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# **THE WATER UTILITIES OF CIUDAD JUAREZ (JMAS), CHIHUAHUA, MEXICO: WATER MANAGEMENT AND THE MODALITY OF DECENTRALIZATION**

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The last decades in Mexico have been marked by decentralization processes of diverse activities and competences to municipal level of water services. Questions arise relating to the best modality of municipal integration to the water administration systems and their services. Also questions come up involving the limitations and potential contributions of the municipal participation in the basin management.

The present work has the objective to respond to these problems and to open a discussion about them. The study is based on a theoretical and empirical bibliographical revision on the participation of the local and state governments in the water planning and management. The information stems from the updating of the Master Plan of Drinking Water and Sewer System of the JMAS, and from the national, state, and local press.

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# THE WATER UTILITIES IN CIUDAD JUAREZ: DISADVANTAGES OF DECENTRALIZATION

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## ABSTRACT

The last decades of the 20th century have been marked in Latin America and the Caribbean region by decentralization processes in water resources management with municipal participation. The objective of this paper is to highlight some disadvantages of decentralization processes in Ciudad Juarez, based on the author's experience in several forums of public consulting, regarding the approved Partial Plan of San Jeronimo. Knowledge obtained from the mentioned experience was used as a part of the methodology for writing this paper. The experience shows that citizen's consulting and participation are feasible and that decentralization has several risks in water management. Decentralization in many cases is oriented to the interests of specific groups, which causes unsustainable scenarios.

### 1. Introduction

#### 1.1 Water quantity

Water is considered in the Water Resources National Plan (WRNP) of Mexico as a strategic resource involving national security (CNA, 2001). In the case of El Paso del Norte Region (Las Cruces, NM and El Paso, TX in the United States and Ciudad Juarez in Mexico), as an arid region, the previous consideration of the National Water Commission (CNA) is evident.

#### 1.2 Climate

Climate is considered by the WRNP as very dry in the climate distribution nationwide with 250 mm of rain on average for the period 1941- 2000. Droughts affect mainly the northerner states of Mexico. In order of importance of the adverse effects of droughts, the states are: Chihuahua, Coahuila, Nuevo Leon, Baja California and Sonora (CNA, 2001).

#### 1.3 Social pressure on water

Regarding social pressure on water, North of Mexico uses more than 40% of the natural average availability, what is considered by the United Nations as a strong pressure. This parameter is 56% in the Management Region VI (CNA, 2001). Ciudad Juarez is located in this hydrological region according to the CNA.

#### 1.4 Underground water

In Mexico, 102 aquifers are depleted. It is considered a depleted aquifer when water over-extraction is at least 10% (CNA, 2001). For example, the Hueco Boson Aquifer in

Ciudad Juarez has a water depletion level of 5 (500%) approximately since the annual extraction is 150 Mm<sup>3</sup> and its recharge is around 30 Mm<sup>3</sup>. The freshwater reserves exhaustion will happen in the next 20 according to JMAS.

### 1.5 Municipal water challenges

The Mexican Constitution (Article 115) states that municipalities are in charge of water supply services, drainage, sewer system, and wastewater treatment. The main water problems are:

- Lack of consistent water management policy due short-term of administration of the municipal government (three years).
- Attention centered in the short-term problems. Additionally, the plans and program are not based on water availability and demand management.
- Management deficiencies due to constant staff rotation
- Water losses between 30 and 50%
- Low financing capability for operation and maintenance
- Lack of consistent user data
- Political and institutional problems due to monitoring deficiencies (Herández and Villagómez, 2000)

Because water is a public good, government is in charge of its management based on public interest. This duty is oriented toward the objectives of water conservation and protection and social equity (Segura, 1998). Municipalities are interested in generating employment, attracting investments and promoting socioeconomic development in their territories. Nevertheless, one of the problems to achieve these goals is their limited physical space into the river basins boundaries, and the consequent impossibility for these governments to have a comprehensive point of view on water issues. Basins are the natural units of water resources planning and management in Mexico.

