

DRAINAGE BASIN COMMITTEES AS MANAGEMENT TOOLS: AN APPROACH ON THE MUNICIPALITY OF DIAMANTINO (MT)

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ABSTRACT

Due to the crescent risk of droughts, the issue of water security gains prominence, setting itself as an emergent topic and influx point for broad national discussion. This article aims to discuss the current state of Hydrological Resources Policies in the State of Mato Grosso (MT), the legal and institutional aspects regarding the creation, formation, and implementation of the Upper Paraguay Basins Committees (PMU P3), the framing of bodies of water, and the prospect mapping of water springs on the municipality of Diamantino (MT). The research method is qualitative and descriptive, based on research on the relevant literature and legislation on water resources and Water Basin Committees (CBH) as tools for integrated management, accentuated by the tripartition of participation and implementation of water policies in Mato Grosso. Water droughts entail the need for changes in water governance and the establishment of those committees, giving actual certainty of a participative process. We found that the steps forming the water basin plan in the unit of the Paraguay Hydrological Resources MT (PMU P3) for the municipality of Diamantino

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is in its implementation phase, having followed the preliminary steps of the process, based on the essence of an integrated administration of water resources.

Keywords: Management System of Water Resources; National Water Policy; Water Basin Committees; Water security.

COMITÊS DE BACIAS HIDROGRÁFICAS COMO INSTRUMENTOS DE GESTÃO: UMA ABORDAGEM SOBRE O MUNICÍPIO DE DIAMANTINO (MT)

RESUMO

Com riscos crescentes de escassez de água, a segurança hídrica ganha protagonismo como tema internacional e ponto de influxo para discussão nacional. O artigo busca discorrer sobre o estado atual da Política de Recursos Hídricos no Estado de Mato Grosso (MT), aspectos legais e institucionais quanto à criação, formação e implementação dos comitês das Bacias do Alto Paraguai Superior – Unidades de Planejamento e Gestão (UPG P3), enquadramento dos corpos d'água e mapeamento para prospecção das nascentes no Município de Diamantino – (MT). A pesquisa é qualitativa e descritiva, ancorada em pesquisa bibliográfica e legislação pertinente aos recursos hídricos e comitês de bacias hídricas (CBH), como instrumentos de gestão integrados, vinculados pela tripartição na participação e implementação da política de águas no Mato Grosso. A crise hídrica acarreta a necessidade de mudanças na governança da água, e necessária se faz a efetivação dos Comitês de Bacias, dando concretude a um processo participativo. Conclui-se que as etapas que compõem o plano de bacias hidrográficas UPG P3 pertencentes ao Recurso Hídrico do Alto Paraguai Superior no Município de Diamantino se encontram em fase de implantação, obedecendo às etapas preliminares do processo, pautando-se na essência de uma gestão integrada dos recursos hídricos.

Palavras-chave: Comitê de Bacia Hidrográfica; Política Nacional de Água; Segurança hídrica; Sistema de Gerenciamento de Recursos Hídricos.

INTRODUCTION

The planet has shown that it no longer supports the current pace of goods production and consumption, making the not-too-distant future uncertain and worrying. The paradigm of the myth of water abundance has been overcome, and the theme of water security has become vital for society and the economy, changing in size and demanding answers for climatic uncertainties resulting from the severity of water crises marked by severe droughts, floods, and federative conflicts. Thus, sustainable development will not be achieved without water security.

The idea of water security is a global challenge resulting from energy and food security and climate issues since the evidence points to their interconnection and interdependence, given that actions in one area often impact the others. We should warn that the water-energy-food-climate system will also face the reordering of international trade in the coming years resulting from the global population increase, especially in its largest consumer markets.

According to the Brazilian National Water Security Plan (PNSH), prepared by the National Water and Sanitation Agency, water security is linked with water availability in sufficient quality and quantity to meet human needs and economic activities and preserve aquatic ecosystems. From this perspective, sustainable development and water are intrinsically related, challenging the improvement of efficient water use in production processes without harming prices.

