



Service Provision Governance in the Peri-urban Interface of Metropolitan Areas
Research Project

WSS PRACTICES AND LIVING CONDITIONS IN THE PERI-URBAN INTERFACE OF METROPOLITAN CARACAS: THE CASES OF BACHAQUERO AND PASO REAL

DRAFT FOR DISCUSSION

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INTRODUCTION

As approached in this study, the impact of water supply systems on lower-income populations' livelihood strategies is not confined to the individual household dimension but also embraces the collective dimension. We focus not only on the monetary or physical costs and the domestic conflicts involved in obtaining water, as well as the problems of household organization, cleaning, health, and self-esteem that spring from the absence of water supply, but also and especially on the efforts made to organize and mobilize the community, and its approaches to the public institutions to ask for the introduction and maintenance of pure drinking water supply, i.e., the communities' collective strategies.

Collective efforts have historically played an important role in the demand for pure drinking water supply, and they have recently taken on an entirely new importance in the framework of the new policy for provision of this service, which makes community participation a basic component of the relationship between the water supply administration and the population.

That is why emphasis is placed on the new water supply policy's potential contribution to the development of responsibilities as well as rights for lower-income consumers, as a form of building citizenship and introducing a system of participatory governance. This governance model seeks to balance the market's prevalence in the organization and decision making structure of the WSS, for the benefit of society as a whole, thereby overcoming the privatizing bias implicit in the customary schemes of governance and the problems raised in many cases where that scheme was put into practice (Budds and McGranahan 2003).

The study was conducted in the framework of the process of change under way in Venezuela since the new government's accession and the enactment of the new Constitution, which legitimates participatory democracy¹. It is important in this context to stress the new Organic Pure Drinking Water and Sanitation Service Act, which incorporates participatory arrangements such as the technical water boards and community water councils, as well as the new local institutional structure which, through the community councils and local planning councils, makes it possible to engage in participatory democracy. The study was also conducted in the framework of the country's socio-political conflict, whose consequences are reflected not only in the political confrontations among sectors of the population and the institutions, but also in budget cuts² which interfered with state investment plans and provoked a serious drop in household incomes.

From a methodological standpoint, the study is based on research on livelihood strategies (Cariola et al 1992) and sustainable livelihood strategies (Tacoli 1999, 2003), and it incorporates information on governance in the WSS (Castro 2001) and on the impact of metropolitan expansion (Cariola and Lacabana 2003; Lacabana and Cariola 2003). The operational methodological framework is based on focus group sessions (with residents of the selected communities), interviews with qualified informants (community leaders, key individuals, public officials of the national institutions and local ones in the WSS, as well as the local governments,

¹ The new Constitution of 1999 includes a set of precepts on participatory democracy and federalism which are directly lined to the new local institutional structure and community participation.

² It should be noted that Venezuela underwent a severe economic crisis throughout 2002, peaking with the business lock-out and oil strike which lasted two months, from late that year into early 2003, and greatly depressed tax collections.

and small businessmen who operate water tank trucks), in-depth interviews with families, and a household survey on housing, employment, and income conditions in the two selected communities, which allowed us to determine the prevailing levels of poverty.

The report is structured in four parts. The first puts forward a general characterization of the water supply systems in the lower-income communities of the PUI-Tuy. Then the most important features of the selected communities and the specificities of the water supply systems in each of them are described. In the third part we analyze these systems' impacts on lower-income households' livelihood strategies in terms of both economic level and household organization, focusing on the differences between women and men. The following part offers an analysis of water as a collective problem and the role played by the community organizations in seeking and obtaining service. We give particular attention to the experiences of the new organizations, the 'technical water boards', examining the difficulties of creating them in one of the selected communities and the obstacles they must confront to continue operating in the other one. To evaluate the technical water boards in operation, we focus on a case which reveals these organizations' benefits and constraints. We conclude with some final thoughts on water supply systems and their impacts on household livelihood strategies, and then identify some important factors to consider from the participatory governance perspective.

1 WATER SUPPLY SYSTEMS IN THE LOWER-INCOME COMMUNITIES OF THE PUI-TUY

The water supply and sanitation systems in all the lower-income communities of the CMR are similar to those found in the PUI-Tuy. In general, the key component is the *public water distribution system* operated by Hidrocapital, which is linked to the different residential areas through *formal networks* developed under institutional supervision or through *informal taps* installed by the residents themselves. Supply has always been deficient, but the current institutional policy aims at achieving a fairer socio-territorial distribution of water³. It also provides for regulation and balancing of service among and within the communities, through scheduled rationing based on the number of inhabitants served, so that each sector's residents know when and for how long water will be available. In areas that suffer a particular deficiency of service or a total absence thereof (as in the case of areas recently settled by illegal land occupations), the communities resort to *complementary supply* from tank trucks operated by the public sector (the municipal governments) and in extreme cases by the private sector, where small businessmen operate one, or up to five, trucks.

Regardless of how water reaches the households, the public and private tank trucks are loaded at pure drinking water outlets ("filling stations"), with water provided by Hidrocapital. There is also illegal tapping of water from Hidrocapital's mains, and even from pipes carrying untreated water such as the canal that links the Camatagua dam and the plants located in the PUI-Tuy.

Use of water distributed by the private tank trucks is the last resort for the communities burdened by a lack of regular service, since it is very costly while the water distributed by public tank trucks

³ According to the Vice Minister of the Environment and former President of Hidroven, water supply was highly discriminatory prior to 1999. The networks went first to the formal residential neighborhoods before reaching the lower-income settlements, but there was also discrimination between the higher and middle-income parts of the formal neighborhoods. Together with the rationalization policy motivated by the long drought and the low water levels in the lake behind the Camatagua dam, a number of projects were carried out, including distributors with valves that permit a far more equitable distribution to all sectors of the population.

is free of charge. Household water supply through pipe networks is not subject to metering but is charged for at a "social rate" that imposes only a minimum cost on the households⁴. But there is widespread resistance to paying it, stemming from the persistence of cultural orientations linked to the rentier economy and clientelistic model of government, which have engendered a belief that water supply should be free of charge. For years the Venezuelan State provided water, not only without charging for it but without even invoicing it. Even today, 50% of water bills are not collected in the CMR (Caracas Metropolitan Region) and only 10% of the water distributed in the Valles del Tuy region is paid for⁵. The most important discussions held in the communities have focused on this issue, since Hidroven's and Hidrocapital's current policy aims at the development of a citizen culture of rights and duties, in which payment for water by some will not only lead to improved service but also help others to obtain water supply.

Also associated with the clientelistic model of government that has prevailed in public policy, and the high cost of water supply system development, is the fact that the installation of water distribution networks in the lower-income neighbourhoods settled by illegal land occupations has generally reflected the political preferences of the governments in power at any given time, and a large part of these networks are informal in nature.⁶ This means that the networks remain incomplete for long periods, and that a given settlement will have sectors where water reaches the homes and sectors where it does not, or where informal networks have been installed using hoses. It also means that facilities are built that are not subsequently put to use or whose re-use after the passage of time requires the investment of new funds.

Although the government is officially opposed to illegal land occupations, the public institutions follow an implicit policy of acquiescing in their establishment if the occupiers fight for their settlement. That is the history of a large number of the settlements in the PUI-Tuy area, and the policy continues at present, under conditions less repressive than in previous administrations. From this perspective the different institutions involved in the water supply systems – chiefly Hidrocapital and the municipal governments – begin by searching for an emergency solution to provide water to the population (tank trucks, acceptance of illegal taps, or other expedients), and only then commit themselves to the search for a permanent solution. This search is contingent on the development of community organization (technical water boards), a minimally orderly pattern of land occupation, and most importantly for Hidrocapital, a process of negotiation and elevation of the community's awareness of its rights and duties, viewed as a way to transform the "illegal squatters" into "citizen customers." In other words, though the illegal land occupation represents a situation of instability, the risk of greater difficulty in obtaining and installing water supply and sanitation services also means that there is an acknowledgment of the legal rights of the inhabitants in these settlements which must be respected by the State.

An important aspect of the water supply and sanitation systems in the lower-income communities is community participation to obtain water supply through traditional community organizations (neighbourhood associations, civil associations, etc.), recently reinforced by public policy and institutionalized in the law through the *technical water boards*. These new organizations seek to obtain services while simultaneously building up the aforementioned citizen culture based on a view of co-responsibility (such as payment for water, supervision of the networks, which have been formalized to prevent new illegal taps, etc.), which is jointly

⁴ Equivalent to less than \$1 / month.

⁵ Information provided by the Manager of Hidrocapital's Losada – Ocumarito System in an August 2003 interview.

⁶ It is estimated that by 1992 the company could only meet 40% of the demand; 60% of the metropolitan water supply system was informal, since the former INOS had neglected to build formal water distribution systems (Interview with the Vice Minister of the Environment and ex-President of Hidroven).

defined with the agency responsible for the project to be carried out, for the development of a culture of maintenance and adequate consumption of water. These are organizations currently in their initial phase, and many of them have not yet begun to function. Those that are in operation (132 in the PUI-Tuy) have a record of achievements of varying importance for the service, the overall development of the settlements, and community organization itself⁷.

The water shortage provoked by the expansion of Caracas and its metropolitan periphery, together with the non-existence or poor functioning of the distribution systems in the lower-income communities, provokes conflicts over access to water. Most of these occur between the affected communities and the public institutions (Hidrocapital and the municipal governments) due to the absence or deficiency of service⁸, or among the communities themselves over the distribution of the available water. The technical water boards have an important role as legitimate channels through which communities can negotiate these disputes and monitor the distribution of water among the parties that is ultimately agreed upon. Hidrocapital also contributes to mediating among communities in conflict.

Community participation through representative and legitimate organizations is envisioned as a focal point for an approach that helps improve governance of the water supply and sanitation systems in the lower-income communities of the metropolitan periphery, whose sustainability is put at risk by the growth of demand stemming from the rapid expansion of the PUI-Tuy and the growth of Caracas itself. The aim is for the development of community participation based on knowledge of what water represents as a product of a complex process, knowledge of how the water supply systems work in the settlements, joint work together with the institutions and their technical staff, and the responsible acceptance of a duty to pay for, care for, and maintain the service, along with the exercise of the right to receive efficient water supply and sanitation services. In a nutshell, a "participatory governance" arrangement should be adopted, in which the community organizations, and the technical water boards in particular, play a leading role.

2 THE SELECTED COMMUNITIES AND THE SPECIFIC WATER SUPPLY SYSTEMS

The lower-income communities in the PUI-Tuy have been established in large lower-income housing developments built by the State or have emerged from occupations of public or private lands as the main strategy for solving the housing problem. The existence of large areas of public lands in some of the PUI-Tuy's municipalities is one of the factors permitting urban expansion through occupation of land and the creation of uncontrolled settlements. These settlements are subject to very complex socio-urban problems, in which water supply and sanitation play an important role. We have focused on this kind of settlement for our case studies.

⁷ Interview with the Community Coordinator for the Hidrocapital Losada – Ocumarito System, October 2003.

