, district authorities, the drinking water agency occasionally supported by the ministries of health and environment, the police, and others.

Condega district is a small rural district (398 km2) situated in northern Nicaragua. It is home to a population of approximately 30,000 persons of whom two-thirds live in rural communities and the remaining third live in Condega town. Altitudes range from around 520 to 1,500 meters above sea level, with the Pan-American Highway cutting across the district, dividing it into a western densely populated drier part and an eastern more sparsely populated and more humid part. Approximately two-thirds of the 56 rural communities in Condega district have some form of domestic water supply, with public taps being fed either by gravity with water from local springs or by pumps installed in drilled boreholes. Farming, often combined with livestock keeping, constitutes an important source of livelihood as do seasonal and more permanent migration to neighboring regions and countries. Irrigation is becoming increasingly important, including both medium-scale motorized irrigation using river water for the cultivation of tobacco, and small-scale gravity-based irrigation using water from the numerous natural springs in the mountains for the cultivation of potatoes, tomatoes, and other crops during the dry season. Based on a questionnaire survey conducted in 2001, we estimate that approximately 400 farming households use water for small-scale irrigation (Ravnborg 2002).

Following years of public discontent with the growing use of water for irrigation during the dry season, Condega district decided in 2009 to use its faculty to regulate the use of river water for irrigation during the dry season in order to prevent the growing number of conflicts arising between domestic water users and tobacco growers pumping water out of the rivers.

Even before the 2009 rainy season was over, people in Condega district were aware that the following dry season would probably be a tough one. Up until November 2009, the area had received a total of 200 millimeters of rain compared to an average of about 800 millimeters. On top of that, from 2005 to 2009 the district had experienced a 50 percent increase in the tobacco area (Sevilla Fajardo 2009). Tobacco seedlings are transplanted at the end of the rainy season and are then irrigated during the dry months until harvest time, usually between late February and April. Hence, the number of complaints and conflicts between tobacco growers and the rest of the population—who need water for their animals, for washing, but also to drink—had increased markedly.

Taught by previous years of experience with the problems caused by the use of water from the rivers for the irrigation of tobacco in the dry season, the District Environmental Commission discussed the situation during its meetings in September and October 2009. It decided to recommend the District Committee to institute a provisional ban on tobacco cultivation along the rivers that were at highest risk for running dry and supply many citizens in the district, including in Condega town, with water for drinking and washing. The ban stayed in force until the start of the next rainy season, in the middle of 2010. At the same time, the District Environmental Commission developed and approved a district bylaw in consultation with local citizens and tobacco growers to control the use and protection of local water resources (Alcaldía de Condega 2009). The bylaw, approved in December 2009, stipulates that each year only water-saving irrigation

technology such as drip irrigation systems may be used for irrigation after February 28, while all other forms of irrigation must cease after that date.

The district received assistance from both the local press and national authorities to develop, disseminate, and enforce the provisional ban as well as the district bylaw. Thanks to this carefully timed intervention, Condega district authorities helped to avert what could have developed into an even more serious situation.

4. AN OVERVIEW OF THE CHARACTER, NATURE AND EXTENT OF WATER-RELATED CONFLICT AND COOPERATION IN CONDEGA DISTRICT

Rather than dichotomous and mutually exclusive phenomena, conflict and cooperation about water are interwoven in flows of action where conflictive and cooperative events sometimes succeed one another, sometimes mutually overlap. Mainly cooperative water-related situations, where parties cooperate to overcome potentially competing claims to water, evolve over time and may involve sudden drawbacks where disagreements on specific conditions of access emerge. Likewise, mainly conflictive situations, where parties confront each other about access to and management of a water resource, may get resolved, whether to the equal benefit of all or to the exclusive benefit to some of the involved parties.

Cooperative and conflictive situations appear to be equally frequent in Condega district. Of the 351 water-related situations that gave rise to conflictive and cooperative events between 1997 and 2007 in Condega district, 37 percent were mainly conflictive, 45 percent mainly cooperative, and the remaining 18 percent equally conflictive and cooperative.

Overall, 56 percent of water-related situations within which events took place between 1997 and 2007 in Condega district involved people who wanted to use a water resource for the same purpose, typically as drinking water, while the remaining 44 percent of water-related situations involved people who wanted to use a water resource for different purposes.[11] Eight out of ten of the multiple-use water-related situations, meaning situations between parties who wish to use the same water source for different purposes, involved potential competition between domestic and productive uses (irrigation or watering of livestock), primarily related to competing claims of access to water, deviation of water, and water management rules. In general, multiple-use situations were more likely to be conflictive than single-use situations.[12]

The vast majority of the water-related situations affecting people in Condega district took place between parties belonging to the same community (89 percent of the 351 water-related situations). Ten percent of the water-related situations affected people belonging to two or more communities within a district, and one percent of the water-related situations affected people in communities in more than one district. As would be expected, intercommunity and interdistrict situations tend

[11] Three quarters (75 percent) of the single-use water-related situations were related to drinking water, primarily related to efforts by rural inhabitants to obtain external support for constructing or improving drinking water supply infrastructure.