Sustainable development is not synonymous with economic development as the latter depends on an increasing consumption of natural resources and energy. Thus, what is required is a new ethics and rationality by reducing consumption and re-establishing the bond uniting man and nature and its designation as sustainable development forged in the document *Our Common Future* (Brundtland Report), published in 1987 by the World Commission on Environment and Development (CMMAD).

The difference between development and economic growth lies in the fact that economic development implies a harmonious, structured enlargement with successive and profound social changes. Economic growth, on the other hand, may result from a one-off problem of the State or from the increase in gross domestic product (GDP), for example.

Sustainable development is one in which human intervention has neither negative effects on the environment to the point that it cannot

recover from the change it has suffered nor compromises other life forms so human beings can take advantage of resources. Thus, it is necessary to regulate not only production and the market but also consumption and public policies, bringing better living conditions to all, in compliance with the Sustainable Development Goals (SDGs) of the 2030 agenda.

In 2011, the United Nations Security Council highlighted the relevance of the issue and the serious consequences of climate change in relation to water. Water security then began to formally make up its agenda and integrate the SDGs. The 2030 Agenda, a document adopted at the 2015 UN General Assembly, includes, as one of its 17 SDGs, Objective 6: Clean Water and Sanitation – “Ensure availability and sustainable management of water and sanitation for all”, connected to several other objectives. The goal by 2030 is to achieve universal and equitable access to drinking water.

Based on these considerations, this article seeks to discuss the current state of the Water Resources Policy in Mato Grosso State (MT) regarding the legal and institutional aspects pertinent to the creation, formation, and implementation of the Upper Paraguay Basins (PMU) P3 Committees, and punctuate the framing of water bodies and prospect mapping springs in the municipality of Diamantino (MT). Moreover, we expect to stimulate the necessary and urgent debate on the effective implementation of water management.

We opted for qualitative descriptive research. The methodological procedures used were anchored in a bibliographical investigation regarding legislation relevant to water resources and drainage basin committees (DBC) as integrated management instruments, marked by tripartition in the participation and implementation of water policies in MT. The legislative framework was presented, which can and/or should be used by the state to overcome the barriers of mere discourse.

This study proposes a thematic prospection based on the National Policy for Water Resources (PNRH), especially the DBC, as water management instruments. From there, we outlined our starting question: How was the proposal for framing the water bodies processed by Collaboration Term 1400-2017 (with a time lapse from 2018 to 2038) and the stages of the Upper Paraguay River Basin Committee conducted? To answer this, we sought evidence of which products have been presented so far.

1 WATER RESOURCES PUBLIC POLICIES AND THEIR LEGAL FRAMEWORK

Ensuring the sustainable development of water means ensuring economic, political, social, and ecological access to it for present and future generations in line with art. 255 of the 1988 Federal Constitution (CF/88), the landmark of a new phase of water management (BRASIL, 1988).

Inscribed in art. 21, XIX, of the Constitution, is the basis of Law No. 9,433 (BRASIL, 1997), which established the PNRH and created the Water Resources Management System and, in art. 225, enshrines water as an environmental heritage and a common asset of all, sharing the domain between the Union and the States, without leaving room for the inclusion of waters in the domain of municipalities and individuals (KRAVUSTSCHKE, 2019).

In recent years, water has gained prominence and water resources have gained a leading role, receiving differentiated treatment with a more integrative proposal, limited to local values and social management participation. The ideological bias of the waters was mitigated as a promotion of the generation of goods and wealth, as of the temporal and legal framework prescribed by Law N. 9,433 (BRASIL, 1997), called the Water Law, effective as a political possibility for the singularized management of water resources in Brazil.

Based on its own legislation, the National Water Policy gives concreteness to the explicit national formalization of the law for the participation in water resources management. “This legal discourse, supported by the liberal saying that everyone is equal before the law, has its importance as sociohistorical determination since it produces the erasure of differences from different places” (KRAVUSTSCHKE, 2019, p. 27).