⁸ These conflicts are expressed in the form of blockage of streets and highways, demonstrations in front of the institutions' offices, or occupation of those offices and other forms of public protest. A "water war" is considered to have been waged in the 1992-1999 period. There were 454 conflicts over water in 1994 alone, half of them violent; protests were repressed by the police in both lower and middle-income areas. Those conflicts have diminished a good deal with the new water distribution policies, and in particular, they have ceased to be violently repressed by the police (Interview with the Vice Minister of the Environment and ex-President of Hidroven). The studies of popular protests in the 1990s locate the conflicts over water in the framework of the State's abandonment of its social commitments and the provision of public services. (López Maya 2000)

2.1. The selected communities: Bachaquero and Paso Real 2000

We chose two lower-income communities originally created by land occupation in the Charallave – Santa Teresa axis: Bachaquero-El Cartanal and Paso Real 2000-Charallave⁹. These are communities of poor families, excluded from the housing market, whose members have lived their entire lives with water shortages, and that condition occurs again in the settlements in question (Map 1).

The selected settlements have very specific features as regards the time of formation and degree of consolidation (old occupation followed by consolidation / recent occupation), the water supply system (a formal network of water pipes with insufficient supply, regulated by Hidrocapital, with no sewers), and the existence of Technical Water Boards (TWB) as community organizations to channel participation aimed at resolving the water supply and sanitation problem (without a TWB / with a non-operational TWB). A third community, Hacienda el Carmen, was also researched as a control case, to assess the role of technical water boards in driving the development of the water supply system for the settlement.

2.1.1. The Bachaquero Community

Bachaquero is a lower-income settlement originating in an occupation of public land in 1981. The community's organization for the occupation came from the agrarian union, since the land was not urban but used as small farms. However, not long after the occupation the agrarian judge ruled that the land in question was suburban (houses on plots), so the organization changed and a civil association was formed.¹⁰ This association has pursued local demands (for water, electricity, street paving, etc.) through a traditional clientelistic leadership exercised by one of the families that organized the original occupation. After waging a series of conflicts with the local and national institutions, the community won the authorities' acknowledgment of its right to permanent existence.

Bachaquero has built up strong functional relations with El Cartanal¹¹: transportation, primary and secondary schools, health care facilities, and commerce all depend in large measure on El Cartanal. Bachaquero continues to have suburban features, with large house plots, some family gardens, large numbers of trees, and unpaved streets. But it has a certain urban order; though incomplete, the street layout does reflect the presence of blocks and plots, though not accompanied by land set aside for recreation and community services. The plots have been subdivided since the original occupation, by sale or expansion of families, and there are now an estimated 800 housing units (Map 2).

The settlement suffers from a great many shortcomings in terms of public services. The streets are unpaved and transit is difficult in the rainy season. Public utility networks are precarious, and pure drinking water does not arrive every day. There is no sewer network and the electrical grid is insufficient. This is a heterogeneous area, with a more orderly lower part characterized by

⁹ We identified the selected localities as belonging to the city or ward. Paso Real 2000 can be considered "urban," while Bachaquero within El Cartanal (selected in the first version of this study) struck us as an appropriate case because it still conserves suburban features.

¹⁰ Interview with Bachaquero's Neighborhood Leader 1..

¹¹ El Cartanal is a large lower-income development built by the State in the 1980s, which has become a commercial and service hub for the ward of the same name, in Independencia Municipality.

consolidated houses and a more precarious upper part. Recently, in 2000, there was a new occupation of private land by some of the local residents along with people from neighbouring areas and some from Caracas, leading to the creation of the so-called "Barrio Nuevo" (New Neighbourhood). The occupation was carried out in orderly fashion and negotiations were held with the owner to agree on payment for the land. It was then subdivided into 43 plots of equal size, the streets were laid out using machinery provided by the municipal government, and illegal electric and water taps were made. It is a fairly precarious area in terms of living conditions of living, and its development is a reflection of families' long-term livelihood strategies, focusing on incremental construction of housing and habitat.

The survey in Bachaquero reveals the high levels of labour and social instability experienced by the population¹². More than 60% of the households live in a state of extreme poverty; the housing units are very crowded and precarious, mainly due to lack of public utilities; nearly one fifth of the children between 3 and 14 years of age do not go to school and the household heads have a generally low level of education. The labour force's economic activity and employment rates are very low, reflecting the 'discouraged worker syndrome', meaning that people give up the search for employment in response to limited opportunities in the labour market. An extremely high proportion of the young people neither study nor work, a phenomenon associated with intense territorial enclosure (Lacabana and Cariola 2001). The composition of employment is marked by a high proportion of informality (39%, similar to the municipal average), and working residents' incomes are very low (45% of those who work earn less than the minimum wage).

2.1.2. The Paso Real 2000 Community

Paso Real 2000 is an uncontrolled settlement founded in 2000 as a result of a spontaneous illegal land occupation of an industrial area south of Charallave, the most important city in terms of the change processes that define the PUI-Tuy¹³. Most of the settlement stands on lands belonging to a public financial institution (Fondo de Garantía de Depósitos - FOGADE), but some parts stand on private land¹⁴. The industrial area, covering lands with a high urban value and an advantageous location, had a basic urban layout dividing it into 11 terraces of irregular shape, separated by streets with sidewalks and a main avenue with two access points. There was an incomplete sewage and rainwater drainage network, but no water supply network. At the time of the occupation the land and streets were covered with vegetation and full of refuse and debris, since the area had been abandoned for about 20 years due to a number of title disputes between private banks and the FOGADE agency (Map 3).

The occupation was carried out spontaneously by homeless poor families from the PUI-Tuy and Caracas, for whom these lands offered the chance to solve their housing problem. An organization, the Civil Association, was formed from the outset, and it oriented the settlers' struggle to remain on the land and win the official acknowledgement that would allow them to obtain public services from the different State institutions. After an initial period of conflict with

¹² For more details, see the report on the Caracas Case in this project.

¹³ This is the largest land invasion in Cristóbal Rojas Municipality, the municipality with the smallest number of uncontrolled settlements in the PUI-Tuy due to an absence of public lands which are more prone to illegal invasions than private land (Interview with the Director of Urban and Rural Planning of Cristóbal Rojas Municipality).

¹⁴ According to the Director of Urban Planning of Cristóbal Rojas Municipality, the owners of the lands in question are companies that participated in the construction of the industrial area and received the land as payment for their services.

the municipal government, which sought to negotiate their relocation to another site (which was not possible in view of the dearth of public land in the municipality), the settlement won the tacit acquiescence of the official institutions. However, official recognition must await the solution of the land title problem, a fundamental requirement for legitimating institutional action in the settlement. To that end, and in a legal framework which formalizes land titles in settlements of this kind, Urban Land Committees (ULC) have been formed which are pursuing the process with the municipal government's technical support¹⁵.

The disorderly occupation of the land and the subsequent process of subdivision thereof have resulted in an anarchic urban sprawl that poses the main obstacle to the settlement's regulated consolidation. Plots of varying sizes were marked out and appropriated, but were later subdivided leading to an increase in density. Unstable lands such as steep slopes were occupied, and no standards or rules were followed to lay out the secondary streets or preserve spaces for public use. The settlement's population has grown with the subdivision of the plots, from 800 families according to the first census to more than 900 today.

Developments of this kind not only turn the settlement into a slum and impede the installation of public utilities and services, but they also consolidate an inequitable situation among the residents, each one's status varying with the size and condition of the plot he/she occupies¹⁶. This pattern can be associated with a "culture of informality" which imposes a vision of unregulated slum, oriented by the rejection of regulations or rules, and of the orderly and regulated neighbourhood initially sought by many of the occupants. The unregulated development of Paso Real 2000 has provoked a large number of problems involving the sewer system and the provisional water supply networks, in view of the landslides that break the pipes and the residents' failure to accept responsibility for the repair of the house connections. All this poses a serious obstacle to implementation of the housing project formulated by the municipal government.

Paso Real 2000 is a poor settlement. According to the survey data, nearly two thirds of the population live in extreme poverty, the housing units are seriously overcrowded, most of them are precarious and the services or utilities they receive are illegal. More than a quarter of the children between 3 and 14 years of age do not go to school and the household heads have low levels of education. The low rates of economic activity among the residents are accompanied by moderate unemployment but with a high percentage of discouragement from looking for work. The share of informal employment is above the municipal average and incomes are very low (60% of the working residents earn less than the minimum wage)¹⁷.

¹⁵ In this case there is a complex process at work, since FOGADE cannot sell land on credit and a middleman is needed to buy it and then sell it to the residents. The situation is simpler as regards the private landowners, since they can negotiate directly with the community- The municipal government has approached a number of sources of funding for purchase of the lands. (Interviews with the Director of Urban and Rural Planning and the President of the Municipal Habitat Institute, Cristóbal Rojas Municipal Government).

¹⁶ Some plots are large and have direct access to the street, while others are extremely small and accessible only along narrow footpaths. While there was an initial appropriation of land, the subsequent subdivisions were carried out through sales, with which the new residents had to bear a cost unlike the original occupiers.

¹⁷ See "An overview of the water supply and sanitation system at metropolitan and peri-urban level: the case of Caracas", produced as part of this project.

2.2. *The water supply systems in the selected communities*

The situation as regards water supply and sanitation in the lower-income communities of the PUI-Tuy is very heterogeneous, ranging from settlements that are entirely lacking in the service and must be supplied by public tank trucks, through those which illegally tap into any water main (whether it carries pure drinking water or untreated sewage), to those that have complete pure drinking water and sewer systems in place but are subject to a regulated service marked by only partial supply. Reflecting the experience of a life with insufficient water, the people's perception of their current situation varies with these differing situations and how they have changed over time.

In the communities that have household networks and whose water supply is now regulated on the basis of a scheduled rationing scheme, the prevailing perception is that water is not a problem. What is more, they consider themselves better off than before, since now they not only receive more water but also know the schedule of service, allowing them to organize their daily lives around it. On the other hand, the communities that lack service and must rely on public or private tank trucks, and those which receive untreated or poor-quality water, have a clear perception that water is the most important community problem and resolving it is a top priority concern.

2.2.1. *The Bachaquero Community*

In Bachaquero we find a serious water supply problem associated with overburdened networks and service overwhelmed by the growth of population in the area and its surroundings. Sanitation is another serious problem, since there are no sewers in most of the settlement and septic tanks are used instead, but their useful life is nearing its end. There is even a certain number of housing units that have no means of disposing of waste at all.

The water supply system is characterized by the existence of a public network of mains that was built in sections and does not permit water to reach all sectors with the same frequency and pressure. Hidrocapital built the principal main, and the system has been extended by sections as they were funded by the state government. Many of the household networks are informal, or water is obtained through hoses. This is a classic case of political clientelism, where each section has been funded by the state government in office at the time, in exchange for the community's political support.

"Here you get things bit by bit, one bit from one administration, another bit from another administration With Governor Arocha we got this pipe that runs across over here ... and then goes up over there. With Enrique Mendoza we made the same deal: work for his campaign so he would help us with the Las Minas park, and he gave us what we have in the main avenue of pipe" (Neighbourhood Leader 1, 2003).

