

Venezuela: Participatory management of water resources in Tovar municipality (#410)

Description

Tovar municipality is located at the northeast of Aragua state and in the centre of Venezuela's coast. It includes villages and towns from the coast to the mountain. The population is estimated to be near 20,000 inhabitants (year 2008). In 1964, the Colonia Tovar and surroundings was designated as tourist area and Natural Park. The area is important for its biodiversity as well as its rich water resources. The rivers originating in this area provide drinking water to several towns in Vargas and Aragua states including the capital Caracas.

In an effort to supply water to the growing population, in 1981 an aqueduct was built in the watershed of El Limón River. Tovar municipality draws its water mainly from this aqueduct. However, the villages and sectors of Colonia Tovar do not adequately receive water from the aqueduct and they have to seek for other alternatives. A fight for the location of new connections in relation to the existing ones has produced conflicts in communities living at Tovar municipality. These conflicts get worse during the dry season with strong disputes between neighbours, going from street discussions to tube cuts. Disposal of sewage directly to a Tuy River affluent at Colonia Tovar and a garbage dump on the high mountain areas of Cumbote Village is also a problem.

Action taken

Communal councils have been formed to address drinking water supply and sewage disposal issues. Also, it helps to produce documents of formal agreements for the recovery of environmental damage and reforestation in areas deforested by agricultural activities. The agreements limit deforestation at the headwaters and agricultural activity is also limited to prevent destruction of vegetation cover. There are also communal agreements that regulate the access to water, 96 families from the village have benefited from the rational use of this resource.

To solve the conflicts communities have made agreements on the use and conservation of water resources at Tovar municipality. The agreements involve both rural villages and urban areas. At the level of national authorities, Sewage Treatment Plant of Colonia Tovar is being build which is estimated to benefit a population up to 12,000 inhabitants of the urban area. This plant will contribute in improving the sanitation of Tuy River basin considered important for increasing water supply.

Communities in Colonia Tovar have organized themselves in communal councils and this provides spaces for participation, articulation diverse community based issues. This further allows people to implement the management of public policies and projects. Project of Dam construction at Las Peonías Sector and a new drinking water distribution network at Costa de Maya Sector as a midterm solution to the drinking water scarcity are planned.

Lessons learned

Communal councils have shown that they can participate actively on the decision-making process to establish regulations for water supply in rural villages. However, such regulations are mainly verbal agreements that still need more legal support.

Communal councils as organizations with a community base may be involved in the decision-making process needed for water resources management in Colonia Tovar. Their success depends on their capacity on project formulation and management, and the effective transfer of budget and responsibilities of national government.

The Colonia Tovar case shows that it is possible and pays off for water development and management to be based on a participatory approach, involving users, planners and policy-makers at all levels, taking decisions at the lowest appropriate level, with full public consultation and involvement of users in the planning and implementation of water projects.

The case study also shows the potential benefits of transferring responsibilities to the municipalities, as established by the Law for Drinking Water and Sanitation Services. As a consequence, the decision-making process on a local problem is closer to the people directly involved.

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Main text

Description

Tovar municipality is located at the northeast of Aragua state and in the centre of Venezuela's coast (figure 1). It includes villages and towns from the coast to the mountain. According to population projections of the National Statistics Institute (INE) Census, this municipality had a population of 18.118 inhabitants in 2008; 11.052 people living in rural villages and 7.066 in Colonia Tovar, its capital.

Figure 1



Colonia Tovar was founded in 1843 by a group of immigrants coming from the Baden independent state which was later part of Germany. It has preserved some of its cultural origin, being called the Caribbean Germany this day. Because it is in a mountainous area, close to 2.000 meters above sea level, it has an average temperature of 61o F. For this reason, it is well known as an agricultural place that produces temperate weather crops, such as peach and strawberry. Other important crops in the area include beetroot, broccoli, cabbage, carrot, cauliflower, chard, chives, lettuce and potato.

