Participatory and decentralized water resources management: challenges and perspectives for the North Paraíba River Basin committee – Brazil
M. A. F. M. Ribeiro, Z. M. C. L. Vieira and M. M. R. Ribeiro

ABSTRACT
The Brazilian Water Resources Policy (Law 9433/1997) establishes participatory and decentralized management, involving civil society, water users and governmental bodies, with the basin committees as the basis of this process. Fifteen years after its implementation, it is possible to perceive accomplishments, but, at the same time, there are some difficulties in regards to the operation of the basin committees in the country. Considering the North Paraíba River Basin – which is completely included in the State of Paraíba, Northeastern Brazil, and presents great social and economic importance for the state – this article analyzes the process of formation, installation and functioning of its Basin Committee (CBH-PB), focusing on its composition, the reasons for the mobilization and demobilization of its members, the intra-relations between segments, and the inter-relations between the CBH-PB and other entities of the State Water Management System (the Water Executive Agency and the State Water Resources Council). The level of decentralization and the quality of participatory management (as it is being performed at the CBH-PB) are discussed and guidelines are suggested in order to allow greater effectiveness to the committee.

Key words | Basin Committee, Brazilian water policy, decentralized water management, public participation

INTRODUCTION
According to the Dublin Statement on Water and Sustainable Development (ICWE 1992), water resources management should be based in a participatory approach, in order to raise awareness of the importance of water among policymakers and the general public. This approach implies the need to decentralize the decision-making process, which must be performed at the lowest appropriate level.

This new water management paradigm generated a variety of discussions that resulted in several works focusing on public participation (e.g. Hare et al. 2003; Mostert 2003; Jacobi & Fracalanza 2005; Pu Yufei et al. 2007) and decentralization in water resources management (e.g. Kemper & Olson 2000; Mody 2004; Dinar et al. 2007; Formiga-Johnsson & Kemper 2008).

While public participation means to involve all stakeholders in the decision-making process, decentralization means to institutionalize, on the local level, the technical, financial, legal, and organizational conditions so as to implement management tasks (Pereira & Formiga-Johnsson 2005).

Decentralization success depends on two important factors: the transfer of the central government public functions’ authority and responsibility, and the acceptability of this authority and responsibility by the local entities in the basin (Kemper et al. 2007). Arretche (2000) argues that a successful decentralization needs the empowering of local forces and a central government pro-active way of action.

Although Mody (2004) affirms that decentralization is not, in itself, a solution to problems of inefficiency and inequity in developing countries, and highlights that ‘decentralization works best in the context of strong central government and economically prosperous regions with a high education and skills base’, so presenting greater conditions for adequate public participation, several developing countries – including Brazil – are adopting this water management model.
In January 1997, the Federal Water Law 9433 instituted the Brazilian Water Resources Policy – which must be decentralized and participatory – and created the National Water Resources Management System (the National and State Water Councils, the National Water Agency, the River Basin Committees, the Basin Agencies), in which the River Basin Committees (CBHs) play the role of a ‘water parliament’, have regulatory, deliberative and consulting attributions to be exerted at the basin level, and involve civil society, water users and government bodies. The CBHs are formally responsible for approving investment plans, monitoring government actions, mediating conflicts between water users, establishing water resources plans and water quality goals, setting raw water charges for each type of user in the basin and deciding how to use the funds generated, among other attributions. Besides, basin agencies must be created to act as the CBHs’ executive bodies, providing decision-making informational and technical support, and implementing the decisions that are made.

During the last 15 years, several CBHs were installed in Brazil, both at the federal (in river basins under the Union domain, as the South Paraíba River Basin, Southeastern Brazil) and the state (in river basins under state domain, as the North Paraíba River Basin, Northeastern Brazil) spheres. During this process, many lessons have been learned, allowing the perception of the difficulties faced by the CBHs, which can result from their socioeconomic, cultural and climate context (Mody 2004). Thus, although 165 state and eight federal basin committees have been installed (ANA 2011), the results are diverse and present bigger or smaller advances. Among the successful experiences, some federal River Basin Committees (South Paraíba, Piracicaba–Capivari–Jundiaí, São Francisco and Rio Doce) can be considered: all of them apply the Brazilian Water Policy instruments (water plans, water classification, water permits, and water charges) and have already created their respective basin agencies (Pereira & Formiga-Johnsson 2005). On the other hand, Frank (2010) analyzes 14 Brazilian committees (under federal and state domain) and concludes that ‘there is no methodological approach to deal with the water resources management complexity’, in order to allow the stakeholders – with their diversified knowledge and shared views – to be included in their respective basin management.

