RIO DE JANEIRO's CHARGE SYSTEM FOR BULK WATER USE AND THE HUMAN RIGHT TO WATER

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Abstract. *This article focuses on the water charge experience in the Brazilian state of Rio de Janeiro. It discusses the environmental principles and the economical interests that underpin the charge for bulk water use, describing the legal nature, the purposes of this charge mechanism and it's ability, as control and planning instrument incorporated in the Brazilian National Water Resources Policy, to guarantee the human right to water.*
Keywords: *water management; water resources, Human Right to water*

1. Introduction

Faced with the worsening scarcity and degradation of water resources, the question of the quality and quantity of fresh water available for human supply and other uses occupies an increasingly wide space in the arena of environmental policy.

In the wake of the innovations promoted by the Brazilian Constitution of 1988, balanced environment and heath were upgraded to human right category and all types of bulk water became of public use, repealing the provision of the Brazilian Water Code (Decree 24.643, July 10, 1934), which provided private ownership of water resources, depending on its location [1].

Inspired by the world water management movement of the 80s/90s, Brazilian Federal Water Law (Law 9.433/97) inaugurated the National Water Resources Policy (NWRP), introducing participatory management tools by water basin, such as water resources plans, granting and charging for the use of bulk water [2].

The NWRP is based on the principles and foundations that water is essential for life (fundamental element for a balanced environment and health), a limited natural resource, a public domain, endowed with economic value, which should have its multiple use guaranteed (with the prioritization of human and animal consumption), through decentralized management , with the participation of the public agents , users and communities[3].

At the subnational level, each state of Brazil is free to implement state-level water resources management, in accordance with their respective state water policies. In this sense, the State of Rio de Janeiro established the State Water Resources Policy - SWPR, contemplating the same instruments provided by the NWRP and reassuring that water is an essential element for life. Subsequently, the charge for the use of water under state control is regulated by Law 4,247/ 2003. From this milestone, the state environmental agency implements the process of granting and charging for the bulk water use in all the watersheds of Rio de Janeiro, uniformly setting the same method for the entire state [4].

This paper aims to describe the implementation process of this instrument by Rio de Janeiro state, based on bibliographical and documental research, and analyses it's ability to guarantee the human right to water.

2. Objectives and principles of the Brazilian charge system for bulk water use

Based on the principles and foundations of the NWRP, the charging for the use of water resources, in addition to recognizing water as an economic good and giving the user an indication of its real value, should encourage rationalization water use and guarantee resources for the financing of the programs and interventions contemplated in the water resources plans.

In this sense, the collection for the use of bulk water is not a tributary nature but objective to serve as an instrument for achieving the NWRP's objectives, based on the principles of the user-payer -PUP and polluter-payer-PPP.

As Prieur describes [5], the fist outline of the PPP -inspired by the economic theory of the

social costs external to the productive process must be internalized, that is, integrated into the costs of production - was inaugurated in the Recommendation of the Council of the Organization for Cooperation and Economic Development (OECD) of 1972 on Principles Concerning the International Economic Aspects of Environmental Policies. The reiterates the recommendation for the implementation of the PPP in other documents such as the Council Recommendation on the Use of Economic Instruments in Environmental (1991) and in the Principle 16 of the Rio Declaration (1992).

Inspired by the PPP and PUP, the Brazilian law provides that the value of the collection for the water use should observe: the volume of water withdrawn and, in the case of releases of sewage and other liquid or gaseous, the physic-chemical, biological and toxicity characteristics of the tributary.

Following the OECD water management principles, amounts collected should be applied primarily in the hydrographic basin in which they were generated, and should financing of studies, programs, , in projects and works that positively change the quality and quantity of the system of flow of a body of water. Faithful to the foundations of decentralized management, the NWRP assures to the basin committees the participation in the establishment of the mechanisms of collection by the use of water resources, through suggestion of values, coefficients and hypotheses of uses considered insignificant.

3. Implantation of the State of Rio de Janeiro's charge system for water use

In 2003, the state of Rio de Janeiro centralized the collection instrument, implementing the same methodology for all the state's river basins, on a provisional basis, conditioning the validation of the methodology and the collection values to the effective implementation of the state committees and the elaboration of the respective River Basin Plans [6].