In 1964 President Rómulo Betancourt decreed Colonia Tovar and surrounding areas as touristic attraction through Presidential Decree N° 1.165. Since then, diverse sectors of Tovar municipality have integrated to tourism. Because it is only 42 kilometers away west of Caracas, capital of Venezuela, it receives thousands of visitors during weekends and holidays. Pico Codazzi Natural Monument is a natural protected area present in Tovar municipality. In its cloud forests there are trees such as cedar, prapa palm and royal palm or blessed palm. This area also protects mammal species such as the ocelot and endemic birds such as the red-eared conure, the handsome fruit-eater and the Venezuelan bristle-tyrant. Headwaters of four rivers are found within the monument: Petaquire, Maya, El Limón and Tuy. These rivers provide drinking water to several towns in Vargas and Aragua states, and even Caracas. The hydrography of Tovar municipality is divided into three watersheds: (1) Caribbean Sea, with Maya and Paraulata rivers that drain off to the north; (2) the endorreic basin of

Valencia Lake, where Macanillal, Gabante, Curtidor and Aragua rivers flow; and (3) Caribbean Sea again, through Tuy River, that drains off to southeast-east.

In an effort to supply water a growing population, in 1981 an aqueduct was built in the watershed of El Limón River, located at the north of Cordillera de la Costa mountain range in Vargas municipality (Vargas state). The aqueduct is managed by Compañía Anónima Hidrológica del Centro (Hidrocentro), a subsidiary of Compañía Anónima Hidrológica de Venezuela (Hidrogen), state company that manages drinking water supply and sewage treatment in Venezuela. This aqueduct comprises a dyke, two pumping stations that transfer water south of the mountain to a purification plant. Water supply in Tovar municipality comes mainly from this aqueduct. Its infrastructure is within Pico Codazzi Natural Monument and this was built before the creation of the natural protected area in 1991. According to Hydrocentro, the aqueduct supplies water to 12.000 people, but this number is uncertain since the City Hall of Tovar Municipality does not regularly receive statistical updates from the authorities. Unofficial estimates reveal that water is supplied only to 5.346 inhabitants of Tovar municipality which is only 30% of the municipality's total population.

Meanwhile, the scarcity of water resources is evident seen in the number of illegal connections that cross the forest to take water to crop areas and houses, especially in areas close to Pico Codazzi Natural Monument (figure 2). These connections generally require long plastic tubes that carry water to tanks located close to rivers, before being transported by gravity where it is needed. Both villages and sectors of Colonia Tovar that do not receive water from the aqueduct, get their water from direct connections to water bodies at Tuy River basin.

Figure 2



Figure 3



The fight for the location of new connections in relation to the existing ones (figure 3) has produced conflicts in communities living at Tovar municipality. These conflicts get worse during the dry season with strong disputes between neighbours ranging from street discussions to tube cuts. Other sources of conflicts related to quantity and quality of water resources at Tovar municipality are a result of deforestations in the process of clearing land to grow crops on lands adjacent to headwaters of rivers in Capachalito Village. Disposal of sewage directly to a Tuy River affluent at Colonia Tovar and a garbage dump on the high mountain areas of Cumbote Village are some of the important issues that need to be addressed.

Actions Taken

To solve the conflicts mentioned above, communities have made agreements on the use and conservation of water resources at Tovar municipality. Some examples of agreements in rural villages and urban sectors follow:

- **Capachal Village:** The agreement is that no deforestation can be done at the headwaters of rivers in Capachal Creek micro basin, so they become protected areas. Neighbours at these areas have limited their agricultural activity to avoid affecting vegetation cover.
- **Capachalito Village:** Communal councils have produced documents of formal agreements for the recovery of environmental damage and reforestation in areas deforested by agricultural activities. To achieve this, they have denounced the illegal activities to the institution in charge of environmental vigilance, the Guardia Nacional Bolivariana (GNB). In addition, thanks to communal agreements that regulate the access to water, 96 families of this village have benefited from the rational use of this resource.
- **La Ballesta Sector (Colonia Tovar):** The agreement between neighbours is that water connections must be located at a height in the river that is proportional to the height where the house is, so houses at the lowest part of a micro basin cannot locate their connection higher than the houses at the highest part of the micro basin. Additionally, if the river goes through private property, authorization from the owner to locate the connection is needed. Finally, neighbours have agreed to reforest the highest area of La Ballesta Creek, to minimize sediment accumulation after rains.
- **El Paují Sector (Colonia Tovar):** Because of the lack of an operative sewage treatment plant, the Communal Council of this urban sector is evaluating the possibility to build biodigesters. With this technology they expect to take care of sewage and to obtain biogas for energy generation.