[12] Correlation between single/multiple water-related situations and overall character of water-related situations significant at 0.001 level (Pearson's' chi-square test).

to affect more people than intracommunity situations. Nevertheless, due to the much higher frequency of intracommunity situations, the total number of people estimated to having been affected by intracommunity water-related situations between 1997 and 2007 amounts to 56,000 people (implying that on average each person in rural Condega has been affected by three different water-related situations during that period), whereas the estimated number of people having been affected by intercommunity water-related situations amounts to 18,000 persons (an average of one intercommunity situation per person), and the number of people affected by interdistrict water-related situations was estimated at 5,000 persons (an average of less than 0.3 interdistrict situation per person in rural Condega).

5. THE IMPORTANCE OF THIRD PARTY INVOLVEMENT

The case that introduces this paper, from the communities of Daraylí and Venecia in Condega district, illustrates the importance of being able to call upon third parties in cases where issues relating to the allocation and use of water cannot be settled directly by the competing parties. Although by no means providing a guarantee, the involvement of third parties offers an opportunity to ensure that the allocation of water and the conditions for its use meet the needs not only of the powerful local water users (in the example above, the irrigation farmers in the upstream community of Venecia) but also of the less powerful water users (the domestic water users in the downstream community of Daraylí).

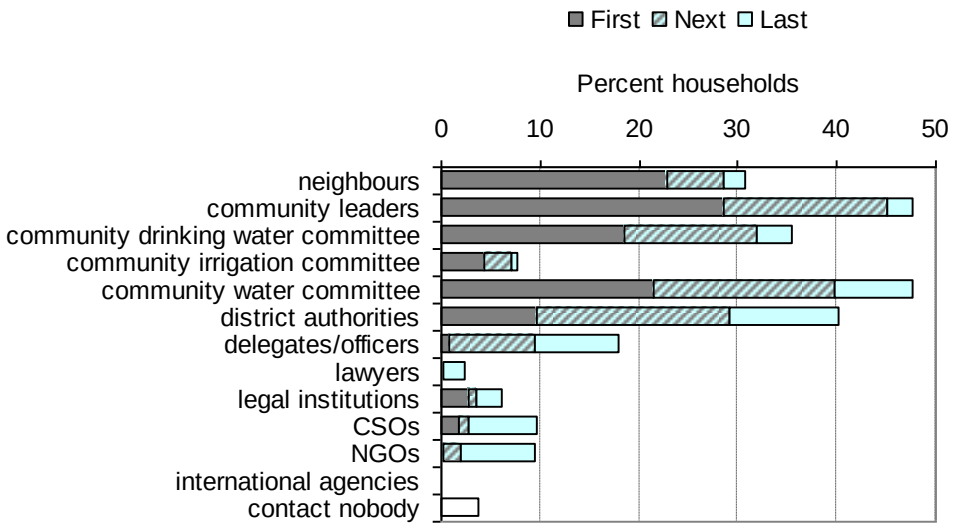
Our analysis shows that in Condega district, people prefer to settle water-related issues directly among the parties involved before calling upon third parties. When third parties are called upon, people prefer to call upon community-based institutions, such as a local leader or a community water committee, before calling upon community-external third parties. In our household questionnaire survey, we asked where households would go first, second, and third if (a) their most important drinking water source ran dry and (b) if somebody used so much water that not enough water was left for them. Figure 1 shows the responses to these questions.[13]

[13] No significant correlation at 0.05 level was found between the responses to these questions and household poverty level (Pearson's chi-square test).

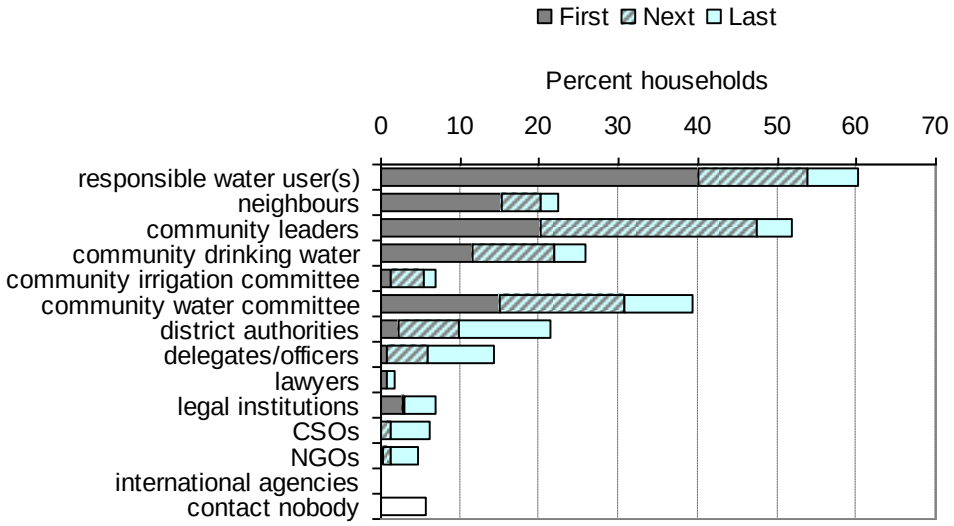
Figure 1: Where would you go—first, second, and third—if (a) Your most important drinking water source ran dry and (b) not enough water was left available for you because somebody used a lot of water? Condega district

