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Application of indicators as a tool for evaluating river basin committee governance

Aplicação de indicadores como instrumento de avaliação da governança em um comitê de bacia hidrográfica

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ABSTRACT: The National Water Resources Policy (Law 9.433/97) has promoted many advances in water management in Brazil, such as creating more than 230 river basin committees. However, gaps and contradictions in its implementation still need to be evaluated and monitored to ensure continuous strengthening and improvement. This study analyzes the governance of the São Lourenço River Basin Committee (SLRBC) of the Paraguay River Basin Region in Mato Grosso. To this end, indicators from the Water Governance Monitoring Protocol, developed by the Brazilian Water Observatory (BWO), were adopted. The evaluation, carried out in a workshop by the members of the SLRBC themselves, resulted in 24 partially satisfactory indicators, 12 fully satisfactory, placing the committee at an intermediate level of governance, in a phase of consultation and institutional construction. The five dimensions of the monitoring protocol received the following average scores: Legal and Institutional 6.3; Management Instruments 3.4; State-Society Interaction 7.6; Intergovernmental Relations 6.6; and State Capacities. This research demonstrated the feasibility of the BWO indicators and provided important insights to improve and strengthen the governance of the committee, indicating that the main gaps are in the lack of management instruments (except for grants), in the limited discussion and decision-making on relevant aspects of the basin, in the scarcity of resources for functioning, and in the low prominence of the committee.

Keywords: water resources management; watershed; public policies.

RESUMO: A Política Nacional de Recursos Hídricos (Lei 9.433/97) promoveu muitos avanços na gestão das águas no Brasil, como a criação de mais de 230 comitês de bacias hidrográficas, mas ainda existem lacunas e contradições na sua implementação que precisam ser avaliadas e monitoradas, visando o fortalecimento e o aperfeiçoamento contínuos. O presente estudo analisa a governança no Comitê da Bacia do Rio São Lourenço (CBHSL), da Região Hidrográfica do Paraguai em Mato Grosso. Para tanto, adotou-se os indicadores do Protocolo de Monitoramento de Governança da Água, desenvolvido pelo Observatório das Águas do Brasil. A avaliação, realizada em uma oficina pelos próprios membros do CBH, resultou em 24 indicadores parcialmente satisfatórios, 12 plenamente e 08 insatisfatórios, situando o CBH em um nível intermediário de governança, em fase de consulta e de construção institucional. As cinco dimensões do protocolo de monitoramento receberam as seguintes notas médias: Legal e Institucional 6,3; Instrumentos de Gestão 3,4; Dimensão Interação Estado Sociedade 7,6; Relações Intergovernamentais 6,6 e Capacidades Estatais 4,8. Esta pesquisa demonstrou a exequibilidade dos indicadores do OGA e trouxe importantes subsídios para aperfeiçoar e fortalecer a governança do CBHSL, indicando que as principais lacunas estão na inexistência de instrumentos de gestão, exceto outorga, na pouca discussão e tomada de decisão sobre os aspectos relevantes da bacia, na escassez de recursos para o funcionamento e no baixo protagonismo do comitê.

Palavras-chave: gestão de recursos hídricos; bacia hidrográfica; políticas públicas.

1. Introduction

The National Water Resources Policy (NWRP; Law 9.433, of 1997: Brazil, 1997) is based on the principles that water is a public domain asset, a finite resource with economic value that should be managed in the context of river basins, in a decentralized manner and with social participation. It is a complex and bold policy that brought significant advances in water management, simultaneously with the expansion of the legal and institutional framework at federal and state levels.

The approval of this Law can be interpreted as a historic milestone in the transformation of water governance in Brazil: the central government, the historical regulator of water and public policies for water resource management, formalized a decentralized decision-making process, open to democratic participation, involving water users and communities within the river basins (Silva, 2013).

The basis of social participation in water management is the River Basin Committee (RBC), one of the bodies of the National Water Resources Management System (NWRMS), established by the NWRP. The legal responsibilities of the RBCs include mediating water use conflicts and decisions on water management, such as monitoring the preparation of the execution of basin plans, as well as their final approval, and the definition of charging criteria, among others. The RBCs are constituted by public authorities, users and civil society organizations. The NWRMS also includes Water Agencies or Basin Agencies, responsible for implementing the decisions taken at the RBC. In their absence, when they do not exist, this function is performed by water resources management bodies. There can only be a water agency or basin agency if charging for water use is installed in the basin. However, this management tool is currently only used in six Brazilian states. In 2021, there were 10 interstate basin committees operating in the country, present in two or more states, and 232 state basin committees, operating in only one state, covering approximately 82% of municipalities, 39% of the national territory, and 84% of the population (ANA, 2021).

Despite advances in the implementation of the NWRP and the installation of numerous committees, there are still many gaps, such as the lack of financial resources, the low political priority of governments, little time for discussion in meetings, meetings that are too spaced out and with a low quorum, lack of training of members (ANA, 2021), regional asymmetries in the implementation of the NWRP, establishment of strategic agendas (Figueiredo & Ioris, 2021) and, mainly, failures in governance processes.

The implementation of the NWRP does not only involve technical management, but mainly the issue of governance. It is a deliberate and continuous exercise in the development of practices, focusing on the notion of social power that mediates relations between the State, civil society and economic agents (water users), which contributes to the strengthening of participatory democracy (Empinotti *et al*., 2016).

Governance is a polysemic concept (Armitage et al., 2012) or an "umbrella" concept, without a consensual definition (Tortajada, 2010). However, it is essentially a political and democratic process, characterized by the debate of rival political projects based on different values and principles in society (Castro, 2007; Lima, 2022). Implicit among them are strong public participation and consultation, efficiency, transparency, absence of corruption, accountability, legitimacy, justice and the rule of law (Tortajada, 2010). In other words, the various social segments, public and private institutions, interrelations and themes that make up the NWRMS, particularly in the state councils and RBCs, are susceptible to expressing their interests, values and principles and the possibilities of negotiation in opposition to the traditional top-down perspective of centralized administration (Jacobi *et al.*, 2015).