Throughout Venezuela, communities have organized themselves in communal councils, which can be described as spaces for participation, articulation and integration among citizens and diverse community organizations, social and popular movements. This allows organized people to carry out communal, government and direct management of public policies and projects oriented to give answer to the needs, potentialities and hopes of communities, in the construction of the new model of a socialist society of equality, equity and social justice". Communal councils may receive financial and non financial resources directly from national government and private institutions (Articles 2 and 47 from the Organic Law of Communal Councils).

At Tovar municipality, communal councils have addressed drinking water supply and sewage disposal subjects, while in other regions of Venezuela, the water technical boards have been the communal organizations dealing with these subjects. The Water Law recognizes communal councils, technical boards and irrigation committees as institutions for water management (Article 21). Nevertheless, organized communities not always have the technical and operative capacity to solve conflicts for water use, or they do not know the legal framework which supports water management.

Currently, the City Hall of Tovar Municipality has assumed the leadership on water management of the area, because it is the institution that articulates several sectors of society. On one hand, the Major Alfredo Durr established the following priorities related to water supply, sewage disposal and sanitation within its Municipal Government Plan 2008-2013:

- Recovery and maintenance of water basins and microbasins
- Termination of the sewage treatment plant and sewer network at Colonia Tovar (Sanitation of Tuy River Basin)

- Project of Dam construction at Las Peonías Sector (south of municipality) and a new drinking water distribution network at Costa de Maya Sector (north coast of the municipality), as a midterm solution to the drinking water scarcity
- Project to install bio digesters at villages and towns of the municipality

On the other hand, in the municipal management agenda of the Mayor, Wednesdays were agreed as a weekly appointment day with the communal organizations to support and work together and come up with solutions by consensus. The Direction of Economic Development of the City Hall, in charge of Miguel Solanilla, also participates in these meetings.

Figure 4



The search for solutions promoted by the City Hall through participatory management has identified pollution problems at Cumbote Creek microbasin aquifers, as a consequence of a garbage dump on the high area of the mountain. The Mayor of Tovar and the Director of Economic Development has met with the Communal Council of the areas to evaluate alternatives to remove and relocate the dump (figure 4). Additionally, the Ministry of the Environment has given technical support. The Social Movement “Bolívar en Martí” and the Venezuela Central University are giving technical support to evaluate water quality in the area. Through the Colonia Tovar Commerce Chamber, the City Hall has received logistic support and donation of materials. Apart from this, the Tovar municipality Councilors is working on a proposal for integral solid waste management, where communal councils will be responsible to operate the plants for waste classification. This project will start in 2012.

At the level of national authorities, Hidroven is currently building the Sewage Treatment Plant (PTAR) of Colonia Tovar (figure 5), which is estimated to benefit a population of 11.950 inhabitants of the urban area. This plant will contribute in improving the sanitation of Tuy River basin which is considered as an alternative to increase water supply. The Colonia Tovar Commerce Chamber has given logistic support for the construction of the Plant.

Outcomes

The City Hall of Tovar Municipality has applied the principle of citizen participation to meet the objective of its Government Plans related to recovery and maintenance of water basins and micro basins, through the implementation of weekly meetings with communal councils. However, the lack

of technical support to formulate projects and since many of the communal initiatives is in progress, there are no impact indicators of the actions taken.

Figure 5



Since the decision to carry out weekly meetings is a management decision of the current Mayor, the sustainability of this mechanism will be threatened when the local government changes. The challenge is if the next Mayor will consider the benefits that this mechanism gives to its work.