The community had an important social capital with which to both legitimate the initial occupation and obtain water supply: organization in the form of a civil association that allowed it to develop a network of relations of trust among the families through a leadership centred on two individuals. The installation of water supply services was sought for the different sectors of the settlement through this organization.

"This part of the community ... didn't have pure drinking water. These people bought untreated water from a truck. We (the Civil Association) went to the state government .. and they promised us this pipe. The funds came two years later, and we got started and put in the pipe.... Today the community is grateful because it now has its water system, and people don't drink raw water or buy it from the trucks...." (Neighbourhood Leader 2, 2003)

There is a heterogeneous situation in water distribution in the settlement, as far as frequency of service and water pressure are concerned. There are sectors that receive service six days a week, others that get it every other day, and others where rationed water arrives every four days and families store it in tanks. There are even some sectors that are subject to the same rationing system but where the water arrives with very little pressure and is pumped uphill with small diesel pumps. In the latter case, the families have to rely on public tank trucks sent by the municipal government when service fails or there is a prolonged drought.

The pipe network is overburdened at present, and the most prevalent perception is that the current state of service is worse than before as a result of population growth in the area (due to subdivision of plots and new land occupations) and the expansion of the diameter of the main serving the neighbouring community, Brisas del Cartanal, which took volume and water pressure away from Bachaquero. The decline in the quality of service provoked a major dispute over water distribution between those two communities. Hidrocapital's mediation was the key to resolution of that dispute and the achievement of an agreement accepted by both communities. Under this agreement a person was appointed to handle the bypass valve and service is provided to each community for 12 hours every four days, alternating between day and night.

"In all fairness, water is the only thing there have been disputes about in these two communities." (Neighbourhood Leader 1, Bachaquero, 2003)

"When the dispute broke out, because there were blows and everything, after that the engineers came and drew up a certificate in which a person promised to make this manoeuvre (handling the bypass valve to direct water to the two communities). Since then things have calmed down." (Neighbourhood Leader 1, Bachaquero, 2003)

The perception of the water supply service and the water problem varies by sector, depending on each one's situation, but there is still a "culture of urgency"; once the immediate need is satisfied, the people cease to perceive the existence of the problem.

"There's no water here. Then the municipal government comes and sends you the water truck, and you feel satisfied." (Focus group session).

Responsibility for operating the water distribution system – construction of networks, maintenance, and overhauls – lies with Hidrocapital. The municipal government participates in minor repairs, in coordination with Hidrocapital, and the community has resorted and continues to resort to the state government to obtain funding for major projects¹⁸. However, this interinstitutional relationship, as well as relations with the community organizations, has been overwhelmed by the socio-political conflict between President Chavez and his supporters on the side, and the opposition on the other, a conflict that so profoundly marks Venezuela's political life at present. It is not always possible to join forces in response to the communities, which are trapped in the middle of the conflict since they must reach agreement with institutions on opposite sides of the political divide in order to obtain improvements.

¹⁸ Interviews with the Director of Public Services of Independencia Municipality and neighborhood leaders, 2003.

"We know that if the state government (opposition) and the municipal government (officialist) don't come to an agreement ... because if the state government gives us the funds the municipal government has to give us the permit. Nothing is accomplished in the municipality if the mayor doesn't give permission. So we have to know that we need to work with both sides. (Neighborhood Leader 1, Bachaquero, 2003)

The community participates in the management of the bypass valves directing water to each sector. There is no technical water board that works with Hidrocapital to evaluate the water supply and sanitation problem and then formulate a plan to address it. The community organization that has been coping with these problems is the Civil Association, which does not include all sectors of the community. This organization is currently negotiating with the state government on a sewer plan for the entire settlement, and together with other neighbourhood leaders representing the different sectors of the settlement, work is proceeding on an expansion plan for the water main. There is another organization, the Neighbourhood Board, which operates parallel to the Civil Association but is adversely perceived by the residents because of its partisan approach; its board has been asked to resign.

It is interesting to note that at present this community has a significant social capital, comprised of the old civil organization which continues to function and new organizations (such as the Urban Land Committee), as well as emergent leaders who join forces for a coordinated community development initiative. They try to avoid all political identification and place the community's interest above all else.

"Because if we identify ourselves with a party it's as if we drew a cross on our foreheads and then we'll have no hope to accomplish anything more, because wherever we go they'll slam the doors in our faces just the same." (Neighbourhood Leader 1, 2003).

2.2.2. *The Paso Real 2000 Community*

In this community the water supply and sanitation problems are associated with the relatively recent land occupation and the uncontrolled development of the settlement, which its residents are pursuing in the context of a concept of informality. The water supply problem is expressed in the existence of a provisional network self-built by the community and in the deficiency of water service, more so in some sectors than others. The sanitation problem is expressed in the existence of an incomplete sewer system which is often obstructed due to the absence of certain household connections, which leads to frequent overflow of sewage into the streets.

There is a sewer system built for industrial use, of which the municipal government completed some sections with the intention of putting them into operation, thereby allowing the families to connect their houses to the system. The municipal government tried to avoid the frequent landslides caused by sewage leaks from the septic tanks built by the community residents in a provisional manner, which provoked an emergency in the settlement¹⁹. In addition, one of those landslides broke a Hidrocapital pipe, forcing the water supply company to make a substantial investment to restore service²⁰.

¹⁹ Interview with the Director of Urban and Rural Planning, Cristóbal Rojas Municipality, 2003

²⁰ Interview with the Manager of the Losada-Ocumarito System, 2003.

"A pair of very small projects have been built, which were like completion of the branch pipes for final distribution of sewage" (Director of the Municipal Habitat Institute of Cristóbal Rojas Municipality, 2003).

"We did that to solve a problem. Why? It was necessary to decree some high-risk emergency zones, because they began to put in septic tanks and they began to displace the terraces.... The terraces started to cave in everywhere. Then we found out from the last year which were the zones and we had a municipal decree that speaks of the high-risk zones, already established here." (Director of Urban and Rural Planning, Cristóbal Rojas Municipality, 2003).

However, the problem is still in being, now concentrated in some terraces where there are frequent obstructions of the system and sewage flows through the streets, provoking environmental pollution and erosion of pavement. To some extent this problem stems from the community's own lack of insistence on its residents' making proper use of the system, and on the prevalence of the vision of informality in the construction of networks that do not comply with technical criteria, are incomplete because the houses have no connections, and are not repaired.

"Over on that side they did it disastrously. This has been plugged at least weekly ... and all of a sudden there are people who have a drain in their yard and then a diaper went, socks, even a shoe. Any number of things are pulled out of there." (Neighbour 1, October 2003)

"As far as the sewage pipes are concerned, we have been working with low-diameter pipes ... economical, low-quality pipe has been bought, and we are suffering the consequences all over its length." (Focus group session, October 2003)

"But that is the community's own fault; the people don't put in their own sewers." (Focus group session, October 2003)

The water supply system in this community is based on self-built distribution networks originating in different informal connections to the mains, one running along the Ocumare Highway and another in the upper part, adjoining the Dividivi sector²¹. Initially there was a single tap from which the entire settlement was supplied. But as people continued to settle and the density began to grow with the subdivision of plots, this source became insufficient and the residents diversified their informal taps into the main, as well as installing independent distribution networks for each terrace and some smaller sectors.

"In the beginning there was one tap. Then they started to make several taps because there wasn't enough, it didn't go around.... We are doing things illegally." (Neighbourhood Leader, October 2003)

"The problem we have here is that we have an illegal water tap and not all the people we have here are served by it." (Focus group session, October 2003)

At present the water supply problem is especially critical in two terraces of the settlement where several factors come together: landslides on some slopes which have broken pipes connected to the main, the difficulty of lifting water under pressure from those taps, and the poor technical quality of the self-built water distribution network. Most sectors of the settlement receive water according to Hidrocapital's regulation of the main to which they are illegally connected, i.e., five

²¹ Information from technical staff of the Cristóbal Rojas Municipality and neighborhood leaders, and direct observation in the community.

or six days a week for 12 hours a day. But in the problem sectors the water arrives under very low pressure, as a result of which many houses do not receive water more than once a week.

"But here is where the water problem is most visible, on Terrace 11. We have the connection to the pipe furthest away, on the main highway ... we make a small illegal tap, but it doesn't meet our need. Water doesn't reach my house at least, no water arrives.... We have no responsibility, some people dump a lot of water, there are broken pipes and the aren't repaired." (Focus group session)

"When the landslide came, all this pipe was lost.... More work was done but it doesn't seem to have been right, it isn't technical work. We did it here in the community.... What was done was useless and it needs to be done again, but it costs a lot of money.... But the main problem is that we have no guarantee that water will reach us, because the problem is one of pressure.... Water hasn't reached my house for a week." (Resident 2, 2003)

The perception people have about water supply varies by sector of the settlement. Though the water distribution network is provisional, the families living on the terraces where it functions with a regulated frequency tend to take the position that there is no water problem. For people who have always lived with a water shortage, as has been the historical experience of the lower-income areas of Caracas, having water frequently and on a known schedule represents a substantial improvement in their quality of life. The culture of urgency operates here, denying the relevance of the network's informal and provisional character which does not provide a definitive solution or a quality sufficient to ensure the sustainability of the service. Nevertheless, from the controlled development standpoint, some people believe that not only is the problem not limited to having provisional service, but, in addition, the service should be institutionalized through an adequately constructed network to ensure regular service.

"Water is a problem according to each person's point of view. Because if the point of view is having service, it isn't a problem. But if there is some awareness that you have to provide it on a regular basis, yes it is a problem." (Neighbourhood Leader, 2003)

"People don't have a progress-oriented mentality." (Resident 2, 2003)

The inhabitants of the problem areas view the issue differently; for them, water is the settlement's leading problem.

"The worst problem we have here, and the most immediate one, is water.... Right now we are very short of water.... We have had this problem since the beginning of the year, since there was that damned landslide.... The main thing right now is water." (Resident 2, 2003)

Solving that problem is a top priority, and the residents seek to organize themselves to self-build and maintain a new provisional network in the affected area, as well as to demand direct service from Hidrocapital.

One issue which should be noted is the dispute that arose with the neighbouring community, the middle-income Matalinda neighbourhood, due to the adverse impact on water supply of the Paso Real 2000 community's informal taps into the water main. The reduction in the volume of water, and then the permanent breakage of the pipe due to landslides in the settlement, forced Hidrocapital to build a variant of the water main along a route at some distance from where it had previously passed, to ensure service to Matalinda.

In the initial process for establishment of the settlement, the community had a key social capital: the organization that allowed them to develop a network of relations of trust and collective

support among the residents, which in turn equipped them to do the work for the provisional – and illegal – water connection. The residents organized themselves by sector of the settlement and by family, contributing funds to purchase materials and voluntary labour to install the pipe. They also had an important human capital, represented by residents who had the technical knowledge to make the taps into the water main and lay out the provisional pipe network.

“... we have many people here with trades and the experience to do that kind of work....”
(Neighbourhood Leader, 2003)

"I believe we should all work together in the community.... In fact, I lent my plumbing tools and that is very important, you have to contribute to your community." (Focus group session)

At the present time the community organizations have become weakened. The Civil Association has lost legitimacy and confidence, and the Community Planning Council exists only on paper. Two Urban Land Committees and the Technical Water Board have been created but only managed to perform their initial tasks and then ceased to function due to lack of leadership.