Percent households (N=395 households, options ordered according to physical and/or organizational distance from respondent.

(a) Your most important drinking water source ran dry?



(b) Not enough water was left available for you because somebody used a lot of water?



Source: Household questionnaire survey on household poverty and access to water and to water governance institutions conducted by the, Competing for Water program, 2008.

In Condega district, third parties were called upon in 65 percent of the 351 water-related situations corresponding to in half (50 percent) of the 860 water-related events which took place between 1997 and 2007. In 96 percent of these situations where third parties were called upon, community-external parties were

called upon (either exclusively or in combination with community-based third parties). Hence, despite the stated preference for first calling upon community-based authorities (Figure 1), the data on the actual water-related events that took place between 1997 and 2007 demonstrate the need for community-external third parties, whether they are called upon directly by the parties to the water-related situation or by community-based authorities acting on behalf of one or more of the parties to the situation (see also Figure 3 below).

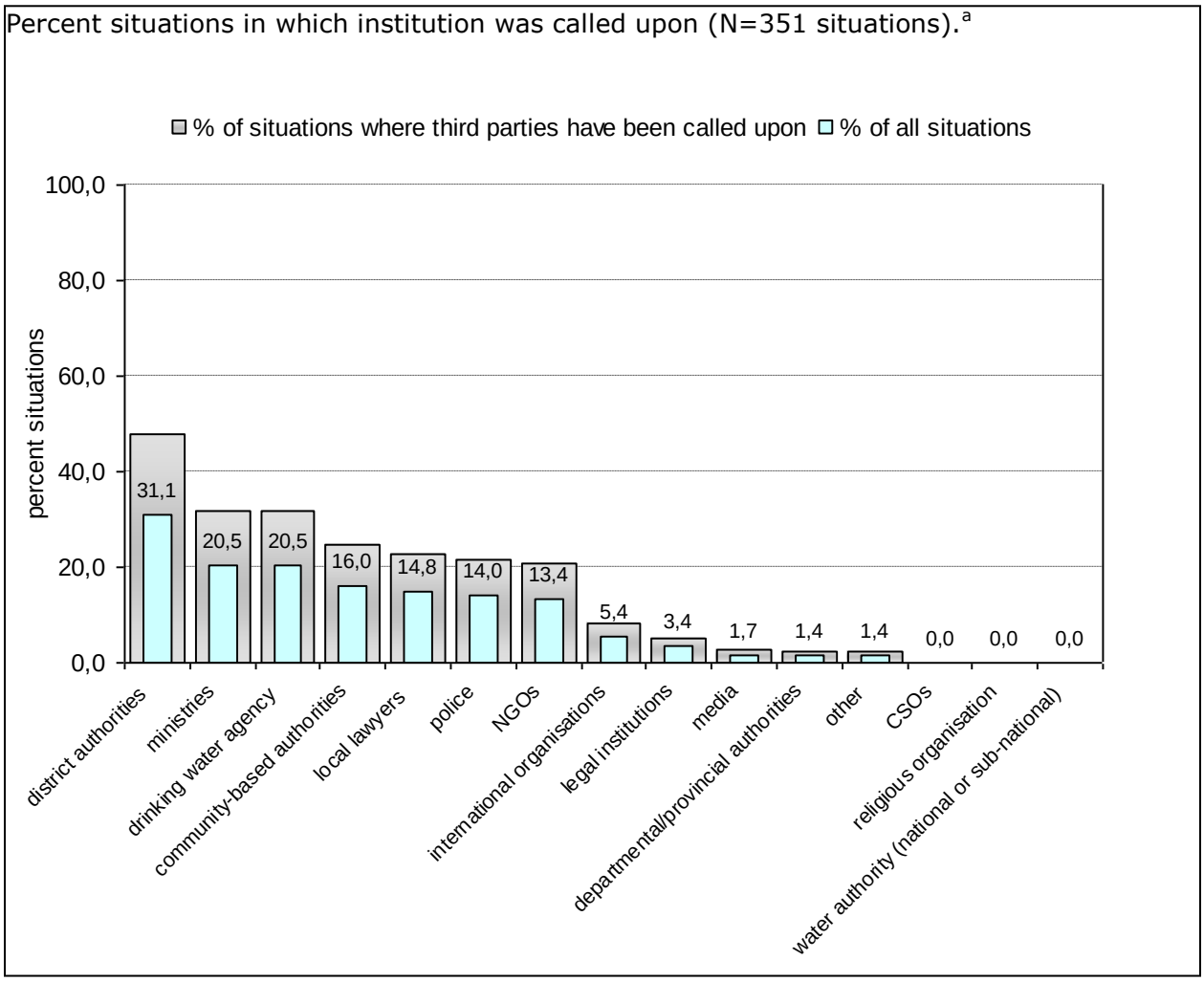
Third parties—community-based as well as community-external—are more likely to be called upon in the mainly conflictive water-related situations than in the mainly cooperative situations.[14] In Condega district, third parties were called upon in 76 percent of the mainly conflictive water-related situations compared to 57 percent of the mainly cooperative situations and 63 percent of the equally conflictive and cooperative situations. As illustrated in the case from Daraylí and Venecia, described above, in the mainly conflictive situations third parties tend to be called upon to mediate as well as to help negotiate and endorse agreements between the competing parties whereas in the mainly cooperative situations, third parties are also called upon to provide technical support for elaborating and soliciting funding, for example, for water development projects.