Then, implementing the model turned out to be much harder than it was expected, especially due to ‘significant legal (as well as political) obstacles to creating agencies that would collect and use public funds generated by water charges, as the territorial level at which this would occur – the river basin – is not a constitutionally defined administrative unit. Moreover, in most states, charging for water required supplementary legislation that proved difficult to pass’ (Abers & Keck 2009). The difficulties are increased by the lack of government institutions willing to share their power and/or able to promote public debates, and by the society’s traditional lack of involvement in decision-making (Moreira 2010; Jacobi & Barbi 2007). As a consequence, the very existence of spaces for discussion and participatory decision-making, like the CBHs, does not guarantee the success of the implemented water management model.

In this context, this article analyzes the process of formation, installation and functioning of the North Paraíba River Basin Committee (CBH-PB), in the State of Paraíba, Northeastern Brazil – focusing on the reasons for mobilization/demobilization of its members, its composition, the intra-relations among its segments, and the relations between the committee and other components of the State Water Management System (focusing on the State Water Resources Council and the State Water Executive Agency) – in order to verify the level/quality of decentralization and participatory management already achieved by the committee.

METHODS

The analysis is based on: (i) a review on the State of Paraíba water resources legal and institutional frameworks; (ii) data collection and compilation of hydrological and socioeconomic characteristics of the North Paraíba River basin, based on government reports and public statistical data; (iii) data collection and compilation of the CBH-PB main characteristics, by looking at legal documents, records of meetings and in loco accompaniment of meetings (comprising the first four years of the committee’s history, from July 2007 to August 2011); and (iv) a survey carried out among CBH-PB’s members, focusing on their perception/behavior as committee members and social segments’ representatives.

Water resources institutional framework in the state of Paraíba

The State of Paraíba Water Policy was established in 1996 by the State Law 6308, and modified in 2007 by the State Law 8446, in order to be adequate to the Brazilian Water Policy guidelines. Despite this, the State water institutional
framework still presents differences in relation to the Federal Law 9433/1997, as it does not contemplate the creation of basin agencies. So the State Water Management System is constituted by four bodies: the State Water Resources Council (CERH), the State Secretariat for Water Resources (SERHMACT), the State Water Agency (AESA), and the River Basin Committees (CBHs).

The CERH, the highest state water authority, is responsible for subsidizing the formulation of the State Water Resources Policy and arbitrating water use conflicts within the state territory; the Secretariat is the coordinator of the State Water Management System; AESA accumulates the functions of state water resources manager (responsible for licensing and monitoring water resources under the state’s domain) and of the CBH’s basin agency (acting as the CBHs’ executive branch and, as such, being responsible for water charges collection and application). It is important to emphasize that only in 2003 (seven years after the State Water Law had been enacted) the CBHs were introduced in the State Water Management System. Five CBHs had their creation authorized by the CERH, but up until now, just three are installed. Among these, the North Paraíba River Basin Committee (CBH-PB) – the first to be installed (2007) – constitutes itself an important mark in the state water management history.

The North Paraíba River Basin committee

The North Paraíba River basin (Figure 1) is the second largest basin in the State (area: 20,000 km²), but the most important one, as its 85 municipalities include João Pessoa, the state capital, and Campina Grande, an economical, educational and technological hub of Northeastern Brazil. Fully included in the State of Paraíba, the basin is composed by the Taperoá River Basin and the Upper, Middle and Lower Paraíba River Course regions (the first three components are located in the Brazilian semiarid portion); Table 1 shows their general characteristics.

The economic indices show that the region faces poverty, while in the social aspect, the basin’s Human Development

Figure 1 | Location of the state of Paraíba and the North Paraíba River basin.
Index (HDI) indicates just a Middle Human Development [highlighting the cities of João Pessoa (HDI 0.783) and Campina Grande (HDI 0.721)] which is higher than the state’s HDI (0.678) and lower than Brazil’s (0.792) (UNDP 2000).

The mobilization process for creation of basin committees in the state of Paraíba started in the year 2000 at river basins under the state domain (North Paraíba, Gramame, Abiaí–Popocas, Camaratuba, and Mamanguape River basins). Despite some evident weaknesses in this process, during 2002 and 2003 proposals for creating the committees were submitted to and approved by the CERH.

The North Paraíba River Basin Committee (CBH-PB) has been installed since June 2007, integrating representatives of water users (39.29%), government (28.57%) and civil society (32.14%). One representative of each segment [civil society (President), water users (Vice President), federal government (Secretary)] constituted its first Board of Directors.