With the support of Hidroven and Colonia Tovar Commerce Chamber, the City Hall advances towards the completion of the sewage treatment plant for Colonia Tovar. Nevertheless, the development of an alternative source to complement the current aqueduct and the installation of bio digesters, are still pending projects. In the past, two proposals were formulated including: (1) Dam at Tuy River downstream Colonia Tovar at Las Peonías Sector, (2) Dam at Costa de Maya Sector (proposal formulated at the same time as El Limón aqueduct project). Currently the City Hall is searching for technical support to send these proposals to Hidroven.

To achieve the aims established in the Municipal Government Plan 2008-2013, the City Hall has faced a number of difficulties:

- **Administrative:** Although the Law for Drinking Water and Sanitation Services (Articles 9 and 11) promotes the transfer of responsibilities on these services from the national government to the municipalities, there are no significant advances yet. Currently, the aqueduct management that supplies Tovar municipality is an exclusive responsibility of Hidrocentro, a state-owned company. Nevertheless, this company neither has taken actions on the sediment problems at El Limón aqueduct nor has it designed any alternative to increase drinking water supply. This limits the City Hall to implement direct actions since the aqueduct management is still centralized.
- **Financial:** The annual municipal budget is reduced and depends on financial resources coming from the national government, which are calculated while taking into account the municipality population and municipal taxes. This budget covers ordinary expenses such as salaries and minor public construction. Additional funds may come from applications to a Fund of the Federal Government Council for extraordinary infrastructure expenses (Fondo de Compensación Interterritorial, known before as Fondo Intergovernmental para la Descentralización, FIDES).

- Technical: The City Hall does not have professional specialists on water management and basin protection. An Environmental Direction is needed, not only in this municipality but in all municipalities in Venezuela.
- Logistic: Tovar municipality has 69 communal councils with diverse needs, including villages located from 6 to 45 kilometers away from Colonia Tovar, and it is difficult to manage all of them having a reduced budget and few technicians.

Local management of water resources at Tovar municipality is oriented towards the promotion of conflict resolution through involvement of all the actors: communities, merchants, local, regional and national government, civil society organizations and academic institutions. The coordination of efforts among diverse actors results in a more inclusive water resources management.

Lessons learned

In order to increase citizen involvement on public management, the weekly meetings carried out by the City Hall of Tovar municipality with communal councils have become a regular consultation mechanism that promotes the search for effective solutions by consensus, involving local authorities together with the communities. This inclusive mechanism could be replicated in other City Hall and institutions related to water resources management.

The case study also shows the potential benefits of transferring responsibilities to the municipalities, as established by the Law for Drinking Water and Sanitation Services. As a consequence, the decision-making process on a local problem is closer to the people directly involved.

Communal councils as a form of community organization have shown that they may participate actively on the decision-making process to establish regulations for water supply in rural villages. But so far, these regulations are mainly verbal agreements that need more legal support. Local authorities should advise on the design of regulations and agreements of communal councils, so they are respected and contribute to improve the local management of water resources.

Communal councils, as organizations with a community base, may be involved on the decision-making process needed for water resources management in Venezuela. Its success will depend on their capacity on project formulation and management, and the effective transfer of budget and responsibilities of national government.

This case shows that it is possible for “water development and management to be successful when it is based on a participatory approach i.e. involving users, planners and policy-makers at all levels, taking decisions at the lowest appropriate level, with full public consult action and involvement of users in the planning and implementation of water projects”. Thus, this case illustrates the application of Dublin Principle No. 2, one of the four where integrated water resources management is based.

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www.hidroven.gov.ve

Graphic legends

- Graphic 1. Location of Tovar Municipality at Aragua State (Venezuela). Source: <http://www.a-venezuela.com/mapas/map/html/estados/aragua.html>
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- Graphic 3. Plastic tubes to get water from Tuy river in El Molino sector at Colonia Tovar
- Graphic 4. Meeting between the Major of Tovar Municipality and the Director of Economic Development with Communal council Cumbote
- Graphic 5. Sign of the Sewage Water Treatment Plant construction by HIDROVEN

Photos from Rodolfo Castillo