As described above, Nicaragua's new water law and the associated regulatory framework assign specific water governance mandates to the district administration and to watershed and catchment committees. In addition, the recent law on community-based drinking water committees (CAPS) formally recognizes the role of community-based water supply committees. Although the water law and its regulation were only approved in 2007, several efforts had been made to create watershed and catchment committees prior to the approval of the law, particularly in the western part of Condega district in the years following Hurricane Mitch in 1998.[15] However, a comparison of the list of institutions that holds statutory water governance mandates according to the legal and regulatory framework to the list of institutions that were actually called upon as third parties to the water-related situations taking place between 1997 and 2007 reveals notable differences. As shown in Figure 2, several of the institutions called upon as third parties are not formally designated to play a role in water governance. These include local lawyers, the police, NGOs, and the media, while institutions with statutory water governance mandates such as water authorities at national (INAA), watershed, or catchment level were not called upon in any of the 351 water-related situations that took place in Condega district between 1997 and 2007.

[14] Significant correlation at 0.001 level (Pearson chi-square test)

[15] These efforts include micro-watershed committees promoted by the NGO CARE and the Estelí river association created around year 2000 to coordinate development and management efforts in the five districts that share the Estelí River.

Figure 2. Institutions called upon as third party to the water-related situations occurring in Condega district, 1997–2007.



Source: Inventory of water-related events occurring from 1997–2007, Condega district conducted by the Competing for Water program, 2007–2008.

[a] Please note that percentages do not add up to 100.0 because multiple institutions may have been called upon as a third party to a single water-related situation.

Very few people—not only in the rural communities but also within institutions such as the police or the drinking water authority—would know of the existence of specialized watershed committees often created as part of externally-driven initiatives, whereas everyone would know of the district administration, the police, and ENACAL (the drinking water authority), the latter due to international support that for a large part of the period between 1997 and 2007 has enabled the presence of technical staff both in Condega town and for visiting rural communities. Several factors make the district administration a natural "first stop" to people who wish to call upon external third parties.[16] First among these, all roads and the bus

[16] It is primarily the elected mayor (and vice-mayor), the district environmental officer (administrative staff), and the district council (through its monthly meetings) who are called upon as third parties, while individual district counselor often living in the communities are called upon as third parties in a very small proportion of the situations where district authorities are called upon as a third

routes that operate in rural Condega connect rural communities to Condega town. Second, the fact that the district administration has implemented an explicit policy of public attendance allows people in rural communities to know when to contact district staff, and thus not waste time and money when going to Condega town. Third, through its institutionalization of collaboration and coordination with other public authorities, the district administration also serves as a platform through which to establish contact to such other public authorities. For example, the district administration interacts regularly with the police and the departmental delegation of the Ministry of Environment through the monthly District Environmental Commission meetings.

6. INEQUALITY, POWER RELATIONS AND ACCESS TO COMMUNITY-EXTERNAL THIRD PARTIES IN TWO RURAL COMMUNITIES, CONDEGA DISTRICT

Like in Nicaragua in general, distribution of assets such as land and livestock is unequal in Condega district. Approximately half of the rural households in Condega district are landless and 3.6 percent of the land owning households own 42 percent of the agricultural area while the 44 percent of the land owning household who have the smallest farms own five percent of the agricultural land (see Table 1).[17] Likewise, eight percent of the cattle registered during the 2001 agricultural census belong to the 722 farms smaller than 3.5 hectares while 36 percent of the cattle belonged to the 59 farms larger than 70 hectares in the district.

party.