Water management in Brazil is based on the multiple use of water in the decentralized management of hydrographic basins, ensuring the integrated participation between users and the community with the Public Power. One of its objectives is to ensure that current and future generations have the necessary water availability with a quality whose standards are appropriate to their respective uses, i.e., the basis for sustainable development (ANA, 2021).

Due to the impulse for changes in legislation in the recent past, for Souza Junior (2004), Brazil inaugurates a management phase for water resources to disseminate participation as an attribute of systemic integration

and decentralization. Thus, “[...] it has the Drainage Basin as a territorial cutout, in which the basin committee and the water agency represent the body acting in this management” (KRAVUTSCHKE; CARVALHO, 2018, p. 51).

According to Borsoi and Torres (1997), the water legislation adopted as a policy for the sector is the systemic model matrix. Its central point is to propose participatory integration and, as a presupposition, to combine social equity and environmental balance, in addition to economic growth, giving contours of a social negotiation in the environment of the drainage basin planning unit.

For Kravuttschke and Carvalho (2018, p. 54), this timeline configured a whole chronology marking, as a point of origin, “[...] the planning vision developed with the Water Code, in Federal Decree No. 24,642 (BRASIL, 1934), which contained instructions to support the guiding principles of Brazilian water resources policy”, thus raising the discussions constituting the basis of the CF/88 precepts and the legislative framework which regulated the water segment (BRASIL, 1988).

The changes and evolution which have occurred over time gradually and uninterruptedly, year after year, record a linear path especially marked by promoted events from which documents were issued in general meetings. These served as instrumental foundations to formulate state and federal legislation on water resources, raising a critical concern with the historical correspondence of social reality. For example, the Salvador (ABRH, 1987), Foz do Iguaçu (ABRH, 1989), Rio de Janeiro (ABRH, 1991), Gramado (ABRH, 1993), and Recife Charters (ABRH 1995) served to demarcate the senses and structure the relations of state and societal forces on water policy (KRAVUSTSCHKE, 2019).

A dynamism follows these changes and, in line with the previous paragraph, it is important to highlight the Projeto Legado (Legacy Project) from ANA, which proposed a Draft Constitutional Amendment – called PEC da Água – for its inclusion in art. 21, XIX, CF/88 (BRASIL, 1988). Projeto Legado brings 20 proposals to improve constitutional, legal, and infralegal water frameworks in Brazil (ANA, 2017).

According to Jacobi, Cibim, and Leão (2015), it is necessary to face the sustainable use of water by reviewing the current water policy anchored in risk management and promotion of transparency in public management, demanding new responses which integrate the various actors connected to a water action network. The challenges for water governance involve,

for Jacobi, Paz, and Alves (2021), citizens and stakeholders' effective participation. Solutions involve building a collective model sensitive to the complexity of social and environmental systems. Thus,

[...] the challenge of negotiating different points of view and effectively communicating their ideas and worldviews, and this requires broadening the dialogue on the water crisis, vulnerability, and uncertainties inherent in the unsustainable model of society we are building (JACOBI; PEACE; ALVES, 2021, p. 253).

The water crisis has deep roots, demanding a paradigmatic change and implying complex realities which require a systemic vision. In this bias, studies conducted in the last decade³ highlight the water crisis in relation to water quality among the 10 most relevant impacts for society (PIHL *et al.*, 2021).

A context of global climate change is envisaged. In Brazil, more punctually from 2012 onward, a complex scenario is installed, showing the growing vulnerability of water systems and water scarcity. As a consequence, numerous municipalities in the country are affected by rainfall reduction and droughts (FERNANDES *et al.*, 2021). However, if we conceive the water crisis solely and exclusively from the climate perspective, we can incur the risk of disregarding points relevant to involved institutions and actors' responsibility in water governance (ANA, 2014).