The institutions' performance has been constrained by the settlement's illegal status, associated with the circumstances of the original land occupation and its style of unregulated development. Hidrocapital in particular, being the institution most heavily involved in the process, has acknowledged the settlement's existence and the need to give it institutional service. From the outset it permitted the illegal taps into the water main in order to ensure a provisional supply of water to the population, and it demanded the creation of the Technical Water Board as a prerequisite to going forward with the infrastructure project and taking other actions needed to establish the service. However, that project has yet to be drawn up, for two principal reasons: the organization's virtual disappearance after having carried out the preliminary tasks (a census of the population and a sketch of the settlement's physical layout), and the arrival of a new head of the Hidrocapital Community Coordination office, who revised the institutional strategy to concentrate attention on certain top-priority communities, among which the settlement in question is not included ²².

The municipal government's participation was focused, at the time of the original land occupation, on stabilizing the land to prevent landslides, and then on regulating the settlement's urban development. It has worked with the Civil Association to formalize land titles and introduce alternative housing arrangements. But the community tends to have a very negative perception of the municipal government's action, largely due to poor communication between it and the community. The latter does not receive information on the progress made in planning for the projects announced by the municipal government, and since no concrete action is perceived, it continues to pursue an anarchic development of the settlement.

²² Here we refer to Hidrocapital's change of strategy regarding the creation of technical water boards, which it had initially promoted at a very fast pace. At present, following the replacement of the head of the Community Coordination office, which provoked delays in the agency's work with the communities, it is focusing on a smaller number of top-priority settlements that have functioning water boards, to achieve sustained progress and concentrate funding where it can produce definitive solutions through each community project.

3. IMPACTS ON HOUSEHOLD LIVELIHOOD STRATEGIES: BEARING COSTS AND ORGANIZING DAILY LIFE AROUND WATER

The water problem is at the core of the livelihood strategies for the lower-income households of the CMR and the PUI-Tuy, and it has a direct impact on their quality of life. The shortage of water, the low frequency of provision thereof, the poor functioning of the networks, and the prevalence of informal connections and a lack of maintenance thereof, are the key factors in the determination of daily life, and even of family budgets.

The families must pay significant costs from their meagre household budgets to finance the informal water supply networks. Even though free family and community labour is used, the cost of the pipe and other materials demands major economic sacrifice. These costs are often doubled due to the poor quality of the networks of this kind.

"What was done was no good and it has to be done again, but it costs a lot ... and as time goes on the cost gets higher and higher ... so it will cost every family 50,000 Bolivars ..." (Resident 2 of Paso Real, 2003)²³

"... all of us had to chip in to pay for the pipe ... it was done little by little because it required a big economic sacrifice, because it is very expensive ... sometimes there are many people who don't have money and they complain ..." (Focus group session in Paso Real)

The problems of low water pressure and low frequency of service forced the households to spend money on small home pumps to raise the water to the houses at the higher elevations, and on tanks and/or large bottles for water storage. When the families are unable to bear the cost of pumps, neighbourhood solidarity comes into play.

"... my son gave me this pump, which I have installed there in the neighbour's pipe, because this is the highest spot here and the water doesn't get up there. She gets a little more, so with the pump we draw a bit. I get the benefit along with her, because I lend her the pump so she can also get her water." (Resident 2 of Paso Real, 2003)

"... these pumps belong to everyone ... the people who can't afford it are helped.... And many people from up there also get water from the pump you lend them. There is no selfishness there, for either electricity or water." (Resident 1 of Bachaquero, 2003)

In the extreme cases of the sectors that receive no water supply or where there is no permanent or sufficient supply, water is obtained from public tank trucks or the families buy water from private tank trucks, the cost of which places an enormous burden on family budgets²⁴. Another option is to buy pure drinking water from residents of sectors that do receive public water supply, but at a cost equal to or higher than that of water from private trucks. This method of supply makes use of hoses running from the houses in a sector that receives piped water to those in

²³ The amount is equivalent to approximately one fifth of the current monthly minimum wage, i.e., US \$20.

²⁴ In the sectors of Hacienda El Carmen where there is still no water supply, the families spend an estimated 30,000 Bolivars per month on bottled pure drinking water of doubtful quality, purchased from private trucks. This amount is equivalent to approximately 10% of the monthly minimum wage, i.e., US\$ 10. (Interview with a Neighborhood Leader of Hacienda El Carmen)

another that lacks piped water supply, and is charged for by the hour, regardless of the volume of water moved²⁵.

Payment for water supply is not a factor in family budgets because the company does not charge for service in most of the lower-income settlements; where it does charge for the water it delivers, it is at a low "social rate" equivalent to less than US\$ 1 per month, which the residents generally do not pay. This behaviour reflects a generalized concept of *free public services*, which has become an issue in the communities. Paradoxically, and since the quality of the water is often substandard, many families buy large bottles of mineral water to drink, the cost of which is a great deal higher than the social rate for public water²⁶.

It can be asserted on the basis of previous studies in the CMR that *daily life was organized around water* in the lower-income areas, since supply was unpredictable and came most often at night (Cariola et al. 1992). This pattern of supply forced families to be attentive to the arrival of water at all times and to sacrifice rest time to store water when it arrived in the early morning hours. This has now changed with the regulation of water supply service; people now know when and at what time water will arrive, and they organize their daily life to use and store it.

For many households, regulation of water supply on the basis of a known schedule makes it possible to organize daily life with much less complication, and there is not a negative perception of the situation.

"... we organize ourselves. When the water comes I wash the clothes, clean the house, bathe the kids. It's not like having water every day, but you get used to it.... On the days when there is no water, I use the bottles ... sometimes a lot of dirty laundry builds up...." (Resident 4 of Paso Real, 2003)

"I have water until 6:00 in the evening ... except Thursdays.... I do the washing ... using a washing machine." (Resident 1 of Paso Real, 2003)

But the *organization of daily life* around water differs among the sectors into which each settlement is divided. It is a more complex problem for the households in areas where water supply is most deficient, subject to the most severe rationing, and occurs at night. In these sectors the residents spend a great deal of time bringing water to each house and storing it, and a complex organization is needed, not only at the family level but also among the closest neighbours. The daily need for water is addressed by a complex network of solidarity relations which help in obtaining water for the homes and constraining individualist attitudes which can lead to intercommunity disputes over water distribution.

"When they give me water here every fourth day, I don't do any other chores, I just get water.... The next day I do all my chores, because water takes a lot of person's time, grabbing water, filling bottles, checking to see whether there are leaks or not...." (Resident 2 of Bachaquero, 2003)

"To fill up, I wait until my neighbour fills up because she has a tank, and then I fill up. Sometimes it's 2:00 in the morning and she's still filling up. I go to bed at 3:00 in the morning." (Resident 1 of Bachaquero, 2003)

²⁵ According to information provided by the neighborhood leader we interviewed, this is a method used in Hacienda El Carmen and the cost is 1,000 bolivars (US\$ 0.40) per hour.

²⁶ A 5 liter bottle of mineral water costs as much as Hidrocapital's social rate (approximately US \$1).

"... there are always some people who think they're smarter than others. Then the closest ones get their fill of water, but those of us who live higher up have to help ourselves with pumps ... the problem we have is that if the lady on the corner opens up the tap too wide, I get no water. Then the people higher up get no water and have to go down to fill pails...." (Resident 2 of Bachaquero, 2003)

"... no water reaches my house, no water reaches a lot of houses. So we have to ask the neighbour to lend us the hose .. a lot of people have no responsibility and let a lot of water go to waste, they have broken pipes and don't repair them...." (Focus group session, Paso Real 2003)

"... a neighbour of mine had a pump. He turned it on every day ... he used up three bottles of water a day, in the morning and in the afternoon. I told him: Let's try to be a little more responsible. I'll provide the pump only once a week. Then we had problems with this guy." (Focus Group session, Paso Real, 2003)

In most cases these daily activities to obtain and store water for homes are carried out by the women, though the men participate in operating the pumps and in carrying water when they are present.

When the houses are far away and water does not reach them, the families must carry water. This is mainly a task for the men, but women and children also participate. It represents a heavy physical effort for the women, as well as consuming a large part of their time. For the men, who must carry water after a long day of work and commuting from the city, the deficient water supply service provokes situations of strong tension and exhaustion.

"(The water problem hurts us) a lot. First for the stress. You come back from work tired, you go home, and you have no water. Then you go carry water. And sometimes you feel a little mad and they say: Listen, this is getting out of line. Damn it, I'm not going to get out of line, if a man comes home and finds no water and has to carry water to take a bath." (Focus group session, Paso Real, 2003)

One point at which gender role differences are very clear comes when the service is initially installed, since the men do the construction and maintenance work. The women then take on most of the responsibility for participating in the community organizations formed to seek water supply, since they are the ones who are always at home and in the community²⁷.

The water shortage has caused some residents of the lower-income settlements in the PUI-Tuy to learn a great deal about the use of water. Some people recycle water initially used in personal cleanliness and clothes washing, and then reuse it in the toilets or to irrigate household gardens and shrubs. Others take special care to avoid wasting the water they obtain with so much difficulty, seeing that none spills when they are filling the bottles, and repairing broken pipe. These attitudes reflect the emergence of a water maintenance and care culture which is among the most important functions the technical water boards seek to foster.

In the lower-income settlements of the PUI-Tuy there are differences in the quality of the water that is consumed. In general, the water that comes through the Hidrocapital pipes is of uniform quality regardless of the treatment plant that provides it, but its quality can vary when it passes through different types of informal pipe and hoses; there are even some settlements that make

²⁷ The women are a majority of the members of the technical water boards, representing approximately 75% of their membership. (Interview with the Community Coordinator of the Hidrocapital Losada-Ocumarito System, 2003)

illegal taps to obtain raw, untreated water²⁸. Quality also varies according to whether the water is consumed immediately or must be stored, since the recipients are not always given due care to make sure they are not contaminated. The residents of the settlements studied perceive that the quality of the water is not always good, especially when it finally arrives after a long period of suspension of service²⁹.

A widespread perception associates water quality with certain gastric diseases (amibiasis, diarrhoea) and skin diseases.

"Most of the people here are always sick, the children always have stomach problems, they get rashes.... And our kids don't. That means it's the water, because if our kids don't drink that water (but rather, bottled mineral water) and don't get sick, that means it's the water. I think so, I don't know." (Resident 1 of Paso Real, 2003)

"... the water doesn't come treated, I think they just pump it directly and that's what comes. And most of the people get rashes, the children get scabies.... There is diarrhoea here, gastroenteritis, and amibiasis ... because they (the children) drink water from the pipes ... even the ice they sell here comes from the pipes. And however the water comes." (Schoolteacher, Bachaquero, 2003)

According to physicians in the area, the problem is mainly cultural in nature; most of the people are not careful enough in handling and storing water, or about other sources of contamination. Though some people buy bottled water or boil it because they do not trust the quality of the piped water, the great majority use the water without treatment. There are high rates of parasitic infestations (amibiasis), gastric disease (diarrhoea), and skin diseases (scabies, rashes, abscesses) associated with both the quality of the water and its inadequate treatment and storage³⁰.