[17] According to the household questionnaire survey conducted by the Competing for Water program, 47 percent of all rural households do not own any land. One third of these landless household access land through sharecropping arrangements ('cultivan a medias') or through renting in land.

Table 1: Distribution of agricultural land and cattle in Condega district, 2001

Size of land holding (ha)	Number of land holdings	Percentage of total number of land holdings	Total area (ha)	Percentage of total agricultural area	Average land holding size (ha)	Number of land holdings with water source	Land holdings with water source as percentage of total number of land holdings	Number of land holdings with cattle	Land holdings with cattle as percentage of total number of land holdings	Total number of heads of cattle	Percentage of total number of cattle
=<3.5	722	44.2	1,259	5.2	1.7	239	33.1	245	33.9	864	7.6
3.51 – 14	570	34.9	4,398	18.2	7.7	341	59.8	404	70.9	2,510	22.1
14.01 – 35	222	13.6	5,245	21.7	23.6	168	75.7	187	84.2	2,527	22.3
35.01 – 70	61	3.7	3,173	13.1	52.0	57	93.4	57	93.4	1,310	11.5
70.01 – 140	38	2.3	3,865	16.0	101.7	34	89.5	34	89.5	1,635	14.4
140.01 – 350	18	1.1	3,765	15.6	209.2	18	100.0	18	100.0	1726	15.2
> 350	3	0.2	2,451	10.1	816.8	3	100.0	3	100.0	773	6.8
All land holdings	1,634	100.0	24,156	100.0	14.8	860	52.6	948	58.0	11,345	100.0

Source: 2001 Agricultural Census

According to the household poverty profile developed as part of the Competing for Water program (Paz et al. 2011), 45 percent of the rural households in Condega district were characterized as poor, whereas 23 percent of the rural households were characterized as nonpoor and the remaining 32 percent of the rural households were characterized as less poor. As an indication of the poverty level, two-thirds of the poorest households experienced a period of household food insufficiency during 2007/2008 and for close to one-third of the poorest households, this period of food insufficiency lasted two months or more (Table 2). Table 2 confirms the unequal distribution of productive assets such as land and livestock in Condega district and the strong correlation between ownership of productive assets and household poverty level. Close to 90 percent of the nonpoor households own land and livestock whereas this is the case for only 28 percent of the poorest households with respect to land and seven percent of the poorest households with respect to livestock.

Table 2: Food insufficiency and asset ownership by household poverty level, Condega district (rural)

Percent households per poverty level (N=395 households)

Characteristics or asset ownership	Household poverty level			All poverty levels (N=395 households)
	Nonpoor (n=89 households)	Less poor (n=127 households)	Poorest (n=179 households)	
Have experienced a period of insufficient food***	11.2	29.9	66.5	42.3
Have experienced a period of insufficient food that lasted 2 months or more***	2.2	9.4	30.7	17.5
Own land***	89.9	61.4	27.9	52.7
Landless but access land through sharecropping or renting***	5.6	13.4	26.8	17.7
Own land with water source at land***	47.2	27.6	19.6	28.4
Own livestock***	87.6	39.4	7.3	35.7
Own > heads of cattle***	64.0	11.0	1.1	18.5
Use public water supply (gravity-fed or borehole) as most important water source for cattle watering during dry season***	16.9	6.3	0.0	5.8

Source: survey data
*** Correlation with household poverty level significant at 0.001 levels (Pearsons' chi-square test)

San Isidro is a rural community located in the densely populated Western and relatively dry part of Condega district. According to local accounts, the community was founded in the early 20th century and for a long time it was inhabited only by a few families who had arrived from Nicaragua's pacific region in

search for land for crops and livestock as part of one of the first waves of colonization (Maldidier and Marchetti 1996). This situation changed drastically following the earthquake in Managua in 1972, which made hundreds of thousand people homeless. Many of the victims chose to leave Managua and came to rural areas in many parts of Nicaragua, including to San Isidro, in search for a new livelihood. Some managed to obtain a small piece of land where they could grow maize and beans and perhaps keep a few animals, but many just obtained a piece of land where they could construct a new home. Following decades of instability caused first by the war against the dictatorship of Somoza during the 1970s and then by the national resistance during the 1980s, many families chose to engage in temporal migration, to Costa Rica for example, rather than pursuing their livelihood through small-scale farming in the community. The 2005 national population census stated that 14 percent of all households from the microregion where San Isidro is located engage in international migration compared to 11 percent of all rural households in Condega district (INIDE 2008). In addition, households also engage in national labor migration and our survey found that more than a quarter of all rural households in Condega district had received income from family members living and working outside the community during the year 2007/2008. Thus, many households are de facto female-headed, while the husband is away working elsewhere.