Despite having a law implementing a system with “[...] integrated, participatory, and decentralized water management, with the participation of the public authorities, civil society, and users of each basin” (MESQUITA, 2018, p. 56). It is important to emphasize the need for government strategic planning and coordinated actions. These mechanisms should be able to give full concreteness and implementation to the national water resource policy, since “[...] water dominiality does not transform the federal and state governments into water owners but makes them managers of this good in the name of the public interest” (MESQUITA, 2018, p. 59).

For Santos (2011, p. 19), “[...] water scarcity is becoming one of humanity's greatest problems and the rational exploitation of water resources, considering its multiple uses, is undoubtedly a great challenge to be faced this century”, evincing problems with water resource management, inadequate infrastructure, lack of articulation between the various stakeholders, the deficit of domestic sewage treatment, the increase in deforestation and occupation in water sources areas, lack of planning for

³ A recently published study, coordinated by Future Earth Global and conducted by several authors, which screened climate science articles published in the last two years.

the construction of new reservoirs, lack of investments to reduce losses, and lack of institutional coordination to solve critical issues (DALLA CORTE, 2019).

1.1 The challenges for water management: advances and setbacks in Mato Grosso

The increase in uses due to economic development and the degradation by the pollution of water resources are causing an imbalance between water supply and demand, producing constant conflicts between users, especially in regions in which these resources are scarce (SANTOS, 2011). The use of water resources by man “[...] has generated changes in the natural conditions of the drainage basin, which has caused changes in the water quality of the basin” (SANTOS, 2011, p. 48). This requires transposing public policy plans for more effective actions. Otherwise, it would all be just inspiration.

The public policy of water resources management proposed for MT contemplates decentralizing management by legalizing spatialities per drainage basin and creating a tripartite management committee to build participatory and shared management among public authorities, users, and civil society. The growth of the body of international and national environmental standards has marked the last few years. However, for Dalla Corte (2019), its current status is insufficient to overcome water problems, failing to achieve the desired sustainable and just effects, thus demanding that the legal framework be more effectively (re)thought so it can contribute to the ecological integrity of the planet and ensure the human right to water.

1.2 Mato Grosso, its public policy for water resources management, and its legal and institutional aspects

We should make some preliminary considerations. To enable the implementation of the PNRH, “[...] management tools such as water resource plans have been put in place; the framing of water bodies in classes according to predominant uses, the right to water resources, and the demand for water resources” (MESQUITA, 2018, p. 60), which, in addition to meeting ANA guidelines, support the review and consolidation of the Work Plan activities.

Planning the use of existing spring waters can provide their better use, control, and conservation. However, the great challenge to this plan is meeting the demands for multiple uses in an integrated and optimized way for the whole system (SANTOS, 2011, p. 20).

In Brazil, Law No. 9,433 (BRASIL, 1997), the Water Law, advocates decentralized management shared by the public and private sectors, anchored in guiding principles already predominantly accepted and internationally practiced, which are: adoption of the drainage basin as a planning and management unit; recognition of the economic value of water; decentralized and participatory management, providing for, various management tools in its Chapter IV, art. 5: (1) water resource plans; (2) framing of water bodies in use classes; (3) granting rights to use; (4) demands for water; (5) compensation to municipalities; and (6) the Information System (BRASIL, 1997).

Mato Grosso State encompasses a wide environmental diversity provided by biotic and abiotic factors and is well-endowed with both surface and underground water with no arid or semiarid regions. its territory contains three important Brazilian biomes: the Amazon Forest, the Cerrado, and the Pantanal, as well as a vast transition area between the Amazon and Cerrado, called Ecotone. It has an extensive drainage system since it houses the springs of three relevant river basins: Platina, Amazon, and Araguaia-Tocantins. It is also characterized by an average precipitation which can vary between 1,200 and 2,000 mm/year (DALLA NORA; NETTO, 2012; SOUZA *et al.*, 2013).