Another source of contamination is the absence or malfunctioning of sewers. The presence of collapsed septic tanks, the absence of household connections to the sewer systems, and the sewage that flows through the streets due to the obstruction or breakage of pipes are sources of contamination directly linked to infectious-contagious diseases. Broken pipes result in direct contamination of land and even of the water when the pure drinking water and sewer pipes are close to each other, which poses a problem similar to that of faecal matter in the open air.³¹

"People have septic tanks and they are collapsed, and there are shacks where they have a toilet and a pipe that leads to a hole in the ground, right there. So, imagine, that goes into the ground, the environment, the kids play with the earth and in addition they have no water." (Schoolteacher, Bachaquero, 2003)

Though water is a key resource in the organization of daily life and in the livelihood strategies of the households, it is not the determinant of living conditions in the lower-income communities of the PUI-Tuy. The core issue continues to be the lack of stable jobs and income, as well as the objective and subjective costs of working in Caracas, ranging from transportation costs through travel time to the difficulties of organizing daily life provoked by that situation.

²⁸ According to Hidrocapital's Community Coordinator, there are rural and urban communities in the PUI-Tuy which find themselves in this condition

²⁹ There is a generalized perception among both the residents of the sectors studied and the local physicians of a deteriorating quality of water in recent times; it arrives murky, with fungus, larvae, and parasites.

³⁰ Interview with physicians of the Inside the Slum Plan who serve the settlements studied here.

³¹ Interview with a physician of the Inside the Slum Plan who serves the Paso Real community.

At the collective level, as we shall see below, the new forms of community organization to obtain water supply can produce a qualitative improvement in the provision of service, as well as in the cultural dimension of the handling and care of water.

4. WATER AS A COLLECTIVE PROBLEM: THE COMMUNITY ORGANIZATIONS

Especially in the settlements originating in land occupations, water is perceived as a collective problem as long as there is no way – even if only provisional or informal – to ensure some degree of service. The community unites around certain organizations that channel the residents' participation. The form taken by this process, the relationship the organization builds with the community, and the relationship it establishes with the public agencies, are the key factors in obtaining public services and for the urban and social development of each settlement.

To permit an appreciation of the complexity of these relations we describe three different cases: the two initially chosen settlements, which operate through traditional organizations (civil associations), in one of which there is a negative experience with a technical water board that did not function (Paso Real 2000) and in the other this new organization could not be created (Bachaquero), plus a third case used as a control, which is a large settlement originating in a land occupation (Hacienda El Carmen) where there are several technical water boards in operation, whose experiences – though with many limitations – have produced positive effects for water supply and for the settlement's urban development as a whole.

4.1. *The traditional organizations*

Immediately after the occupation the community organizes to cope with the emergency situation of a lack of water and to obtain a provisional supply (anything from arranging for public tank trucks to making illegal taps and self-building informal pipe networks). This process is directed by the organizations already existing in the community, generally civil or neighbourhood associations, which subsequently take on the responsibility for the initiatives vis-à-vis the public agencies to seek the installation of pipe networks and the provision of service, together with negotiating for the settlement's legalization and the provision of other public utilities.

In most cases the community's participation in this process is very intense at the outset, while there is still a risk of eviction and no public services or utilities are yet available. But as the settlement becomes established and services are obtained – albeit in informal and provisional form – participation decays and the process becomes increasingly individualized. As stated above, there is a *culture of urgency* whose core feature is that collective mobilization ceases when the problem no longer demands immediate attention, even if the service is not formalized or resolved in such a way as to ensure a permanent provision of water.

“With the need we had.... Here we all help each other, we have all helped each other out every day, each one cooperating with what little he or she could give. The same thing with the sewers, with water, everything is done as a community.... At first there was participation, now we've become more apathetic.... One of the things might be, because many families now have service.... They are conformists, that is, a little bit of water reaches me and I'm all right. It's not the amount I need, but since a little bit reaches me it's all right. That shouldn't be.” (Focus group session, Paso Real, 2003)

This has been the story of the two settlements we have studied, one more recently and the other for a longer time but both following more or less the same pattern. Particularly in the case of Paso Real 2000, where the civil association has been steadily weakening as a community organization due to internal divisions, resulting in the departure of some of its leaders and a loss of *trust* among the residents. Some of the opinions expressed in the focus group reflect this situation:

"The civil association has broken up, it seems some don't get along with the others ..."

"There is a kind of division, more or less.... What happens is that everybody looks out for himself."

"The association has not worked here, because I think the association is our representation as a community ... but I see something of a lack of will on the part of the association."

There is a clear lack of *communication* between the organization and the community. While the leaders feel discouraged by the absence of support from the residents, the community perceives that the organization does not fulfil its function of representing it before the institutions, nor does it transmit information on its initiatives.

"But it's difficult when only three or four people are left. It's often difficult to listen, because it seems they're arguing with each other. Instead of asking you: what's happening?, why hasn't this been accomplished?, how can we help you? ... Sometimes it's hard work, and you feel like giving up." (Neighbourhood Leader in Paso Real, 2002)

"The civil association, as I understand it, they go to certain institutions, but they never communicate with their community.... I have to tell my people what they told me at that meeting, at the state government, at the municipal government, at any State institution. But no, they never say anything, ever. It's all silence." (Focus group session, Paso Real, 2003)

The progressive weakening of the civil association is linked to the anarchic development of the settlement. The civil association has not enjoyed the *legitimacy* or support needed to win the community's respect for the most elementary rules for bringing order to land occupation, and this not only poses risks at the present time but also threatens the settlement's future development.

"People accept organizations only for solving problems ... but when they want to impose rules, then they don't. Then I won't listen to you.... Until the authorities take action, the people don't pay attention. One of the things we planned was not to build on the slopes, because at the meetings with the municipal government that was one of the things they asked us for." (Leader, Paso Real, 2003).

In Bachaquero, though the civil association continues to operate and pursue projects to obtain a sewer system for the settlement and complete the water supply network, the leaders still act on their own. Participation is meagre and a clientelistic vision predominates, oriented toward obtaining assistance from the State. The problems of uncontrolled development are present here too, especially in the form of land subdivision, which increases population density in the settlement and worsens the deficiency of water supply. Neither have there been any substantial improvements in other public services or utilities: the settlement still lacks sewers, the streets are not paved, and there is no street lighting in most of it.

The organization is conceived in terms of its leaders, who concentrate the functions and relations with the public institutions as representatives of the community. The community's

participation has been understood as support for the leaders' initiatives vis-à-vis the authorities, but the people are not expected to assume responsibilities or perform concrete tasks in the definition and management of projects for the settlement.

"My husband (the leader) has a civil association with the Bachaquero community ... he represents the Bachaquero community ... when we go to other areas we are always accompanied by people from here, from our community." (Neighbourhood Leader 1 of Bachaquero, 2003)

"We're now trying to get about 10 houses and support for providing more water to those people and motivating them more, through the Miranda state government...." (Neighbourhood Leader 2 of Bachaquero, 2003)

This conception of organization is accompanied by a perception of a relationship with the authorities revolving around the pursuit of State assistance to the community, with very little knowledge and a strong *distrust* of the public institutions because they do not respond to the communities' demands. Accordingly, community participation is perceived as an application of pressure on the institutions to induce them to satisfy those demands and follow up on their commitments.

Several statements made in the focus group session point in that direction:

"What happens is that a lot of engineers have come and you never really know who to turn to ... they look at this and they go, another comes and he goes.... They say so many things, and then they don't do anything...."

"The projects may be approved, but after approving them they just leave them in the desk drawer. If the communities don't follow up on the projects, all that is lost" ... "Unfortunately, to get them to listen to you, you have to demonstrate. It's through demonstrations, taking over the highways, that you get them to listen to the communities."

This concept of community organization and participation is countered by another that calls for a more responsible participation by the community, more decentralized and marked by ongoing communication between the leaders and the community members. In one such vision, work *with* the community replaces work *for* the community in representation of it, teamwork replaces the concentration of functions in one or two leaders, and community work turns into the core value, discrediting political partisanship.

"The idea is not that the person who is elected will work alone. The idea is that there are at least two delegates per street. I think that works better, because I go to my street to give information. But if there is not even a single one in my street, how are we going to inform? It doesn't matter that there is just one association, but there are several people who will be informed." (Schoolteacher, Bachaquero, 2003)

The relationship with the institutions is understood in a perspective involving more responsibility for the community, in which it has not only the right to demand a service but also a number of obligations for obtaining it and putting it into operation. There emerges a vision of co-responsibility between the community and the institutions.

"We want to have rights, but we're not accustomed to having duties. For us to have rights we also need to accept the fact that we must fulfil duties. They will give us a service, OK, and we ourselves will also comply with our duties. One thing in exchange for the other, we are receiving a service, we will really join forces. We are going to have a good friendship, you give us something

but we will also contribute something, and that way the country progresses." (Focus group session, Bachaquero, 2003).

This vision is associated with the emergence of a new community leadership, embodied in young leaders who foster new organizations in the community, so that it can actively devote itself to the function of solving certain problems felt by the residents as very pressing (land title, employment, health care). A new leadership is taking its place alongside the traditional leaderships of a representative and political nature.

"Everyone has made his little group, and that is the big problem we have here. We need to open up perspectives; it's not that we, they, only them and they don't give us a chance.... We are working with the community here ... we are in tune with the people. We don't have to see whether they can do more, the only thing we need is for us to be able to handle all these projects.... We have built a team, not on the basis of a leader who represents us...." (Schoolteacher, Bachaquero, 2003)

These two visions are present in both of the communities we have analyzed, but the new one has become more prominent in Bachaquero in view of the current weakening of the organizations and that of participation in Paso Real 2000.

4.2. *The new organizations: the technical water boards*³²

Together with the traditional organizations, and sometimes using them as a springboard, new organizations are taking share under the stimulus of Hidrocapital's institutional policy³³. These are the Technical Water Boards³⁴, organizations that channel community participation on a permanent basis to obtain, improve, and supervise a high-quality water supply and sanitation service for the settlements and to gradually build up a water culture that values and cares for that key resource. They serve as liaisons between the institution and the community, responsible for calling the meetings with the technical staff and disseminating the information that is generated in the process.

Relations with the institutions, and chiefly with Hidrocapital, are visualized on the basis of a vision of co-responsibility and identification with the service. This means that the communities do not limit themselves to making demands and being users of a service, but rather, that they help to build it and are part of it. It is through the TWB that coordination is established with all the institutions that have anything to do with the water supply and sanitation projects for the

³² The technical water boards, as a community participation alternative, emerged from an initiative of the Caracas Municipal Government in the mid-1990s. That experience was of enormous importance for the development on a larger scale since the end of the decade.

³³ To that end, Hidrocapital established a specific office with a team of specialized professionals highly experienced in community work. This office is decentralized throughout the CMR, with a community coordination organ for each water supply system operating in the city and the sub regions of its periphery.