The community has a spring which feeds a small stream passing close by the community. The family regarded as the founding family of the community owns the land where the spring is located. Today, this spring forms the basis for the gravity-fed public water supply scheme, which contains more than a dozen public water taps that serve the community. The scheme was constructed during the early 1990s and rehabilitated in 1999 following Hurricane Mitch, which caused severe damage when it passed Nicaragua in 1998. Both the initial construction of the water supply scheme and the rehabilitation was undertaken by the Nicaraguan water agency through financial support provided by the Swiss Development Cooperation.[18] Before the construction of the scheme, people took water from the small stream or constructed small ponds or wells along the stream, and livestock was watered along the stream. However, following Mitch and the rehabilitation of the water supply scheme in 1999, the stream has dried out and livestock is therefore taken to the public taps to drink.

The community leadership has been stable in San Isidro over the past decades. Despite changing national governments, the founding family of the community together with two other landowning families have constituted the community leadership in its different forms, ranging from the so-called Juez de Mesta appointed by Somoza prior to the Sandinista revolution to the community leader appointed by the district major (himself appointed by the Sandinista government) during the 1980s, the community council of the 1990s (elected by the community members), and since 2008, the current "people's power committee". They also constitute the community water committee. Thus, the community can be characterized as having a uni-polar power constellation.

Los Claveles is located in the less densely populated and more humid eastern part of Condega district. During the early part of the 20th century, two large

[18] These activities were undertaken by INAA and later ENACAL

estates were established in the area, mainly dedicated to livestock keeping (Octupan 2004). In addition to subsistence farming, small-scale farmers, often living as colonos at the large estates, provided labor to these estates as well as to the large coffee farms that were established also during the early part of the 20th century in the neighboring uphill communities. Small-scale farming combined with day-laboring on neighboring farms continues to constitute the principal source of livelihood for the majority of households in Los Claveles and, according to the 2005 national population census, only four percent of households in the microregion where Los Claveles is situation engage in international migration.

Through the end of the 20th century, the two families owning the two large estates in Los Claveles constituted the community leadership, serving as Juez de Mesta under Somoza and later during the 1980s Sandinista government serving as the appointed community leaders. During this time, they managed to secure external funding and technical support for establishing the community water supply scheme, using water from a spring located at an uphill cooperative farm. However, following the end of the national resistance during which heavy fighting took place in the eastern and hilly part of Condega district, and as part of the peace agreement reached in 1990, former soldiers both from the Sandinista army and from the resistance movement were allocated land in the area, including in Los Claveles, and this broke the dominance of the traditional land owning families. Since 1992, the leadership of Los Claveles (the community council, the water committee, and so on) has consisted of three of the families that were allocated land as part of the 1990 peace agreement. Despite the new community leadership, many inhabitants in Los Claveles continue to be loyal to the traditional landowning families on whom they depend for employment and for help, such as in times of financial difficulties or when in need of transportation for sick family members. Thus, effectively, the community can be described as having a bi-polar power constellation.

In the period from 1997 to 2007, 21 water-related events took place in San Isidro and 39 water-related events took place in Los Claveles. Considerable similarities exist between the two communities in terms of the character and the nature of the water-related events that took place. In both communities, the events were equally distributed among conflictive and cooperative events and the majority (90 percent) took place within the respective community. Multiple-use events, meaning events where people wanted to use the same water for different purposes, constituted around 40 percent, and typically occur between people who use the water for domestic purposes on the one hand, and people who use the water for productive purposes (irrigation and/or for watering livestock) on the other, or between people who use water for different domestic purposes, such as drinking on the one hand washing of clothes or bathing on the other hand.

In San Isidro, a number of the water-related events which took place between 1997 and 2007 related to a situation where individual community members had constructed private tanks for storing water and thereby facilitated their own use of water for watering animals and for small-scale irrigation of tomatoes and gardens around their houses. As already indicated, the capacity of the spring that feeds the public water supply scheme had decreased after Hurricane Mitch in 1998, and therefore rules had to be established at the community level to ensure that water from the public taps was to be used exclusively for domestic

purposes. In addition, at certain times of the year, the system has to be operated so each sector of the community only received water every second day in order to ensure that the pressure in the system is high enough to allow water to reach taps located at the tail end of the system.