With regard to the Brazilian water policy, and MT in particular, the State System of Water Resources (SERH), created by State Law N. 6,945 of 1997, repealed by Law No. 11,088, of March 9, 2020 (D.O.10.03.20), providing for the State Water Resources Policy, instituted SERH and other measures, is established to follow the same principles and foundations of the National Law on Water Resources Policy and molds itself to the requirements of tripartite management prescribed in Title II, Chapter III, Art. 31 of that law (MATO GROSSO, 2020). It consists of the managing/ coordinating body, exercised by the State Secretariat for the Environment (SEMA), collegiate entities (formed by the State Council of Water Resources – CEHIDRO,) and the DBC. The State Water Resources Plan (PERH), as one of the instruments of the State Water Resources Policy, was approved by Resolution no. June 26, 2009, which structures, establishes references, and guides the management of water resources.

In the SERH composition, SEMA is the managing body through the Superintendence of Water Resources (SURH), the State Council of Water Resources (CEHIDRO), and the Drainage Basin Committees (DBC). The guidelines of the national legislation, in Kravutschke and Carvalho's perception (2018, p. 56), "[...] need an articulation with actors of various planning levels. This articulation would be related to the strengthening of local institutions in a form of decentralized management". Due to this bias, an incentive was opened, and the public power was incentivized since high technological capacity is an essential amalgamator of coordination in users and society's integrated and participatory action.

The guiding principles and foundations of water legislation are prescribed in Title I, Chapter III of the discussed law. They are the public domain of the waters; their economic value; priority use in scarcity for human consumption and animal watering; maximized multiple uses; river basins as water management units; and decentralized management, which should count on the Public Power, Users, and Communities (MATO GROSSO, 2020).

Important collegiate bodies, such as water resources councils, DBC, and basin agencies, make up the water resources management system (MATO GROSSO, 2020). A Drainage Basin Committee consists of a collegiate body with power to act in the area of the respective basin:

Its aims to promote the planning and management of water resources and articulate the integration of management with the State and the National System. This body has numerous competencies, among which the following stand out: arbitrating conflicts over water use; approve plans for the application of financial resources collected by demands to water use; approve the granting of rights to water resources for hydroelectric plants, industries, mixed farming businesses, and others (SUEKAME *et al.*, 2013, p. 2).

In MT, the DBC, known as the water parliament, "[...] are entities of the National Water Resources Management System (SINGREH) of ANA which act as discussion and deliberation points regarding the management of water resources, sharing management responsibility with public authorities" (SALESSE, 2021, p. 1).

The DBC are an integral part of the SGRH which has specific management instruments provided for in the State Water Resources Policy in MT to be properly instituted and implemented, maintaining its connection with the strengthening of state water resource management bodies and the attribution of all water management instruments. Put another way: "The process of managing water resources is naturally complex, creating the

necessary conditions to plan the use of water resources in a balanced way to multiple uses imposes a participatory approach which involves all stakeholders” (SUEKAME *et al.*, 2013, p. 3).

Overall, 13 Planning and Management Units (PMU) subdivide the Hydrographic Region (HR) – Paraguay, seven of which are in the state of MT: P-1 – Jauru; P-2 – Upper Middle Paraguay; P-3 – Upper Paraguay; P-4 – Upper Cuiabá River; P-5 – São Lourenço; P-6 – Correntes Taguaí; and P-7 – Paraguay – Pantanal; (ANA, 2019); and six are in the state of Mato Grosso do Sul: II.1 – Correntes; II.2 – Taquari; II.3 – Miranda; II.4 – Negro; II.5 – Nabileque; and II.6 – Apa (ANA, 2019).

Currently, 10 MT DBC are regulated by resolution no. 04/2006, which deals with DBC creation, one of which in progress to implement the Upper Paraguay DBC, currently in several regions: “DBC Covapé, DBC Sepotuba; DBC Baixo Teles Pires, DBC São Lourenço, DBC Alto Teles Pires, DBC Cuiabá, DBC Cabaçal, DBC Jaurú, DBC Médio Teles Pires, and DBC Alto Araguaia”. The Upper Paraguay DBC was recently established and still undergoes bureaucratic adjustments, resolution 116-2019 in progress (SELESSE, 2021, p. 2).