Although water governance considers implicit and essential values and principles, it is entirely dependent on a given social, cultural, environmental, economic, political, and institutional context. Thus, there is no ideal model, i.e., water governance systems must be "designed" according to the water management challenges they are required to address (Ribeiro & Johnsson, 2018). From this perspective, the governance process seeks to reconcile the democratization criteria with the improvement of policy performance, in which the State leads the resolution of collective problems, but this must be done through interaction with society (Lima, 2014), based on the values and principles of governance and taking into account the different circumstances.

The topic of water governance in Brazil has advanced considerably in the academic environment in recent decades, especially regarding studies on the effective participation of society in decision-making processes in basin committees, on the information passed on to society and on the role of the government in this process (Souza et al., 2020). Researchers have pointed out several contradictions, gaps and asymmetries, such as the predominance of individual interests or economic sectors over collective interests and undemocratic decision-making, with reduced consensus-building (Mesquita, 2018); with low effectiveness in socio-spatial, democratic and inclusive terms (Mesquita 2018; Siegmund-Schultze *et al.,* 2015; Martins, 2015); reduced participation of women and young people, knowledge asymmetries and limitations related to integration, communication and return to society (Matos, 2020); little discussion about the main conflicts and important issues related to water in the basin where the committee operates (Figueiredo & Ioris, 2021); the low representation of traditional communities and

indigenous peoples (Bruno & Fantin-Cruz, 2020); the resistance that contests the institutional character of the RBC, as well as the little regulation of the competences of each segment and actors (Abers & Keck, 2017), among other aspects of governance that hinder consolidation or create obstacles to the functioning of the NWRMS, particularly the RBCs (Marcon, 2023).

Given that the basin committee is the basis of the NWRMS and one of the loci of State-society interaction, where the processes and power relations for decision-making on water management occur, understanding governance in these committees is essential to support their strengthening and, consequently, promote continuous improvements in the system as a whole. There are several actors or organizations in the RBCs and no formal control system can dictate the terms of the relationship between these actors and organizations, which provides a valuable and challenging dimension for understanding social relations (Chhotray & Stoker, 2009). The importance of considering RBCs from a governance perspective lies in the realization that the collective decision-making process is the structuring basis of the proposal for this type of organization. It characterizes and distinguishes it from other types of participatory institutions (Matos, 2020). Therefore, monitoring the structure and functioning of the RBCs makes it possible to verify whether the construction of public policies is being conducted democratically and fairly to face the challenges of water security (Lima, 2022), in compliance with the objectives of the NWRP, which is to guarantee water with sufficient quality and quantity for current and future generations. The responses to prevent and manage water crises and, thus, guarantee water security are mainly associated with the effective implementation and strengthening of the NWRP and NWRMS entities (Figueiredo *et al.*, 2023), especially the RBCs.

The Brazilian Water Governance Observatory (BWO) developed a monitoring protocol using 55 indicators, which have been applied in several Brazilian RBCs. It is an important tool for measuring governance, allowing the identification of strengths, weaknesses and gaps, which makes it possible to support the joint construction of proposals aimed at strengthening and continually improving governance processes. The application and analysis of the results of these indicators have been the recent subject of academic studies, whose works published to date are, namely: those of Dionel *et al.* (2021), at RBC Sepotuba (MT); Lima *et al.* (2021), at Rio Pardo RBC (RS); Turini *et al.* (2021), at Cuiabá ME RBC; Costa *et al.* (2022), at Bacias do Litoral Norte RBC (PB); Silva (2022), in the negotiated water allocation process in the Epitácio Pessoa Reservoir (PB); Vidal et al. (2023) at Litoral Sul RBC (PB); and Nobre (2023) throughout the water resources management system of Acre.

In this scenario, the present study was developed as a contribution to the principle of transparency, providing visibility and access to information about the governance of a RBC, which can reposition actors who will have a greater impact on negotiation and discussion processes, improving control over the actors responsible for executing actions and their results (Empinotti *et al.,* 2016). In addition, it is a contribution to academic studies on this topic. Therefore, the main objective is to analyze the results of the application of BWO indicators in the São Lourenço RBC (SLRBC), which operates in a tributary basin of the Paraguay River Basin Region

in Mato Grosso, observing the advances, gaps and contradictions of governance in this collegiate body.

2. Brief history of the construction of BWO water governance indicators

Since the publication of the NWRP, it has been noted that, despite the existence of a legal and institutional framework, which has promoted advances in water management since 1997, two main questions are still unanswered:

1) Have these advances guaranteed water in quantity and quality appropriate for its respective uses fairly and democratically for current and future generations (water security), in line with the objectives of Law 9433?

2) How can it be checked whether the System functions as intended? (WWF-Brasil, 2005).

The reports published by the Intergovernmental Panel on Climate Change, on estimates of extreme events and reduced rainfall, added to the surveys by MapBiomas Água (2022), regarding the process of reduction of aquatic environments and water surface in the country, in addition to several other studies and recent facts related to climate extremes, have pointed to a trend of systemic worsening of water insecurity in the country, with a spatial and temporal increase in the number of people affected and losses caused.

Figueiredo *et al.* (2023) reflect that the mitigation, prevention and/or interruption of the trend of water insecurity in Brazil, whose main causes are the land and water use model, must necessarily include the improvement and strengthening of the NWRP and its governance process, with decentralization and democratization of decision-making. One way is to check whether the NWRMS entities are fulfilling their role, through monitoring using governance indicators, which allow gaps, needs, demands and strengths to be detected, so that continuous improvements can be planned and implemented.