### 1.6 Water negotiations

In order to overcome the mentioned problem, municipalities should lead an effective negotiation with the community, the private sector and other government agencies. The best way to assure water sustainability is through natural resources protection and conservation (Jouravlev, 2003). In Ciudad Juarez there is a scenario of unmanageable water process reflected as a lack of efficiency, efficacy, transparency and social participation (Córdova, 2006), although JMAS is recognized nationwide as one of the best water utilities. In Ciudad Juarez the confidence on the political institutions is very low. Civic participation is led mainly by non profit organizations and NGOs.

### 1.7 Water management

The fundamental purposes of water utilities in water management are:

- Law application
- Water allocation
- Pollution control
- Users registry

- Planning
- Project evaluation
- Water works construction

In many places, practice has shown that in order to achieve the management programs goals, is necessary the coordination between municipalities and other governmental agencies since municipalities are not the best institutional agencies for water planning. Because water is a strategic resource with important economic, social and environmental significance, it is necessary to have a national perspective. Consequently, it is not surprising that in many cases decentralization is carried out without coordinating with other agencies, causing serious conflicts. These conflicts are impossible to solve without the involvement of an upper level authority. In the case of the urban services, (drinking water, sanitation and urban drainage), it is important to take into account diseconomies of scale, that are very important in water utilities.

In other cases, municipalities have been surpassed by new cities growth in its territory, located very far from the municipal headquarters, making difficult an efficient local government. Other reasons against decentralization of the fundamental duties of water utilities are the following:

The nature of limited interest of the small area of local governments generates decisions oriented to specific interests, which not necessarily mean a better water use (Segura, 1998). The weakness of the local governments in comparison to the state ministries and other governmental agencies has caused a loss in the negotiation ability of the municipalities.

### 1.8 The San Jerónimo project

The San Jerónimo project is an urban plan proposed by the Real Estate Agency San Jeronimo and approved by the municipal government of Ciudad Juarez in December 2005. This Plan is, according to the municipal government, a project of urban development oriented to take advantage of the potential labor and land located in the west part of the city, 15 km far from Ciudad Juarez in front of Santa Teresa, Nuevo Mexico in the US. According to the company, it would be located in a strategic place that would diversify the economy and would create employment, taking advantage of the population growth of 4.5% annual of Ciudad Juarez. 50,000 people/year (20,000 by immigration and 30,000 by natural growth) approximately will arrive to that region. The Partial Plan would initiate, in the first phase (one out of three), with 3,502.72 hectares. The Plan would use the water source called Conejos-Medanos (Mesilla Aquifer) that is considered underexploited, without putting in risk, supposedly, the future availability. The Plan suggests an urban development that would promote the water reuse and recycling.

The water resources situation of Ciudad Juarez aquifers reveals the exhaustion of the Hueco Boson aquifer. Such depletion of freshwater reserves will happen in the next 20 to 25 years. Brackish water that is found under the freshwater stratum and its treatment through inverse osmosis is very expensive at present. The possibility to utilize the Conejos-Medanos aquifer in order to achieve the Hueco Bolson recharge, throughout adding up 1 m<sup>3</sup>/seg to the present water system, would open the possibility for recovering this aquifer. Nevertheless, with the approval of the Plan San Jerónimo, such possibility is reduced, since the exhaustion of the Conejos-Medanos water resources would follow rapidly.

## 1.9 The public consulting

In order to have a better understanding of the San Jeronimo Plan by the society, the municipal government agreed to discuss the pros and cons of the Plan. The discussions were carried out with NGO's specialists, media, businessmen and public in general. It was an excellent exercise to involve citizen in the decision making process. It was shown the disadvantages of decentralization when the municipal government decides unilaterally based without having specific data from hydrological, climate, socio-economic, financial and legal studies, that is to say, based on data from overall water plans.

## 2. Methodology

The author's experience in several forums of public consulting regarding the approved Partial Plan of San Jeronimo was used as a part of the methodology for writing this paper.

## 3. Conclusions

The experience shows that citizen consulting is feasible and that decentralization has several risks in water management in Ciudad Juarez. Decentralization in many cases is oriented to the interests of specific groups, which provokes unsustainable scenarios.

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