Brought to contextualization and between attempts permeated by successes and errors, the genuine effort to point out forms of equally legitimate and democratic solutions for the participation of civil society in the Upper Paraguay River PMU P3 DBC, committed to effective decentralization, is unequivocal. It shows the process of framing river water bodies as a management product, as well as the discursive implications arising from understanding this tool in water management in MT.

Prospecting the future participation of civil society in the Upper Paraguay River PMU P3 DBC hopes, in the end, to expand the discussions of the segment on participatory spaces with the participation of local society after effective state and municipal basin committee water policies, thus following the national policy, inserting its local peculiarities, and structuring an understanding anchored in basic concepts since this theme has its own and unique concepts, which help in the aim of implementing water security.

2 CONTEXTUALIZATION OF THE MUNICIPALITY OF DIAMANTINO (MT)

We should mention, as context and a general presentation, that the Diamantino municipality, in accordance with the data subsidized by

the Brazilian Institute of Geography and Statistics (IBGE), is located southwest of MT at about 185 km from its capital Cuiabá, with a total area of 8,263.397 km² (IBGE, 2021).

According to the last population census (IBGE, 2021), conducted in 2010, the municipality had 20,341 inhabitants. We emphasize that the estimated population in 2019 was 22,041 inhabitants, which is equivalent to an approximately 8% population growth in the period.

The Municipal Basic Sanitation Plan of Diamantino (PMSB) states that the municipal water supply system is conducted via the superficial capture of the Diamantino River, Mina Areinha, and Córrego do Caju, belonging to the Upper Paraguay sub-basin. Also, as the PMSB states, the Diamantino municipality is located in a privileged region: exactly in one of the points in which Chapada dos Parecis, a plateau with altitudes around 500 meters divides the Amazon and Platina Basins (LIMA; MODEST SON; MOURA, 2017).

Diamantino is situated in the southern buttress of this chapada. Within its urban limits, we note the different directions of the streams interpolating the urban area: those near the Novo Diamantino neighborhood head north to meet the Amazon, whereas those passing near the city center seek the Paraguay River, toward the south (LIMA; MODEST SON; MOURA, 2017).

The Paraguay River springs are about 30 km from the city, surfacing in the Serra de Araporé, in the southern slope of Serra dos Parecis, in MT State. These springs extend over a swampy chapada called Brejal das Sete Lagoas, separating the Plata and Amazon drainage basins. The Diamantino River (LIMA) is born in this region (LIMA; MODESTO FILHO; MOURA, 2017).

Anchored on a legal basis constituted by Law No. 9,433 (BRASIL, 1997) — defining and instituting the PNRH — and Law No. 11,088, arts. 9 and 10 (MATO GROSSO, 2020) — establishing the state water resources policy of MT State — the framing of water bodies in classes, according to predominant water uses, aims to I – ensure that the waters have a quality compatible with the most demanding uses to which they are intended and II – reduce the costs of combating water pollution by permanent preventive actions. Both laws set the same goal.

With the implementation of the water resources plan of the Upper Middle Paraguay and Upper Paraguay P2 and P3 PMU and the framework of the streams of the Upper Paraguay PMU, P3 Upper Paraguay, to be

executed via the water resources plan of the upper Paraguay P2 and Upper Paraguay P3, the MT State Department of Environment (SEMA) presented the proposal for framing the water bodies of PMU P2 and P3 and its financial responsibility. The Universidade Federal de Mato Grosso (UFMT) Support Foundation Uniselva was responsible for its technical support, concluding the Collaboration Term 1400/2017/ SEMA/MT with the approval of the Collegiate Organs SINGREH, starting in March/2018 with a time lapse of 20 years (timeline 2018-2038) (SILVA *et al.*, 2021).