The document Reflections and Tips (WWF, 2005) brought important analyses and recommendations regarding the aspects that need to be monitored in the water management and governance process in Brazil. Later, Lima (2014) delved deeper into these issues, proposing the dimensions of governance that should be monitored and the adoption of the governance thermometer as a tool for measuring the stage in which the monitored entity is found, in addition to recommending the creation of an observatory. In 2016, civil society entities created the Brazilian Water Governance Observatory (BWO-Brasil), whose main mission is to "generate, systematize, analyze and disseminate information on water governance practices by NWRMS actors and bodies, by monitoring their actions" (BWO, 2023). From then on, several workshops were held, with around 100 water management stakeholders from 12 states, including civil society, government and water users, which resulted, in 2019, in the publication of the Water Governance Monitoring Protocol, adopted in this study (BWO, 2019).

This protocol is a diagnostic tool that allows the assessment of the current situation of a given institution that is part of the NWRMS, especially the collegiate bodies, the state and national councils and the river basin committees. By assigning a score (from 0 to 10) to the 55 proposed indicators, the protocol favors the objectivity of the aspect evaluated, although this is not always an easy task. Furthermore, the result generated is didactic and

easy to understand, favoring the proposal of actions for continuous improvement.

It should be noted that the Water Governance Monitoring Protocol, built within the scope of the network of actors that make up BWO Brazil, adopts the concept of governance based on the model recommended by Law 9,433/97 regarding decentralized and participatory management, with the participation of representatives of the public authorities, the user sector and civil society organizations and that:

> Governance involves both the administrative management of the State and the ability to coordinate and mobilize state and social actors to resolve collective action dilemmas; Public governance is today a current of public administration theory that seeks to reconcile the criteria of democratization with those of seeking better policy performance, believing that the State has a role in leading the process of resolving collective problems, but it must do so through interaction with society. (WWF, 2013).

2. Material and methods

2.1. Study area

The State of Mato Grosso covers part of three Brazilian River Basin Regions, where 11 RBCs are installed in rivers under state control, 6 in the Paraguay HR, 3 in the Amazon HR and 2 in the Araguaia-Tocantins HR (Figure 1).

The SLRBC was established by Resolution No. 55 of 2013, of the Mato Grosso State Water Resources Council (Cehidro-MT), whose area of operation concerns the São Lourenço river basin, called UPG-Water Resources Planning and Management Unit P7, extending over an area of approximately 27,726.00 km^2. This committee currently has 22 full members and 22 substitutes, equally divided into three segments: Public Authorities, Civil Entities and Water Users, in addition to indigenous ethnicities within the RBC's area of operation.

The main uses of water in the basin are for irrigation, electricity generation, agroindustry, animal watering, fishing, bathing and public and rural water supply. Land uses are predominantly intended for agricultural activities, in addition to urban areas, indigenous territories and conservation units. The headquarters of the SLRBC is located in the city of Rondonópolis, whose municipality has around 244,897 inhabitants (IBGE, 2023), also covering, in whole or in part, the areas of the municipalities of Alto Garças, Barão do Melgaço, Campo Verde, Dom Aquino, Guiratinga, Itiquira, Jaciara, Juscimeira, Pedra Preta, Poxoréo, Rondonópolis, Santo Antônio do Leverger, São José do Povo and São Pedro da Cipa. The total population of the São Lourenço River basin is approximately 376,223 inhabitants, being the second most populous in the Paraguay River Basin Region in Mato Grosso, of which 317,8871 inhabitants are concentrated in urban areas, mainly in Rondonópolis.

Rondonópolis is the 2nd largest economy in Mato Grosso and is among the 100 largest economies in the country, driven by both agribusiness and agroindustry. In the basin, in addition to soybeans and cotton, sugarcane occupies vast areas, particularly in the municipalities of Jaciara and Jucimeira, where sugar and alcohol industries are located. The water uses granted by SEMA (State Department for the Environment, the body responsible for managing water resources in MT) until 2020, according

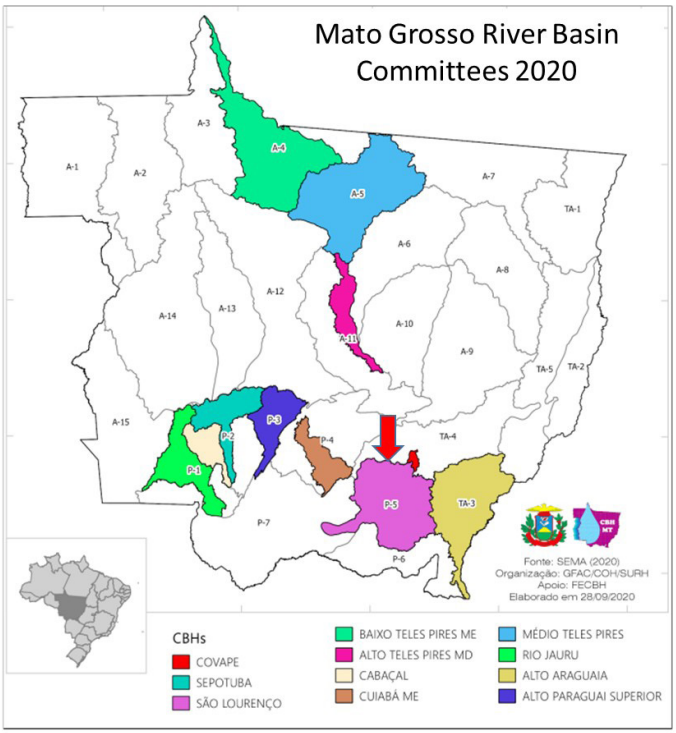

FIGURE 1 – Location of the River Basin Committees installed in Mato Grosso ant the Planning and Management Units - UPGs. The red arrow indicates the location of the São Lourenço River Basin, area of operation of the São Lourenço River Basin Committee (P5).