³⁴ "They constitute a mechanism of coordination between the service providers and the community, and are intended to be familiar with the operation of the services, express judgments on the proposed investments to the different authorities, and participate in the evaluation and supervision of the construction. To that end, upon being legally formed according to legal requirements (associations), they have the function of representing the communities and neighborhood groups to the service providers, as well as disseminating information on aspects of the provision of the services, and in particular on the subscribers' rights and obligations, orienting the community's overall participation in the development and supervision of the service provision, and proposing plans and programs for payment agreements, among other things, to the service providers." Betty Espinoza, Manager of the Hidroven Community Management Unit. "Una ley para consolidar la participación comunitaria". Vertientes 11, pp 29. December 2002. Caracas.

communities, chiefly the municipal governments which must grant the urban variables, approve funding for the projects through the decentralized funds, and participate in the communities' socioterritorial development. The TWB and the Community Water Councils, coordinating bodies for those organizations which belong to a single cycle of supply, comprise a key tool used by the Councils for local planning purposes³⁵.

Community participation through the water boards is envisioned as continuing throughout the process, from the prior diagnostic study through the installation of the service and ongoing supervision of its operation. In addition to acting as a permanent source of information for the community, the technical water boards have the following functions:

- ✓ Collecting the basic information on the settlement for a joint diagnostic study with the technical staff, to give shape to the project (a sketch of each sector of the settlement, indicating the location of the plots, the layout of the existing network with its bypass valves, and a census of the population).
- ✓ Joint search for funding for the projects, from multiple institutional sources
- ✓ Normalization of water payments, as a responsibility the community must understand and accept.
- ✓ Supervision of the networks' condition (broken pipes and leaks) and the adequate use of water, tasks which point toward the creation of a water culture.

In the PUI-Tuy as in the rest of the CMR, getting these organizations started has been a very complex and difficult affair, in which successes alternate with failures in different community experiences from which many lessons can be learned on the prospects for "participatory governance." According the evaluation made by the area's Community Coordination, the difficulty of consolidating a large number of the initial organizations is linked to the speed of their creation under pressure from Hidrocapital:

- ✓ Large amounts of funding were required, which had to be obtained in a context of budget cuts in the public sector.
- ✓ There were not enough personnel available to do the work with the communities.³⁶
- ✓ Expectations were encouraged that could not be fulfilled in the short term, which provoked distrust of the institution for its lack of concrete responses and discouraged many of the communities.

³⁵ The Constitution of the Bolivarian Republic of Venezuela (CBRV) and the Organic Planning Act (OPA) provide that the Local Public Planning Councils (LPPC) are the organs responsible for fostering popular participation in the participatory planning processes to be carried out in the municipalities. Their basic goals are to achieve the integration of the organized communities and neighborhood groups into an overall State policy of decentralization and deconcentration of spheres of authority and resources.

³⁶ The Community Coordination office for the entire PUI-Tuy has only two promoters.

Based on this evaluation, Hidrocapital decided to change its community work strategy and give priority to a certain number of communities, in order to concentrate human and financial resources to achieve the completion of projects in each of those communities.

4.2.1 The difficulty of creating a technical water board: Bachaquero

Pursuant to this policy, Hidrocapital made its intercession to improve the deficient provision of water to Bachaquero contingent on the creation of a technical water board. But this initiative did not get off the ground, due to a series of factors that undermined it.

A leading obstacle was payment for water at the social rate, which Hidrocapital demanded of the sectors that receive water with the greatest regularity and pressure. Residents were opposed to making these payments, given their inconsistency with the concept of the State as a source of assistance and because they assumed that the main thing was construction of the system of pipes and did not understand that the water supply they receive is the outcome of a complex process of production and distribution of water.

"They (Hidrocapital) were going to improve the water system for Bachaquero, but we had to organize ourselves and make the water boards.... Those of us who got water had to do more, we had to contribute two thousand Bolívares per house, something that couldn't be done.... The water boards were for us to reach agreement.... But the people aren't in agreement because they say "papa government" has to give everything." (Focus group session, Bachaquero, 2003)

This process lacked efficient communication by the institution, to inform the community on the importance of organization in order to obtain and maintain the service, and on the meaning of accepting the responsibility for paying for it.

"Neither have they (Hidrocapital) taken measures to explain to the people what the importance of a water board is, that you are going to pay for this service and you can complain if you don't have water...." (Schoolteacher, Bachaquero, 2003)

But there is a different vision that is emerging in the community, in agreement with payment for services because fulfilment of that duty generates the right to demand a good provision of the services.

There was diversity in the focus group in this respect:

"The fact is we can't live for free."

"They improve the water supply service and everybody has to pay for water here in Bachaquero."

"The thing is, if you pay it, you have the right to make demands on them."

Another factor that has contributed to the difficulty of creating technical water boards is the persistence of individualist visions that attribute no importance to the collective and are reflected in an absence of responsible participation and support for the leaders.

"We need people who really help us so that all the neighbours will be aware that the water doesn't belong to Petra or Juana, but to all of us." (Focus group session, Bachaquero, 2003)

The interviews and the focus group discussion revealed that the creation of the technical water board requires overcoming people's *distrust* toward the institutions, which is a product of many years of unkept promises. The residents also have little trust in the community's own ability to come together to participate. If that initial distrust is not overcome, the process does not get off the ground. And in addition, to generate trust and induce a continuation of community participation, there must be concrete results that express themselves in improvements of service.

4.2.2. The obstacles to its continued operation: Paso Real 2000

To overcome the informal nature of the settlement's water supply connections and networks, and standardize the service, Hidrocapital demanded that the Paso Real Community create a technical water board as well. A single organization was appointed for the entire settlement, with a coordinator and representatives from all the terraces, who accepted the initial tasks of conducting a census and drawing a sketch of the settlement's layout. The board even put the first touches on a plan for the new network. But the organization's virtual dissolution, in addition to Hidrocapital's serious problems discussed above, put a stop to the project's development and the work the agency was doing in the settlement.

The interviews reveal the different factors that led to the technical water board's dissolution, even though water supply problems persist to this day.

- ✓ The vulnerability of any organization *centred on a leader*, whose withdrawal provoked its dissolution. Though this leader coordinated the work done by the representatives in their respective sectors (census, layout sketch), he was the person who maintained contact and relations with the agency. One of the problems cited in regard to the leaders of this settlement's organizations, which also occurs in the others, is that multiple responsibilities are taken on simultaneously. This practice impairs both the performance of the functions and the community's willingness to participate, provoking a vicious circle that contributes to isolating the leaders.
- ✓ *The people did not accept responsibility*: The community participated in the initial tasks, but then withdrew from the work and even from maintenance of the water supply and sanitation systems.

"I cooperate with pleasure. When the technical board existed I was the one who took the census here. But now I've grown discouraged by the people's lack of will, and I don't care if there's a water leak all the time." (Resident 2 of Paso Real, 2003)

- ✓ The *communication* problems between the technical water board and the community, and between Hidrocapital and the community. The generalized perception is that of a total lack of information. The community does not know what happened with the organization or the projects pursued by the agency. According to Hidrocapital, this is one of the most important obstacles to the sustainability of the organization and its functions.

"We have found that we have done an enormous amount of work for the technical boards, but when we assess the level of the collective – which is the entire community – we find a certain amount of resistance to co-responsibility, to identification, and even to

understanding that people have to take care of the pipes, that they have to take care of the pipes, that people have no reason to illegally tap into the pipes. That whole set of things ... people have not accepted that. And they have not accepted it because there has been no transmission of information between the technical board and the community." (Hidrocapital's Community Coordinator for the Losada-Ocumarito System, 2003)

Payment for service does not seem to have been a barrier in this case, since people in general have taken a positive attitude. Some are even highly aware of the fact that services are illegal and need to be normalized.

"We already took a census. The people, the great majority, agree with paying for water. Some say they have no money to pay with, but they also want to do something." (Resident 3 of Paso Real, 2002)

"Let's be honest: services are stolen here.... If they give me water, we'll pay for the service. I don't object to paying a fee for a service that comes to my home, because that's an obligation, it's like an honour for you to pay for a service they are giving you." (Resident 2 of Paso Real, 2003)

The problems outlined above regarding the organization's vulnerability, the absence of responsible participation by the community, and the communication difficulties in the context of an economic and political crisis that depressed government agencies' performance (especially the budget cut), all contributed to provoking the organization's dissolution.

4.2.3. A positive experience: Hacienda El Carmen

This settlement originated in an occupation of public lands (belonging to the National Housing Institute – INAVI) in an area adjoining El Cartanal in Paz Castillo Municipality. It was part of a larger occupation in which several communities took part. It has approximately 2,200 plots distributed among five major sectors³⁷. The occupation was more orderly in some sectors than in others, but INAVI's prompt response made it possible to introduce the idea of rearrangement of plots through the drafting of a preliminary urban development plan for the settlement.

The settlement lacked all public utilities and services at the outset. Water was obtained mainly from private tank trucks, since the public tank trucks sent by the municipal government and other institutions (fire department) were insufficient to serve the large number of people. The enormous expense imposed on the families for these water purchases led the organizations now existing in the community, five civil associations, to do a survey to determine exactly how much was being spent. It was on the basis of that survey that contact was made with Hidrocapital, which undertook to find a solution to the water supply problem for the entire settlement in conjunction with the community.

As a prerequisite, Hidrocapital demanded the formation of a technical water board for each sector, but in view of their size it proposed the creation of smaller block-level units: horizontal condominiums. These small groups of neighbours would make it possible to charge for water supply through the community representatives, foster a democratization of information and decision making on the project's progress, and control water use throughout the settlement.

³⁷ Families that had lost their homes in the natural disaster striking several states of Venezuela, as well as families from the PUI-Tuy and Caracas, participated in the occupation, in late 1999.

Five water boards and 39 horizontal condominiums were formed. The representatives of the condominiums comprising the sector participated in each board, so that information could easily flow from and to the community. From the outset the members of these organizations participated in the collection of basic information with which to draw up the technical plan for the pipe layout, the sketch for each sector with its division into blocks, and the census of the population, as well as collecting water payments and caring for the use of the resource. Once the water supply system for the settlement was defined, these organizations have been seeking the funding to pay for secondary pipes, for which they as a community were responsible, and they have begun to seek the construction of a sewer system.

This settlement now has a water main built by Hidrocapital, but with a technical problem making it necessary to replace a section of 4" pipe with one of 8" in order to improve the water pressure for the higher elevations. In addition, the secondary pipe networks must be completed for the system to go into operation. Though the creation of the technical water boards has made it possible to bring the community together and organize it, to date only two sectors of the settlement receive water, two days a week. There are 216 families that receive water, some directly piped to their homes and others by connecting hoses to areas receiving piped water. Most of the settlement continues to buy water from private tank trucks at a high cost to the household economies.³⁸ To complete the secondary pipe network, after having received a contribution from the municipal government and INAVI covering half its cost as a result of the technical water boards' initiatives, the community must pay Bs. 3,000 to Bs. 9,500 (US\$ 1.50 to US\$ 4) per family, depending on the sector. But even this modest contribution has sparked disputes with the leaders of other organizations, and it has thus far proven impossible to collect it except partially.