The fact that some community members fill their private tanks during the days when their sector receives water implies that other people living in the same sector have to wait long hours in order to fill their buckets to bring water to their houses. One family who in this way suffered from the abuse of water from their neighbor made the effort to call the ENACAL technician working in Condega district to establish and rehabilitate rural drinking water supply schemes. However, shortly after the visit of the technician, the owner of the tank threatened individual members of the family that had requested the visit, saying that he couldn't guarantee their personal safety. According to many community members, the owner of the tank is known for his aggressive character. In addition, he happens to be one to the members of the community leadership, including the water committee, and through his active membership of the National Union of Farmers and Livestock Keepers (UNAG) he enjoys good contacts to external organizations. Thus, instead of insisting that preference should be given to domestic water use, a new water tap was constructed as a result of the mediation of the technician from the water agency, thereby freeing families in this specific sector of the community from having to use the same tap as the person with the tank. In this case, a third party was called upon, although with a somewhat dubious outcome. However, in many cases that we were told about in the community, people prefer not to call upon third parties despite having their rights to water denied through the abuse of water by other and more influential community members. As some women told us, these persons are "uncomfortable" persons. Therefore, as they explained, "if they are fetching water, filling their tanks, I prefer to wait and fetch the little water which is left" (personal communication, Woman A, San Isidro 2009)."Those who are in the water committee are the same people who have constructed tanks; it is better not to say anything in order not to get into trouble" (personal communication, Woman B, San Isidro 2009).

Despite the similarities, and the fact that both communities are situated along good gravel roads approximately 20 kilometers from Condega town, significant differences exist among these two communities in terms of the extent to which third parties have been called upon, for example, to help mediate in conflicts, negotiate and monitor agreements, and provide support for maintenance of damaged or inadequate drinking supply infrastructure. As shown in Table 3, third parties—in particular community-external third parties—were called upon in two-thirds of the events taking place in Los Claveles while this was the case in less than one third of the events in San Isidro. As a result, whereas in San Isidro women having their access to water denied chose to resign in fear of verbal or physical intimidations, in Los Claveles the appeal for intervention from community-external third parties in several occasions led to the negotiation of agreements, such as an agreement between irrigators and domestic water consumers that irrigation had to be limited to nighttime hours or had to be stopped altogether. Moreover, it was events such as those reported to district authorities from Los Claveles which contributed to the motivation to development and subsequent approval of the Condega district bylaw regulating the use of water for irrigation during the dry

season, first approved in 2006 and later revised and approved in 2009 (Alcaldía de Condega 2006, 2009).

Table 3: Third parties called upon in water-related events from 1997 to 2007 in San Isidro and Los Claveles communities, and in Condega district (rural)

Percent water-related events

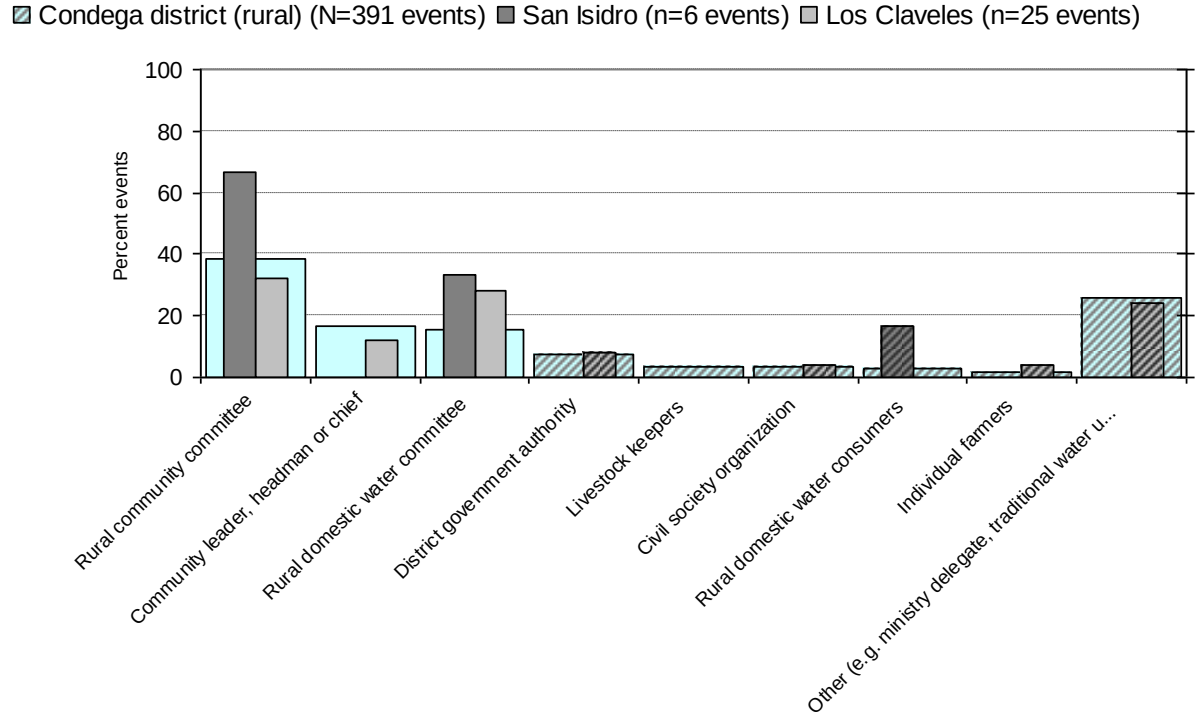
	San Isidro (N=21 events)	Los Claveles (N=39 events)	Condega district (rural) (N=798 events, 62 missing)
No third party called upon	70.0	32.4	46.1
Community-based third party called upon, only	5.0	2.7	4.8
Community-external third party called upon (also)	25.0	64.9	49.0
Total	100.0	100.0	100.0