LEGEND: UPGs with letter A: Amazon River Basin Region; UPGs with letter P: Paraguay River Basin Region; UPGs with letter TA: Araguaia-Tocantins River Basin Region.

SOURCE: modified from SEMA (2023).

to data provided informally, are intended for the dilution of liquid effluents (44), mainly in aquaculture (18) and industry (18), irrigation (40), services (22), aquaculture (12) and hydroelectric plants (11), in addition to insignificant uses (47), which are only registered. Around 676 grants are intended for the capture of groundwater, most from tubular wells, with a large part destined for industrial use and irrigation. There are also water uses for leisure and amateur and professional fishing, as well as conservation of aquatic biota in conservation units and indigenous lands.

In the headwaters of São Lourenço River, 10 small hydroelectric plants (SHPs) are in operation, in addition to another 17 that are being installed in the basin. On the Itiquira River, the Itiquira I and II hydroelectric plants (HPs) are in operation.

In Rondonópolis, most of the water destined for public supply comes from the Vermelho River, the main tributary of São Lourenço River, in addi-

tion to wells distributed throughout the urban area. The headquarters of the municipalities of Dom Aquino and São Pedro da Sipa are supplied with water from São Lourenço River. Other rivers and streams account for 38.5% of the water collection sources and three municipalities rely exclusively on underground capture (DRZ-Sanear, 2018).

The two main sources of pollution in the rivers of the basin come from soil exploitation, which extends to the river banks, many of which are devoid of riparian forests, contributing to the transport of sediments and nutrients to the water body during rainy periods (silting), and also from the discharge of domestic and industrial sewage, responsible for the high levels of organic matter and coliforms found in the water body (Souza & Oliveira, 2014).

2.2. Methodological procedure

The methodology adopted for measuring the indicators in the SLRBC is described below.

2.2.1. 1st Step – project presentation

It consisted of presenting the project of this research to the RBC, showing the importance of monitoring water governance and the indicators developed by the BWO. At the end of the meeting, the objectives of this work were exposed and the BWO Water Governance Monitoring Protocol (2019) was adopted, as well as the methodology proposed for its application. The RBC members unanimously approved the work.

2.2.2. 2nd Step – selection of indicators

Considering a basic knowledge of the reality of the SLRBC, 44 indicators were selected from the 55 proposed. The excluded indicators deal with the collection instrument, the water resources fund and the water agencies, which do not exist in the basin and are not provided for in the Mato Grosso State Water Resources Law (nº 6.945), in force from 1997 to 2020. The 44 indicators are distributed across five dimensions: Legal and Institutional (06), State Capacities (08), Management Instruments (10), State-Society Interaction (13) and Intergovernmental Relations (07) (Table 1).

2.2.3. 3rd Step – Workshop implementation

The assessment of the indicators was carried out in a remote workshop (May 2021) due to the Covid-19 pandemic. It is worth noting that the assessment of the indicators by the RBC members themselves is essential, as they are the ones who know the social, cultural, environmental, economic, political and institutional reality of the committee and the basin and, therefore, given the governance concept adopted, know the appropriate path for water governance.

Fourteen members attended the workshop and were divided into five groups, one for each indicator dimension, mixing representatives from the three segments in each group: public authorities, civil entities and water users. After the spreadsheets were filled out, according to the model proposed in the Protocol (Table 1), the results were presented and discussed with all members of the SLRBC, so that a consensus could be reached on the answers, with

TABLE 1 – Water governance dimensions and indicators assessed by members of the São Lourenço River Basin Committee.

Dimension	Indicator No.	Indicator
Legal and Institutional	1	Regulation of management instruments suited to regional specificities.
	2	Operation of Collegiate bodies (National and State Water Resources Committees and Councils) appropriate to the different regions of Brazil.
	3	Mechanisms (legal, consultations, etc.) that interface Enterprises installed in basins that impact water resources with management instruments.
	4	Legal powers conferred by Policies, Management Instruments and Resolutions under discussion in the agendas of collegiate bodies.
	5	Compliance with the legal duties of the Collegiate bodies. Content of the deliberations.
	6	Composition of collegiate bodies.
State Capacities	7	Permanent programs and investments in training.
	8	Water Resources Fund.
	9	Other financial sources for resource management.
	10	Resources allocated in the Multi-Year Plan PPA for water resources/budget execution.
	11	Incentives for the careers of water resources management professionals in the public sector.
	12	Specific team for mobilization and social engagement in management.
	13	Technicians from collegiate bodies trained by the managing body/total number or members.
	14	Management body in support activities for collegiate bodies/number of existing collegiate bodies.
Management Instruments	15	Information System.
	16	Water Resources Plan.
	17	Grant.
	18	Grant Implementation Stage.
	19	Charge for water use.
	20	Classification.
	21	Monitoring indicators for management instruments.
	22	Processes or tools that help support decision-making, management conflict, and others in collegiate bodies.
	23	Territorial Planning and Sanitation Instruments aligned with the Basin Plan
	24	Strategy for leveraging public and private resources from different sources.