How do the technical water boards work in this settlement? The following major features were revealed in our interviews:

- ✓ Joint efforts with Hidrocapital from the outset, in which the members of the organization have learned how water is produced and how the systems operate, and have developed skills in collecting the information needed by the agency, while the technical staff has learned to work with the community and respect its contributions. This form of work changed the community's judgment of the technical staff; there is now a clear acknowledgment of the technical staff's performance based on the working relations and the institutional commitment assumed by them to carry the project through to completion. Participation in the project has brought with it learning about the technical water systems and the development of people's knowledge expressed in initiatives to solve concrete problems.

"They asked us to draw the sketch of each sector and take a census of the population, and to try to divide the sector into condominiums, or blocks. And we did it; we gave them the sketches, we gave them the census ... and the voucher for the money we collected for two months so that the pipe could go into operation (a section previously installed by the state government) ... then they started to open the valve for the service. Work had continued to be done with the technical water board for the overall project, in which this 4"

³⁸ The families living in the sectors that still do not have water supply spend an estimated 30,000 Bolivars per month on large bottles of pure drinking water purchased from private trucks. This amount is equivalent to approximately 10% of the monthly minimum wage, i.e., US\$ 10. (Interview with a Neighborhood Leader of Hacienda El Carmen).

pipe will be changed to an 8" pipe so that there can be pressure and water can reach the furthest sectors." (Neighbourhood Leader, Hacienda El Carmen, 2003)

- ✓ The organization's relations with the public institutions is posed in terms of each party's accepting responsibilities to obtain and maintain the service.

"From the beginning they told us Hidrocapital would install the main pipe and the community would also contribute. Because the work was going to be done together by the institution and the community, and the community was going to make its contribution to installing the ramifications.... Now it's up to us to get the pipe for the ramifications." (Neighbourhood Leader, Hacienda El Carmen, 2003)

It has not been at all easy for the community to take on these commitments and the process has been marred by conflict. But progress has been made in that respect.

- ✓ Forms of communication with the community were developed, which made it possible for information to flow easily and for decision making to take on a democratic character. The organization of the horizontal condominiums played a major role in accomplishing that, by facilitating contact with the people through their representatives who carry information, make consultations, and collect opinions, leading to decisions by a majority of all participants.

But there is no broad representation in all the condominiums, and we noted that the leaders play multiple roles at several levels of the organization and in different organizations.

What have the technical water boards accomplished in Hacienda El Carmen?

Despite the fact that the water supply system for the entire settlement has not been completed and that a sanitation system is still merely an idea, there are significant achievements that emerge from the experience of the technical water boards and the horizontal condominiums.

- ✓ Strengthening of the settlement's orderly development, which began with the re-arrangement of plots through negotiation with the people. Though not all the guidelines of the urban development plan proposed by INAVI were followed, the community did re-arrange its occupation of land, standardizing the size of the plots within certain limits, achieving an acceptable street layout that makes it possible to install utility networks and leaves lands on which to build some public services (a school, a health care centre, a women's centre, etc.). However, a group of families living in high-risk areas still remain to be relocated to safer lands.

"Here we have the chance to make a good neighbourhood, to get the slum idea out of our heads, to forget about how much longer we'll continue living in slums.... I told the people: urban development is for us to have all the services in the community ... what are you going to do with a tremendous piece of land if that is worthless to you?" (Neighbourhood Leader, Hacienda El Carmen, 2003)

- ✓ Progress in the formalization of the water supply system and water supply itself through the installation of the main pipe (Hidrocapital) and initiatives to obtain the funding for the secondary pipes.

- ✓ The settlement is moving in the direction of obtaining a sustainable service through actions that contribute to the development of a water culture and an identification with the service: permanent supervision of the current distribution network's condition (including that of the hoses), supervision to ensure proper use of water, normalization of payments for the service.

“Just because we had water there was no point in wasting it; we have to maintain it, form strategies for a good management of the water.” (Neighbourhood Leaders in Hacienda El Carmen, 2003)

- ✓ There has been a projection of the water boards and the horizontal condominiums to address other community problems. From water the community took up the problem of electricity and formed a technical electricity board. From the construction of the water supply system it has gone on to discuss the creation of cooperatives to generate local employment. From the horizontal condominiums it has advanced to organizing primary health care. Community organization facilitates relations with the institutions and is a strength of the community that allows them to operate.

“The experiences I've had with the technical water board are not just about water. That has opened a lot of doors for us, because as soon as they see the communities are well organized, the institutions take more of an interest in reaching those communities.” (Neighbourhood Leader, El Carmen, 2003)

- ✓ Joint work between the technical water boards and the Hidrocapital and INAVI technical staff, under a community work concept on the part of those agencies, has led to a reduction in the confrontation between the "technical vision" and the "culture of informality," thereby facilitating mutual familiarity and respect for both parties' respective areas of knowledge.

To sum up, we can conclude from this experience that, in spite of all its limitations there has been significant progress toward the creation of a new concept of organization and community participation that reveals a qualitative change vis-à-vis the traditional model: the point is no longer to demand a response from the State or to substitute for its responsibility, but to concretely accept a co-responsibility for the solution of social problems.

FINAL THOUGHTS

The water supply systems in the lower-income communities of the PUI-Tuy are characterized by: a strong presence of the State agency, Hidrocapital, which is responsible for providing service to the entire CMR; the incorporation of state and local government agencies through the search for varying sources of funding for the construction of the networks; and an important community participation through a number of different organizations which have done everything from the installation of informal pipe networks to making demands for the service and its management.

The systems' informality and the limited volume of water available for urban expansion have major consequences for the households in the lower-income communities of the PUI-Tuy, and especially those in settlements originating in illegal land occupations. Water is a fundamental organizer of daily life for these households, which must devote enormous amounts of effort, time, and even money to obtaining, carrying, and storing this vital resource. Women make most

of the efforts to organize daily life around water, but the problem also alters the daily life of the men in several ways, since they must do the heavy labour of carrying water, or experience its absence.

Water is the communities' leading problem, and it is collectively addressed through a range of community organizations. In contrast to the old organizations of a clientelistic nature, with leaderships that seek to represent but not mobilize the communities and with community participation only in emergencies, there are now emerging new organizations under the stimulus of institutional policy. These new organizations, the technical water boards, seek to engender a broader, more sustained, and more responsible community participation in the process of obtaining the service, maintaining, it and taking care of it.

From the experiences of community participation in obtaining water supply there arise a set of important factors to be considered in regard to the prospects for enriching the concept of participatory governance:

- √ *The shift from a culture of needs to a culture of rights and obligations*, in which the community not only demands the satisfaction of a vital need such as water supply or expresses its right to a service, but also accepts concrete responsibilities in obtaining the systems, maintaining the networks, paying for the service, ensuring proper use of the water, and in a nutshell, the creation of a culture of water that makes the systems more sustainable.
- √ *Trust in the institutions*, which seeks to overcome the communities' initial distrust, associated with a lengthy history of unfulfilled institutional commitments. A trust that is built up on the basis of transparency of action, ongoing transmission of information, and completion of projects with concrete results.
- √ *Communication* is a key factor for the flow of information between the organization and the community, to ensure the latter's effective and ongoing participation. It is also a key factor in the contacts between the public institution and the organized community, which ensures that both have an up-to-date vision of the meaning and course of the projects under way.
- √ *The community – technical staff relationship* based on the former's understanding of what the institutional action means and the latter's understanding of what the community is. It is vitally important for people to know how the service operates and how water is produced, in order to develop an appreciation of it, and for the technical staff to know how the communities function, in order to provide effective responses. Joint efforts result in a build-up of trust and mutual respect for both technical and people's knowledge as a way to improve the water supply service, enhance quality of life, and reduce the water poverty now suffered by large sectors of the population.
- √ *Coordination* among the different institutional and community actors involved in the solution of the socioterritorial problems, setting aside the disputes stemming from the country's socio-political conflict.

In summary, it can be said that in the framework of the transformation processes under way in the country's new institutional context, new community organizations are developing and new

forms of community participation are being put into practice, that are contributing to an improvement in access to pure drinking water in the Caracas periphery.