Source: survey data
Note: Correlation between community and third party called upon significant at 0.05 levels (Pearson's chi-square test).

Part of the reason for this difference between the two communities relates to the character of the community leadership. In Condega district in general, the community leadership—partly by design, partly due to the way that practices have evolved—tends to act as the gatekeepers through which requests and complaints from community members pass to reach external actors potentially acting as third parties in water-related events. Figure 3 shows who called upon third parties in the water-related cooperative and conflictive events as part of which community external third parties had been called upon. In 70 percent of the water-related events in which community-external third parties were called upon, they were called upon by community leadership institutions, such as the community leader or headman, the community committee or council, or the water committee. Thus, in places with a strong—in the sense of controlling a significant part of the resources upon which others depend—uni-polar community leadership, such as San Isidro, it is difficult for community citizens to reach out to community-external third parties to denounce the abuses of water caused by the very same community leadership. By contrast, in places with a perhaps equally strong but bi- or multi-polar community leadership, such as in Los Claveles, there is a greater chance that the community leadership shows downward accountability and also that community citizens dare to reach out directly to community-external third parties and thus bypass the community leadership.

Figure 3. Party or institutions calling upon community-external third party in water-related events

Percent of events where external third parties had been called upon by institution and location. Those institutions regarded as forming the community leadership are indicated in without hatching.



Source: survey data

Notes: In some water-related events more than one party called upon a third party. Therefore, the institution-specific percentages do not add up to 100.No test of significant correlation between community and who called community-external thirds party was performed due to low expected frequencies.

7. CONCLUSION

Conflict and cooperation over water are widespread in Condega district. Based on research undertaken as part of the Competing for Water program, it is estimated that in the period from 1997 to 2007 each rural inhabitant in Condega district was affected by an average of 11 water-related events. Many of the water-related events are dealt with directly among the parties involved, but in half of the events third parties are called upon to help mediate among the competing parties, negotiate and monitor adherence to agreements, or to help mobilize financial and technical support for further water development.

In Condega district, it is primarily institutions such as the district administration, the drinking water authority, the departmental ministry delegations (primarily the health and environment ministries), local lawyers, the police, and NGOs that are called upon as community-external third parties. However, as in many other rural areas of developing countries, demands upon such institutions far exceeds their capacity both in terms of resources (human and operating resources)

and in terms of the institutional support that frontline workers of such institutions need from their superiors and from the legal institutions.

Obviously, third parties do not represent a panacea for equitable water governance. However, to rural people having their access to domestic water denied due to the capture of water by the local elites for productive purposes, they offer an opportunity to challenge inequitable access to water. To realize the potential role that third parties may play in ensuring a more equitable local water governance therefore in the first place requires that third parties be available, that is, that the institutions called upon as third parties have the capacity and institutional support to allow them to respond. In addition, third parties must also make themselves accessible to people having their rights to water denied.

Despite the fact that legally as well as according to customs, priority is assigned to the use of water for human consumption over productive purposes, each year many people experience a lack of sufficient drinking water due to other people's use of water for watering livestock and crops. In some cases, people complain when this occurs and often external third parties are called upon to help negotiate and endorse agreements between the parties. However, in other cases, people who have their rights of access to drinking water denied prefer to endure the situation for fear that those responsible for the water abuse would harm them in other ways as well, either by threatening their personal security or by denying them employment opportunities and help in cases of emergencies. Thus, de facto, these people do not enjoy access to institutions which potentially could serve as third parties to the conflictive water-related situations in which they are involved.

Based on in-depth case studies conducted on water conflict and cooperation in two rural communities in Condega district, this paper suggests that, in the context of inequalities which tend to forge asymmetric dependency relations between the elite and the majority of community inhabitants, the community-level power constellation—whether it is uni-polar, bi-polar, or multi-polar—significantly affects people's de facto ability to call upon external third parties in cases where they have their rights of access to water denied. Therefore, in order to ensure that all rural citizens enjoy equal opportunities for calling upon third party institutions, ways of identifying and making up for such differences between communities have to be found. This is a challenge to local water governance.

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