State-Society Interaction	25	Funds to ensure civil society participation in collegiate bodies and technical chambers.
	26	Mapping of Projects and actions implemented by other sectors (NGOs, universities, and users) focused on water management.
	27	Training for participation in collegiate bodies (Councils and Committees)
	28	Collegiate bodies (RBCs, SWRCs, NWRC) and technical chambers adopt dynamics and methodologies that promote the convergence of decisions, implementation of management instruments, and other policy objectives.
	29	Awareness campaigns.
	30	Democratic format of the electoral process for representatives in the collegiate bodies.
	31	Sector representative integrated with their peers inside and outside the collegiate bodies.
	32	The Executive Department integrates and coordinates within and outside collegiate bodies mapping, integrating and coordinating public policies.
	33	Representation of Members by segments and sectors in Collegiate Bodies and Technical Chambers.
	34	National and State Water Resources Councils integrated with Basin committees.
	35	Integration/Coordination between the Tributary Committees of a Federal Basin.
	36	The public Sector (federal, state and municipal) implements the decisions of the Basin Committee.
	37	Equity in the distribution of votes in the plenary sessions of basin councils and organizations.
Intergovernmental Relations	38	Integration of public sector bodies (sanitation, environment, etc.) with Water Resources.
	39	Coordination of the different public policies of the union and states with the management of water resources. Examples of Public Policies – sanitation, environment, agriculture, irrigation, navigation, cities/ territorial, energy; planning and investments.
	40	Common goals between the water resources policy and other related sector policies.
	41	Projects and actions implemented by Municipalities aimed at water management.
	42	NWRMS entities participate in other decision-making bodies on development and infrastructure. Examples of Public Policies – sanitation, environment, agriculture, irrigation, navigation, cities/territorial, energy; planning and investments, development.
	43	Inter-federative forums for the integration of public authorities.
	44	Strategies for involving Municipalities in Water Resources Management.

SOURCE: modified from BWO (2019).

representation from the entire committee. For each indicator evaluated (Table 2), a score was given and, subsequently, the average was calculated, for each dimension and for all of them together. The result obtained indicates the governance stage of the committee or each of the five dimensions: basic level, with an average value between 0 and 5, intermediate level with an average value between 5 and 7 and advanced level with an average value between 8 and 10.

3. Results

Considering the scores given by SLRBC members to the 44 governance indicators evaluated, an average of 5.7 was obtained, which allows the committee to be classified at an intermediate level within the governance scale (Figure 2). This indicates that the committee is in the consultation phase and that the next phase will be one of participation or effective decision-making to later reach the level of self-management.

Of the indicators measured (Table 1), 24 were considered partially satisfactory (1, 3, 4, 6, 7, 9, 11, 12, 13, 14, 18, 20, 23, 24, 29, 31, 33, 35, 38, 39, 40, 41, 43 and 44), 12 were fully satisfactory (2, 5, 17, 26, 27, 28, 30, 32, 34, 36, 37 and 42) and 08 were considered unsatisfactory (8, 10, 15, 16, 19, 21, 22 and 25). The expectation of all SLRBC members for the next three years is for improvement in all indicators evaluated. In general, there was a strong consensus among SLRBC members when filling

TABLE 2 – Spreadsheet with the different aspects to be evaluated for each indicator, including instructions for filling it out.

Indicator	Evaluation will be carried out based on the indicators
What will be measured	Detailing of the indicator, with items to help with the evaluation
Current stage of the aspect to be checked	Fully - when considered satisfactory; when at least two of the three items in the 2nd column are met. Partially - in partial stage of implementation; when 1 to 2 items in the 2nd column are met. Unsatisfactory - none of the items in the 2nd column are met.
Comments and information that justify the answer	Indicator evaluators can comment, justifying the evaluation.
Outlook for the next 3 years	Will improve; Will remain stable; Will worsen,
Level of consensus in the assessment of the indicator	Considering the subjectivity or difficulty of evaluating some indicators, which should express the evaluation of all participating members, the consensus in the evaluation can be: Strong; Acceptable or Weak.
Note	Score for each indicator: from 0 (zero) to 10 (ten)

SOURCE: modified from BWO (2019).

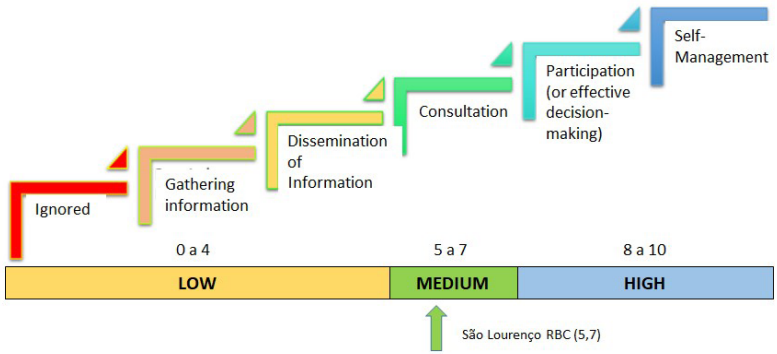

FIGURE 2 – Water governance thermometer in the São Lourenço River Basin Committee, obtained from the governance indicators proposed by the BWO (2019).

SOURCE: Adapted from BWO (2019).

out the spreadsheet, especially regarding the definition of the score for each indicator, except for 3 indicators, which obtained an acceptable consensus (indicators 1, 7 and 15; Table 1).

Regarding the five dimensions of the monitoring protocol, Dimension 3 – Management Instruments was given the lowest score (3.4) and the State-Society Interaction Dimension was given the highest score (7.6), as shown in Figure 3.

3.1. Legal and institutional dimension

The six indicators in this dimension achieved an average of 6.3. This shows that, although the existing legislation is regulated and effective in many aspects, there are still demands for expansion and improvement. One of the gaps is the regulation of the basin agency and the collection, planning and classification instruments (indicator 1). From 1997 until the beginning of 2020, the Mato Grosso State Water Resources Policy – Mato Grosso WRSP (MATO GROSSO, 1997) did not provide for a water or basin agency, which was established with the approval of the new WRSP (MATO GROSSO, 2020).

Gaps were also observed in the regulation and in the interface of management instruments with the projects installed in the basins that impact water resources (indicator 3), except regarding granting, the instrument most implemented in the State as a whole. However, the SLRBC does not discuss concessions and does not have access to concession holders in the basin. This indicates, among other factors assessed, that there are failures in the fulfillment of its legal functions (indicator 4). This can also be attributed to the recent approval of the new WRSP, in view of the date of the workshop, which expanded the competencies of the State's RBCs, in line with Law No. 9,433. The committees also became deliberative and not just consultative as previously, especially regarding the definition of criteria and the approval of management instruments (Dionel, 2021), which until then were the sole responsibility of the State Water Resources Council.