However, after more then a decade of charging for the use of water, and despite the establishment of basin committees in all hydrographic regions of the state there has been no change in the methodology or readjustments of the originally stipulated Unit Public Price (UPP), used as the basis for the calculation formula adopted by the system, set up as followed:

$$\text{Total Monthly Charge} = Qcap\,x\,[K0+K1+(1-K1)x(1-K2*K3)]x\,PPU\ ^{1}$$

Therefore, the methodology implemented uniformly in all the basins of the state, since the publication of Law 4.247 / 2003, remains unchanged with the following UPP and coefficients for capture, consumption and water disposal:

- Ko = 0,4 (coefficient for captured volume);
- K1 = Consumed Q / captured Q (coefficient for volume consumed, informed by the user);
- K2 = Q release treated / Q Untreated release (coefficient of the percentage traded and relation to the volume of effluents produced)
- K3 = 1- (treated effluent / raw effluent) (OBD reduction efficiency level)
- Unitary Public Price (PPU) = R $ 0.02 per cubic meter;

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1 Qcap corresponds to the volume of water collected during a month (m3 / month).

- K_0 expresses the unit price multiplier for capture (less than 1.0)
- K_1 expresses the consumption coefficient for the user activity in question, i.e. the ratio between the volume consumed and the volume captured by the user or the index corresponding to the part of the volume captured that does not return to the source
- K_2 expresses the percentage of the volume of treated effluents in relation to the total volume of effluents produced or the coverage index of treatment of domestic or industrial effluents, that is, the ratio between the treated effluent flow and the gross effluent flow
- K_3 expresses the efficiency level of reduction of OBD (Oxygen Biochemical Demand) at the Effluent Treatment Station
- UPP is the Unitary Public Price (R $ / m3)

- the third part of the formula, referring to the reduction of ODB, represents the relationship between the treated effluent flow and the gross effluent flow (k2), and K3 expresses the efficiency level of reduction of ODB (Biochemical Oxygen Demand) in the Effluent Treatment Station.

The State Water Resources Plan -SWRP foresees a demand for investments of 1 billion Reais per year by 2030, distributed among the hydrographic regions of the state. The amount collected since the beginning of the implementation of the collection system (2004 - 2015) totals just over R $ 202 million. And from this amount, only R $ 65 million was actually disbursed by the committees to carry out sanitation works (R $ 31 million), environmental recovery (R $ 8 million) and planning and management (R $ 26 million).[7]

Considering the volume of resources collected through the use of water per basin to date, and the minimum amount required to achieve the projects foreseen in the SWRP up to 2030 (R $ 1 billion / year), the instrument does not pursue it's targets. The collection of resources should guarantee the implementation of the management system in all basins, endowing the committees with secretariats and basin plans. These expectations have been frustrated by the system's ineptitude in overcoming obstacles to the consolidation of PNRH's goals.

Nor does the basic value of the methodology adopted, the Unit Price, of only 2 cents per cubic meter of water consumed, induce rationing and / or perception of the real value of water. The controversial centralized process of implementing the collection of water use in the state of Rio de Janeiro has generated a series of legal disputes for usurping competences of the basin committees, dissonant to the NWRP's foundations. On the other hand, the process was successful in implementing the collection in the totality of the watersheds of the state, done so far only by the state of Ceará.

It is important to register the inertia in the process of revision of this methodology by the basin committees, after more than 10 years of the implementation of the instrument in the state. Even a monetary restatement was proposed to guarantee the replacement of inflationary losses in period , as a measure of maintenance of the original value stipulated. The accumulated inflation correction index for the period of 2004-2015] (IGP-M FGV) would be 200%.

The methodology needs to be revised in order to incorporate parameters that induce a more rational use of water, preservation of springs, the incorporation of new users to the system.

4. Conclusion

After nearly two decades of the inauguration of the new water resources management policy in Brazil, the long-standing water stress in Rio de Janeiro demonstrates that the policy has not yet been able to reach it's main goal and the consequent guarantee of the Human Right to water.

The participatory and decentralized water management requires a change of mentality, behaviors and attitudes, which demands a long process of adaptation.

In this sense, the implementation of the Rio de Janeiro Water Policy reveals the long path that collegial processes face in order to overcome inertia in promoting institutional changes and to ensure greater agility and flexibility in the review and adjustments of collection methodology and in the application of values collected in the basin.

The principles and foundations that underpin the creation of this instrument must guide it's application to achieve the effective capacity to induce the rational use of water, and guarantee the necessary resources for the investments planned in the basin plans.

To discuss river basin committees in Brazil is to introduce the process of implementing a federative management model that must include the society in its regional representations, promoting the social control of the allocation of resources and processes. Throughout this movement, a path is traced in the construction of social capital for the establishment of water governance.

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