During its first year, the CBH-PB experienced an intense phase of meetings which allowed the active participation of its members and the decision-making on important issues such as the definition of mechanisms/values for water charges and proposals for the amendment of the state water legislation, among other points. From the following year onwards, however, there was a smaller number of meetings, as well as a decrease of discussions about water issues (for instance, no deliberation was discussed/approved during these years); in addition, the attendance at the few meetings has declined. These facts make clear the operating difficulties the CBH-PB is facing.

### RESULTS AND DISCUSSION

The results (and their discussion) focus on the aspects which are considered potential sources of the operating difficulties faced by the CBH-PB, based on data compiled from its records of meetings and information obtained from its members (29 members interviewed, i.e., approximately 58% of the total).

### Geographical area of the Basin

Some members consider the basin area as an obstacle to public participation: although the meetings take place at localities which are intended to facilitate attendance, some members have to travel large distances to be present (which is not always possible, especially when AESA does not provide the necessary financial support). However, one can find successful Brazilian experiences in greater areas [e.g. at the federal level, São Francisco River basin (639.22 km²), and at the state level, Rio Grande River basin (75.17 km²)].

As regards the other state basin committees (South Coast (CBH-LS) and North Coast (CBH-LN) River Basins Committees), it can be noticed that their small areas allow them to achieve better gathering of their members, despite facing the same financial difficulties as the CBH-PB.

Thus, it becomes clear that, although there is not a direct correlation between the basin area and the success/failure of its CBH, a small/great geographical area can facilitate/

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<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Sub-basin/River course region</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Taperoá River</td>
</tr>
<tr>
<td>Drainage area (km²)</td>
<td>5,661</td>
</tr>
<tr>
<td>Precipitation (mm/year)</td>
<td>400–600</td>
</tr>
<tr>
<td>Precipitation concentration (No. of months and period)</td>
<td>2–4 (Feb–May)</td>
</tr>
<tr>
<td>Evaporation (mm/year)</td>
<td>2,000–2,500</td>
</tr>
<tr>
<td>Climate (Köppen’s classification)</td>
<td>Hot semiarid</td>
</tr>
<tr>
<td>Minimum temperature (°C)</td>
<td>18–22</td>
</tr>
<tr>
<td>Maximum temperature (°C)</td>
<td>28–31</td>
</tr>
<tr>
<td>Population (inhabitants)</td>
<td>130,225</td>
</tr>
<tr>
<td>GDP per capita (US$)</td>
<td>1,212.84</td>
</tr>
<tr>
<td>HDI (Human Development Index)</td>
<td>0.608</td>
</tr>
</tbody>
</table>

hamper the committee’s functioning depending on whether the basin presents good/bad financial conditions.

**Number of members**

According to the CBH-PB’s rules, the committee should be composed by 60 members (and their respective alternates), of which 18 are government representatives (Federal: two, State: four, and Municipal: 12), 18 representatives of civil society entities and 24 representatives of water users. However, the election process has just allowed 55 vacancies of holders (and 23 alternates) to be fulfilled.

Some members consider this number still very high and proposed to reduce it to 50 holders and their respective alternates. However, the repeated absences of several members from plenary sessions (the average attendance at plenary meetings has been 28 members) have prevented a vote on the proposal, which requires a minimum quorum of 40 members to be approved.

Nevertheless, it seems evident that these high absence levels result from a variety of factors (geographical area, financial resources, among other factors) and not only from the number of members.

**Representativeness of the segments**

The representativeness of a social segment within a basin committee is related to the homogeneity of interests at stake. So, some weaknesses can be found in some of the CBH-PB’s segments. For example, some water users’ representatives (agricultural and industrial federations) are considered as civil society ones and a state company such as CAGEPA (Water and Sewers Company of Paraíba) plays the role of water user. As a result the segment representativeness declines, as their members do not share similar views and interests, making them weaker in face of public power’s homogeneity.

**Level of motivation**

The installation process of the CBH-PB was characterized by great motivation around the discussions on water charges, which resulted in the approval of the CBH-PB Deliberation 01/2008 (which establishes water charges mechanisms and values to be adopted in the basin area). But only in 2009 the CERH formalized the Deliberation (through Resolution 07/09), and so far (May 2012) its respective decree – to be promulgated by the State’s Executive branch – has not been signed yet.

Although some victories can be counted, for instance, the decisive influence on reducing the portion of collected water charges to be appropriated by AESA (from 70% to 10%, which furthermore, must be shared by all the water management system entities), a feeling of ‘decision-making ineffectiveness’ and ‘innocuous effort’ has been affecting the motivation of some members, this way contributing to their low attendance at meetings as well as inducing the committee’s inability to approve new proposals.