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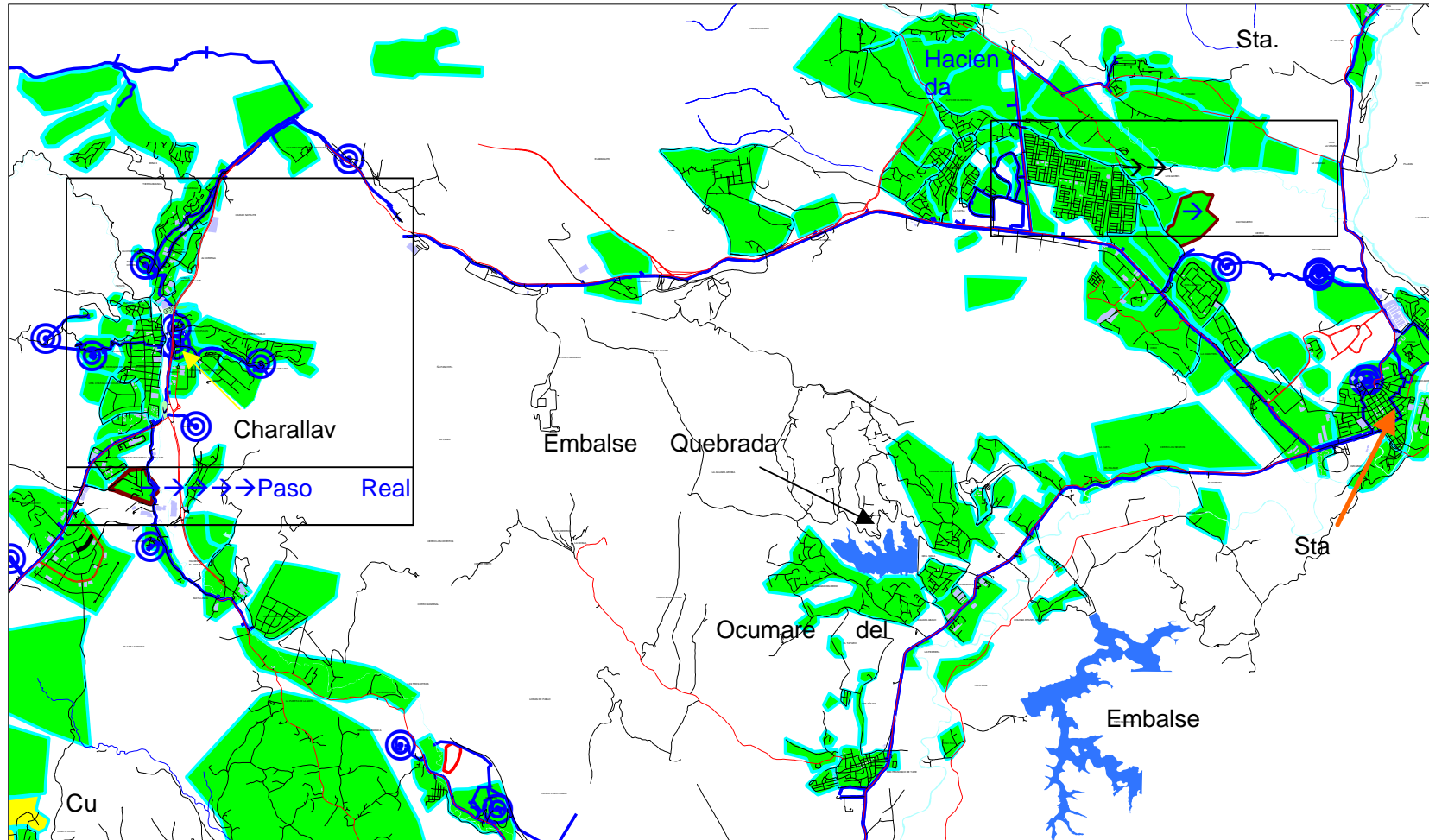
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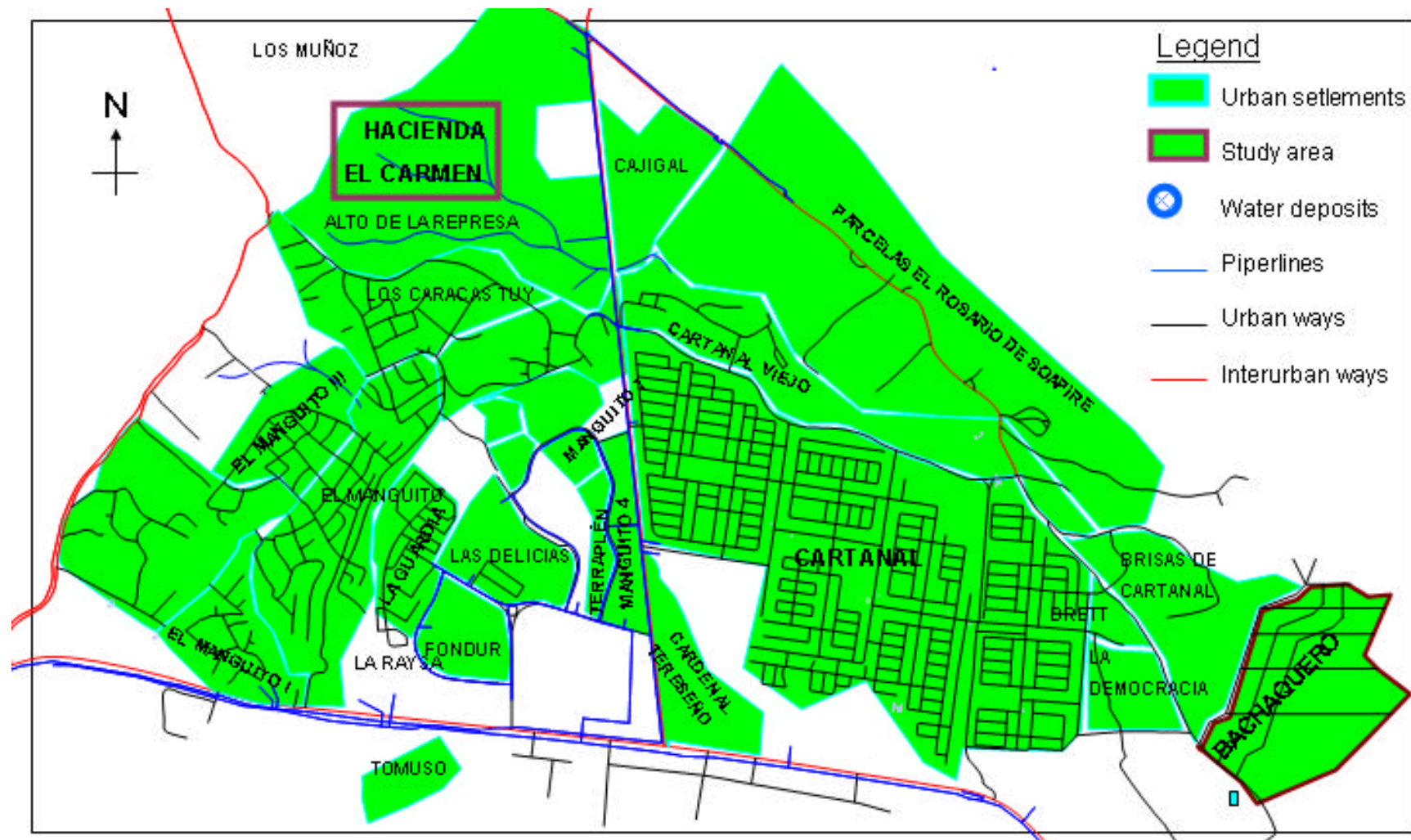
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APPENDIX 1: MAPS

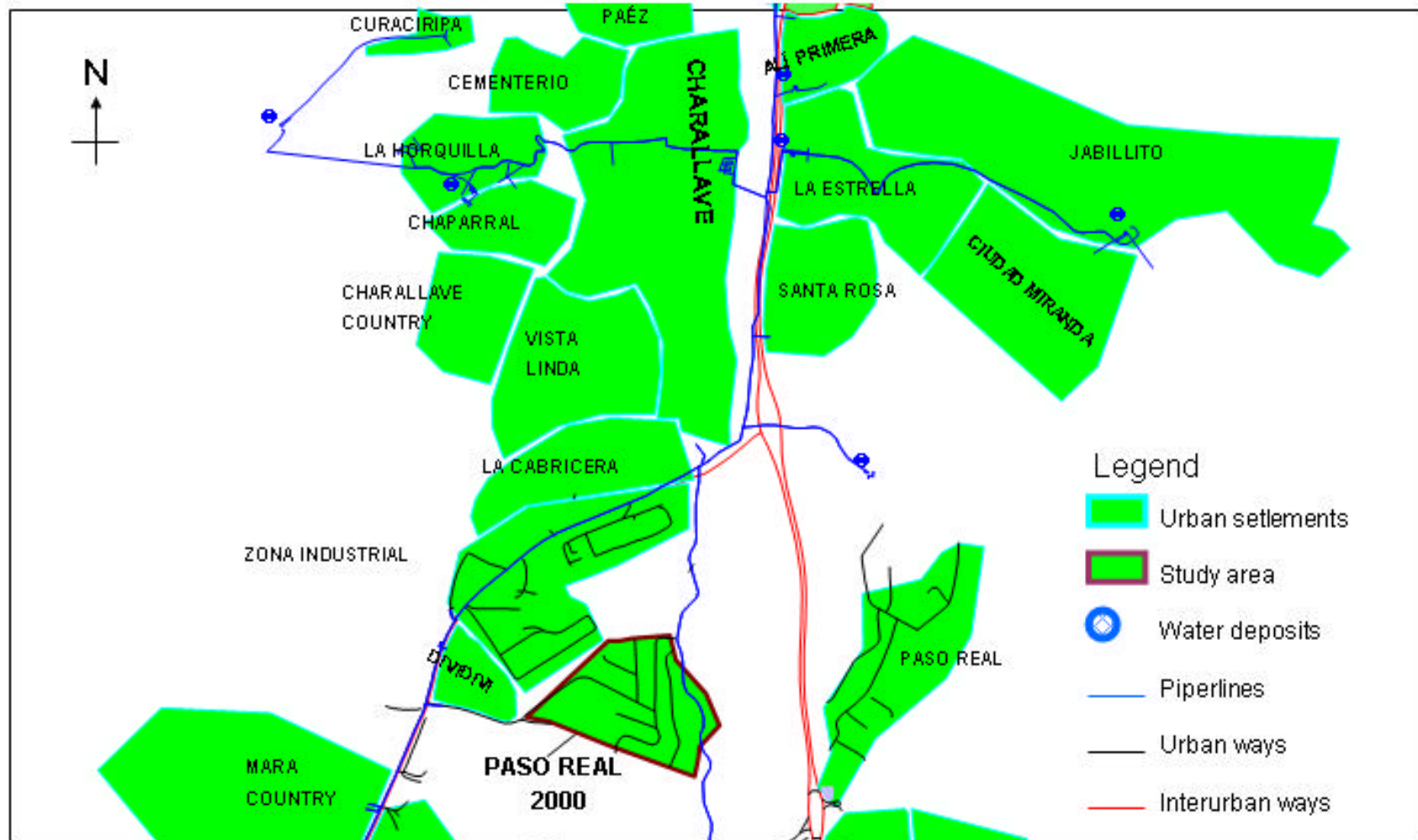
Map 1: Location of the selected PUI-Tuy communities



Map 2: Bachaquero – El Cartanal



Map 3: Paso Real 2000



APPENDIX 2: LIST OF INTERVIEWS

Interviews Conducted

Interviews with public institutions and key officials (9)

Hidrocapital

- ✓ Manager of the Losada-Ocumarito System, Paolo Zotti (August 2003)
- ✓ Community Coordinators for the Capital Region Systems (August 2003)
- ✓ Community Coordinator for the Losada-Ocumarito System, Ismael Marín (October 2003)

Cristóbal Rojas Municipal Government

- ✓ Director of Urban and Rural Planning, Iván Caputto (October 2003)
- ✓ President of the Municipal Habitat Institute, Bernardo Balza (October 2003)
- ✓ Director of Public Works, María Martínez (October 2003)

Independencia Municipal Government

- ✓ Director of Social Development, Lourdes Duarte (October 2003)
- ✓ Director of Public Services, David Malavé

**Alejandro Hitcher*, Vice Minister of the Environment and ex-Director of HIDROVEN (December 2003)

Interviews with Neighbourhood Leaders and Key Individuals in the Communities (9)

Bachaquero

- ✓ Neighbourhood Leader 1, Civil Association, Luisa Cumana
- ✓ Neighbourhood Leader 2, President, Civil Association, Lugo Cumana
- ✓ Neighbourhood Leader 3, Civil Association and Bachaqueros Unidos Cooperative (December 2003)
- ✓ Maestra Wendy, Director of Preschool Education and member of the Bachaqueros Unidos Cooperative.

Paso Real 2000

- ✓ Neighbourhood Leader, President of the Civil Association, Ramón Moy (October 2002)
- ✓ Neighbourhood Leader, President of the Civil Association, Ramón Moy (October 2003)
- ✓ Physician in the Inside the Slum Plan
- ✓

Hacienda El Carmen

- ✓ Neighbourhood Leader, Coordinator of the Technical Water Board, El Esfuerzo Sector, Daysi Flores (October 2003)
- ✓ Neighbourhood Leaders Hacienda El Carmen and adjoining sectors (November. 2003)

Interviews with families (7)

Bachaquero

- ✓ Resident 1: Maryori
- ✓ Resident 2: Fergenis

- ✓ Resident 3: Alba

Paso Real 2000

- ✓ Resident 1: Yeneida (Terrace 1)
- ✓ Resident 2: Gladys (Terrace 11)
- ✓ Resident 3: Ana (Terrace 9)
- ✓ Residents 4: Alí and Griselda (Terrace 3)

Focus group (2)

- ✓ *Bachaquero*: 20 residents, from different sectors of the settlement, participated.
- ✓ *Paso Real 2000*: 15 residents, mostly from Terraces 11 and 9, participated.