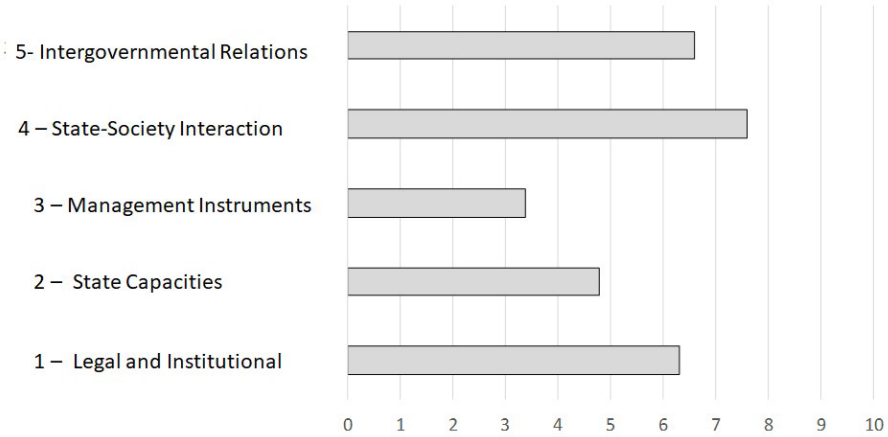

FIGURE 3 – Average score given to the five dimensions of indicators of the water governance monitoring protocol (BWO, 2019) applied in the São Lourenço River Basin Committee (MT).

SOURCE: Prepared by the authors.

Indicators 2 and 6 on the creation, full functioning and composition of the RBC obtained the best scores in this dimension (8 and 10, respectively). This indicates that regular meetings have been held, that the committee is operating and there is representation from the three segments (government, civil society, and water users).

3.2. State Capacities

In this second dimension, which deals with financial and technical resources and the quality of state bureaucracy, the scores for the eight indicators resulted in an average value of 4.8, characterized as a basic level on the governance thermometer. Therefore, there is still much to be done in terms of strengthening and improving state capacities for water resources management.

Indicators 7 and 12 obtained the best scores (both 7), demonstrating that, although partially, there are resources for training coming from the ProComitês program of ANA (National Water and Sanitation Agency), and that the Technical Chamber of Environmental Education of the RBC plays its role of mobilization and social engagement. On the other hand, indicator 13 had a lower score (5), demonstrating that the technical training of SLRBC members by the managing body is still insufficient.

Another score of 7 was given to indicator 14, demonstrating that the managing body, albeit partially, has provided operational and technical support to the SLRBC.

The zero scores given to the indicators on the Water Resources Fund (indicator 8) and resources allocated in the Multi-Year Plan for water resources/budget execution (indicator 10) demonstrate, on the one hand, the lack of inclusion of the water management agenda in the State's planning and budget. On the other hand, regarding other sources of financial resources to subsidize actions and projects

(indicator 9), the committee relies on resources from ProComitês and the support of the MP-MT (Brazilian Government Agency for Law Enforcement of Mato Grosso).

Therefore, the members of the SLRBC mentioned the existence of an incentive from the Municipality of Rondonópolis, and partially from SEMA and FUNAI, for professionals working in water resources management.

3.3. Dimension of management instruments

SLRBC members attributed an average of 3.4 to this dimension, characterizing it as a basic level on the governance thermometer and demonstrating that there is still much to be done regarding the elaboration and implementation of management instruments applicable to the basin.

The only instrument that obtained a median score was the granting instrument (score 6 for indicator 17). Although it is the most regulated and implemented instrument in the state, and its granting is the responsibility of the managing body, SLBC members said they have difficulty accessing data that could help identify potential and real conflicts over water use. This lack of access to data also made it impossible for them to assess whether the concessions granted reach all the major users in the São Lourenço River basin (indicator 18). Furthermore, the RBC has never participated in the definition of granting criteria since the approval of the new WRSP.

The Plan and Classification instruments obtained a score of 3, since, at the time of the workshop, the SLRBC was preparing the terms of reference, with resources from the MPMT, for hiring the services for the construction of these instruments.

The lowest scores were given to indicators on collection (indicator 19, score 1), which are not yet being discussed by the committee, and to indicators on the existence of tools that help support decision-making, conflict management and others, which are partly related to the information system instrument (indicator 15, score 2). Members claimed that there was little data available on the basin, and the existing data were difficult to access. There is data on a larger scale in the national information systems (NWRIS/Hidroweb) or in the Water Resources Plan of the Paraguay River Basin Region, of which the São Lourenço basin is part.

Regarding strategies to leverage public and private resources (indicator 24), they received a score of 6 from SLRBC members. They reported that they have accessed resources from the Brazilian Government Agency for Law Enforcement and submitted projects to obtain funding, both through representatives of civil society on the committee.

3.4. Dimension of state-society relations

In the fourth dimension, SLRBC members assigned scores that resulted in an average of 7.6, characterizing this dimension as an advanced level on the governance thermometer. This demonstrates that there is a good level of interaction between the State and society in the management of water resources in the basin. With the exception of indicator 25 (score zero), which concerns the existence of resources for civil society participation in committee meetings, the other indicators received scores from 5 to 10.