**Inexistence of a basin agency**

The CBH-PB – like the other basin committees of the State of Paraíba – presents great technical and financial dependency on AESA, allowing the latter to define ‘if, when, and where’ the meetings will occur. The period of water charges discussions is an example: AESA was interested in approving water charges, because 70% of the collected charges would cover a great part of its operational costs (first year of the CBH-PB’s functioning); after the Law 6308/1996 was modified (reducing the percentage from 70% to 10%, based on a CBH-PB’s suggestion), coincidentally or not, the number of meetings reduced and the type of issues that were discussed became less important (despite the serious water problems that the basin faces, especially in its semi-arid portion, management actions still depend on government initiatives, without any participation of the committee).

This scenario makes it important to implement a Basin Agency, which can strengthen water management decentralization and ensure administrative, technical and economic support to the committee. Although this implementation is economically infeasible nowadays (a very low collection is foreseen, due to the approved water charges values), at least its possibility must be included in the Law 6308/1996, conditioned to the agency’s economic sustainability.

**Intra-relations**

AESA’s representatives actually conduct the plenary meetings, presenting/avoiding issues to be discussed, according to government interests; such a leadership is based upon political power and knowledge asymmetries between AESA and the other members/segments. For instance, municipalities’ representatives, who integrate the public power segment, just follow the water manager position, rarely taking part in the discussions.
Water users act as a group (including those representatives pertaining to the civil society segment), often getting the public power’s support and forming a coalition (political and economic power). Such a situation occurred during the definition of water volumes to be exempted from charging (only a few irrigation users will be charged for water), and when AESA avoided the inclusion of basin agencies creation among the suggested amendments for the Law 6308/1996 (as they would diminish the technical and financial power of AESA).

In this context, the civil society segment has to struggle for each small advance; however, its components (the majority of which are universities, water professional associations, and NGOs’ representatives) have the advantage of expert knowledge and persuasion capacity and sometimes obtain support from other segments’ members (e.g. the suggested reduction of the AESA’s water charges collection share).

Inter-relations

Although the relation between the CERH segments follows that of the CBH-PB, the CERH Technical Chambers, presenting a strictly technical character, help to balance the asymmetries. Thus, they have been important to support proposals presented by the committees (which are members of the CERH), especially regarding the State Water Law modification.

As already informed, the relation between the CBH-PB and AESA is asymmetrical, as the latter maintains the former under its technical and financial dependency. Furthermore, the relationship extrapolates the committee’s ambit, due to the multiple roles played by AESA (in addition to being the committees’ member and executive branch, it is the CERH’s Secretariat, the state water manager, and the state water fund manager).

With regard to the other state committees, the CBH-PB has led the way; for example, water charges mechanisms and values, as established by the CBH-PB, were almost integrally adopted by the others.

CONCLUSION

This paper analyzes the installation and functioning of the CBH-PB, in the State of Paraíba, Northeastern Brazil. After a democratic implementation process, in which the interest groups were appropriately mobilized, and a promising first year of functioning in which water charges mechanisms and values were approved, the committee experienced a reduction in its members’ level of motivation, attendance at meetings, and decision-making capacity.

The difficulties faced by the CBH-PB cannot be explained by a single factor, as different aspects may contribute to each result. For example, a great geographical area together with bad financial conditions (which exist because of the water manager’s inadequate support) and the large number of members have influenced the low level of attendance; the attendance correlates with the reduced motivation – which results from the ineffectiveness of decisions made, as well as the asymmetric relationship between the public power and the other segments – and the committee’s inability to discuss/approve new proposals (further reducing motivation).

Despite this apparent vicious circle, one aspect is highlighted by the analysis: the role played by the state water manager. The committee’s dependency and the emphasis on political interests make it clear that in fact AESA is the State’s government tool to keep water management as centralized as possible. Therefore the inevitable conclusion is that decentralization and participatory management remain as goals to be achieved by the CBH-PB.

Although the very installation of the committee represents an important conquest, the CBH-PB still needs to overcome the fragilities presented by itself and by the entire State Water Management System (which result from both the traditional top-down decision-making and the society’s lack of involvement). The most obvious line of action is mobilization of civil society (universities, NGOs, water professional associations) – enlightening the public opinion – to consolidate the committee as a democratic public space, where the balance of political, economic, social and technical interests actually allows a decentralized and participatory decision-making process.

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