The highest scores, from 7 to 10, were given to the following indicators:

i) on the existence of projects aimed at water management – restoration, monitoring and environmental education actions in micro basins, with community participation and in partnership with civil society, MP-MT and UFMT-Federal University of Mato Grosso (indicator 26, score 8);

ii) on the training of committee members – continuous and promoted by the management body (indicator 27, score 8);

iii) on the adoption of dynamics and methodologies that promote the convergence of decisions (indicator 28, score 7);

iv) on carrying out frequent community awareness campaigns to participate in the committee (indicator 29, score 7);

v) on the selection process for SLRBC members, which has democratic and transparent characteristics (indicator 30, score 10);

vi) on the effective fulfillment of the role of the committee's executive department in the internal and external coordination of the RBC (indicator 32, score 9);

vii) on the coordination with Cehidro-MT and NWRC (National Water Resources Council) – occurs through representation of the SLRBC in both councils, as well as in the GAP (Monitoring Group for the Water Resources Plan of the Paraguay River Basin Region) (indicator 34, score 9);

viii) on the implementation of the SLRBC decisions (even if they are few) in the three spheres of government (federal, state and municipal) – exemplified by the project to restore springs in the municipality of Juscimeira requested by the committee, and by the fulfillment of demands by the managing body (indicator 36, score 8);

ix) on the existence of equity in the distribution of votes in the committee between the three segments (indicator 37, score 10).

Regarding the indicator of the election process for the collegiate representatives, the SLRBC publishes an election notice, with a description of the number of vacancies for each sector. Despite the maximum score given for this indicator, members commented at the workshop that generally there is no balance of all segments, with almost all applicants being accepted, regardless of the segment, which does not promote parity. It was alleged that there is little interest from civil society and water users in participating in the process and that it is necessary to expand awareness campaigns and publicize the existence and importance of the SLRBC, demonstrating that awareness campaigns are not sufficient or efficient (indicator 29). Furthermore, there is no participation of representatives of traditional riverside and indigenous communities living in the basin.

3.5. Intergovernmental relations dimension

This dimension was assigned an average score of 6.6, as a result of the score of the seven indicators, characterizing an intermediate level on the governance thermometer. This indicates that there is still room for improvement in cooperation and coordination between different levels of government, but it also suggests that efforts are underway to improve this dimension of governance.

There is a lack of clarity regarding the importance of interaction between sector policies and water resources policies, except for the sanitation sector, which is more closely linked to water re-

sources in the basin (indicators 38 and 39, scores 6 and 4). Moreover, there are partnerships in the execution of projects with the basin's city councils (indicator 44, score 8).

Regarding indicator 43 of this Dimension, one of the strengths of the SLRBC, participation in decisions on other public policies as members of councils in other related sectors was mentioned. These sectors include state and municipal environment, tourism, agriculture, sanitation, transportation and pesticides, in addition to state and national forums of river basin committees and working groups for reviewing or constructing the municipalities' Master Plan.

4. Discussion

The complexity of the institutional construction process demonstrates that a law is not enough for an institution to function and fulfill its legal role. To assess water governance in a river basin committee, in this case, the SLRBC, it is necessary not only to analyze the results of the scores and justifications given to the indicators, but also a more in-depth and institutional analysis of the committee, which is a relatively new structure in the state water resources system and with recently expanded attributions at the state level, after the approval of a law in 2020.

The indicators evaluated revealed, on the one hand, a committee under construction and with little autonomy, dependent in several aspects on the management body and external resources (official programs and alternative sources, such as the MPMT and projects captured by NGOs with representatives on the committee), and without management tools that can guide its actions and decisions. On the other hand, the transparency of the electoral process, the effort to maintain parity between the representative segments, relations with municipalities and the community in general, training courses, and the participation of members in other water resources collegiate bodies or related areas were strong points identified in the committee's functioning.

Until February 2020, when the old state water resources law was in force, the committee's responsibilities were basically advisory, which may have been one of the obstacles to strengthening governance and autonomy in the SLRBC since its creation in 2013. Although the indicators are a portrait of the current moment, in this case May 2021, they result from the historical construction of the RBC in previous years. Despite the few achievements, the absence of important decisions on water management, the low capacity for action, the scarce resources and the absence of management instruments developed and implemented, except for the grant (although unavailable to the SLRBC), the members were motivated and had future prospects for improving practically all the indicators evaluated.

In studies carried out by Dionel (2021) and Turini et al. (2021), where almost the same indicators were applied in other RBCs in Mato Grosso, all members were motivated and had positive expectations regarding the improvement and strengthening of the committees in the coming years.

This perception of improvement is partly due to the water resources law, because, although the committee is still in the consultative phase, like the SLRBC, it points out a path to be followed for continuous improvement and effective implementation of what is established in the law. Achieving the objectives of the WRNP through its foundations and guidelines depends on the successful implemen-

tation of the NWRMS (Marcon, 2023), which has been gradually implemented in the country, in general, and in the case of Mato Grosso, in particular. This demonstrates that the governance thermometer (Figure 2) is feasible and realistic for the SLRBC, since it represents this process of institutional construction and continuous improvement.

Specifically regarding management instruments, grant is the most regulated and developed instrument in the São Lourenço River Basin, but the RBC does not participate in the deliberation process and has difficulty accessing information on granted users. The concession of water use in the basin, when other management instruments have not yet been developed and implemented, in addition to weakening the committee's performance and compromising the principle of transparency, is a risk factor for water security.

Based on the justifications and explanations for each indicator, it was found that the SLRBC members made a great effort to carry out projects that give visibility to the committee, such as the restoration of springs and micro-basins combined with environmental education, despite the scarce resources, so that not only the qualitative and quantitative conditions of water in the basin are improved, but also so that their work is recognized by society. In other words, the committee must become a reliable organization before it can effectively perform its legal functions. Its members must use their ability to carry out projects that make sense to people, achieving practical authority, as observed by Abers and Keck (2017) in several Brazilian committees.

Agribusiness and the hydroelectric sector are the main users of water in the São Lourenço River Basin, and demands for water can lead to competition and conflicts with other users, such as local communities and the tourism sector. As pointed out by Cruz (2018), this is aggravated by the implementation carried out only in the granting instrument, without the other instruments, in particular, the Water Resources Plan and classification of the rivers in the basin. Empirically, it is known that conflicts occur in the basin, but they are poorly documented or are not discussed and resolved in the SLRBC. This was evidenced in indicator 3, which assessed the existence of mechanisms (legal, consultations, etc.) that interface projects installed in basins that impact water resources with management instruments, and in almost all indicators of the Management Instruments Dimension.

Law No. 9,433/1997 recognizes water conflicts, whose prevention and mitigation, in accordance with the SDGs (Sustainable Development Goals), do not depend solely on environmental and water agencies and bodies, but also on the coordination of policies and effective action by society as a whole, since, in order to align national laws and the most advanced SDG targets, it is necessary for collegiate bodies, such as river basin committees, to be protagonists in this matter (Santos *et al*., 2023).

Figueiredo and Ioris (2021) found that in the three RBCs operating in the Teles Pires River Basin there is little discussion about the most relevant aspects and conflicts of water management. This includes the process of commoditization of water by the agribusiness and hydroelectric sectors, which are the main users of water in this basin, as well as in the São Lourenço River basin. The representation of these sectors in the SLRBC, including agribusiness, is 7 members among the 11 from the civil society segment. Regarding the agribusiness sector, in particular, given its importance in the rural areas of the State, as well as considering its role in the use and

degradation of water quality, the participation of its representatives in the RBCs is of special importance (Martins et al., 2021). This demands attention to governance processes, given that, as observed by the referred authors in São Paulo, each representation network recreates and reproduces its dynamics and, as agribusiness is an important power bloc, it acts in different networks and fronts, mobilizing forces external to the governance arenas when it suits the sector's purposes. Such purposes often diverge from the principles and values of governance and water protection in territories, in favor of the interests of capital accumulation.

As conflicts are inherent in relationships between different interests, the lack of divergence in the RBCs and even the lack of discussion of conflicts may indicate the absence or low representation of segments of society (Marcon, 2023) focused on environmental and water protection, as observed in the SLRBC. Representation in the NWRMS's participatory bodies is what builds legitimacy and adherence to decisions taken in these spaces (OECD, 2015).

As governance in the SLRBC is still at the consultative level, the next step, anchored in the new state law and the optimistic perspectives of the members, is to bring to this arena the discussion of the issues that most affect water availability and cause conflicts in the São Lourenço River basin. The involvement of the population in the RBCs, through civil society, discussing water management and presenting existing conflict situations, can make negotiation between actors viable, as well as build a management environment, incorporating other interests into the decision-making processes, in addition to those advocated by the private sector (Marcon, 2023).

Qualified participation is a requirement for governance, which implies the adoption of measures to improve the functioning of arenas of social participation, as well as to encourage and improve the population's performance in councils, committees and other bodies aimed at this purpose (Lima, 2014). Thus, the SLRBC, through the Pro-Comitês Program, is able to ensure the participation of members in environmental education actions, project implementation and external events. However, no source of funds was foreseen to cover the logistical costs for civil society participation in the committee's in-person meetings, which may be one of the reasons for the low registration of entities in the electoral processes, as well as of indigenous communities present in the basin.

Regarding the analysis of the method adopted in the present study, it is worth mentioning that there are other methods to assess water governance, such as the principles of Ostrom (1990) and the OECD (2015), which have been applied in river basin committees in Brazil, such as the studies by Oliveira (2019), Oliveira et al. (2022), Granjeiro et al. (2019), Lima (2022), Machado (2019), among others. Although this study does not intend to present a detailed and comparative analysis of each method, it is clear that the BWO Protocol is more objective and more suitable to the Brazilian context. Only two difficulties were observed in the application of these indicators: the large number of indicators, although not all were adopted in the present study, and some difficulty in understanding what was measured by some indicators, in this case, possibly due to the current stage of the SLRBC.

Therefore, the adoption of BWO indicators, with adaptations to the SLRBC context, can, among other benefits, make it more practical for members

to carry out the committee's self-assessment using this tool, as they do not always have the technical--scientific training to adopt more complex methods. Assessing governance using Ostrom and OECD principles allows for greater theoretical depth and detail, but there is a loss in the evaluation of specific aspects of Brazilian legislation and system, since these principles were not developed specifically for the country, as was the case with the BWO Protocol, which has already been tested and adopted in more than 20 RBCs and one management body in Brazil (BWO, 2023).

5. Final considerations

This study demonstrated the feasibility of BWO indicators, which revealed the stage of governance, institutional construction processes, contradictions and gaps in the functioning of São Lourenço RBC, based on the horizon of full implementation of federal and state water resources policies and the achievement of the committee's autonomy and protagonism.

Therefore, this study provided robust support for the governance of the SLRBC, implicit in the indicators with high scores that need to be maintained, with medium and low scores that need to be improved and those with zero scores, which still need to be created. The most obvious gap that puts the basin's water security at risk is the lack of management instruments, especially the Plan and Classification, and the need to improve, democratize and provide transparency to the granting of concessions in the basin. In institutional construction, the gaps related mainly to the lack of structure and resources in the functioning of the SLRBC, the need to include in its agenda decision-making on the most relevant aspects and conflicts of water in the basin, indicate the need for continuous public resources, decentralization and expansion of the committee's leading role.

Regarding representation in the SLRBC, there is a strong presence of the agribusiness and hydroelectric sectors in the civil society segment, the main users of water in the basin, which carries the risk of promoting asymmetries and overshadowing the role of the committee and other representatives. This indicates, along with other aspects, the importance of continuous monitoring of the SLRBC governance to observe the principles of democratic and equitable social participation, efficiency, transparency, absence of corruption, accountability, legitimacy and justice.

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