This proposal resulted in the fulfillment of some stages and technical documents and public minutes of the Committee, showing the discussion which culminated in a final document to update the classification of the water bodies of this basin. The final approval of the proposed framework by public authority, user, and civil society representatives complied with the formalities provided for in the legislation of tripartite water management.

The team implementing the framing step consisted of General Coordination: Luciana Sanches (DESA-UFMT); Technical Coordinator: Jhonatan Barbosa da Silva (DESA-UFMT); Sanitary and Environmental Engineering: Polyana Comino Redivo-Mestre (PPGH-UFMT); responsible for public meetings and workshops: Rafael Pedrollo de Paes (DESA-UFMT); Technology Coordinator: Bruno Santos Abdalla (SETEC-UFMT); Facilitator of public workshops: Rodrigo Faccioni (Agronomist Engineer) (SILVA *et al.*, 2021). The activities (products) were structured based on the resolution of the National Council of the Environment no. 91 (CONAMA, 2008), which establishes the general procedures for framing surface and underground water bodies. These support the framing and are included in art. 3 of resolution⁴.

The basic scope of the accepted term presents the Water Resources Plan (PRH) PMU P2 and P3, contemplating public participation and containing the following steps: (1) diagnosis: survey of the demands and quantitative and qualitative balances of the P2 and P3 units, visualizing the regions showing criticality in the current scenario; (2) prognosis: projection of demands and balances, with short-, medium-, and long-term scenarios, in which it is possible to see the regions in which new critical regions will arise from the point of view of the quantity and quality of water; (3) action plan: both the prognosis and the action plan were delivered with public participation and the action plan is a set of actions to ensure water

⁴ Art. 3 – the proposed framework should be developed in accordance with the Water Resources Plan of the river basin, preferably during its preparation and should contain the following: (1) diagnosis; (2) prognosis; (3) proposals for targets for framework alternatives; and (4) program for implementation.

security over the 20-year horizon, from 2018 to 2038; and (4) operational manual: a practical operational manual including the actors for the short-, medium- and long-term implementation of the action plan, also delivered with public participation.

As for framing (art. 3º resolution CONAMA n. 91/2008), this stage presented some definitions, procedures, and purposes of framing water bodies in classes, aiming “To ensure the quality of water and its compatibility with more demanding uses to which they are intended to reduce the costs of combating water pollution by permanent preventive actions” (MESQUITA, 2018, p. 60). A second moment presented the PMU P2 and P3 framework from the Water Resources Plan of the middle (P2) and upper Paraguay (P3) PMU.

The hydrographic basins are divided into 12 Hydrographic Regions (RH), some of which are in MT State. The Paraguay HR has 13 units, including P2 and P3 PMU, an area of interest for this study.

Framing is one of the instruments which Law No. 9,433 (BRASIL, 1997) defines as necessary for management. It serves as a fundamental mechanism for maintaining a surveillance system on water quality and its classification is based on its own legislation (BORSOI; TORRES, 1997).

Next, as Silva *et al.* (2021) explain, the characteristics of the work conducted on the central theme of this study are presented, described, and discussed: the water resources plan, in which the simultaneous framework was proposed. The framework proposal followed the following methodology: diagnosis, prognosis, preparation of a framework proposal, and, finally, a framework implementation program. We should note that the stage of elaboration of the framework proposal, at first with diagnosis and prognosis, has provided opportunities to identify the balance sheets of the current and future scenarios, regions which will present quantitative and qualitative criticality, thus constituting its backdrop.

The proposed framework itself was composed of four steps, covering the identification of the areas to be framed – strictly speaking, all water bodies must and will be framed we need to clearly look for which areas this framework will be proposed – pre-framing, water quality modeling, and framework proposal (MEETING, 2021). It should be noted that the proposal for a preliminary framework of some areas was elaborated based on the regions showing or which will show criticality, such as urban areas, Indigenous lands, and conservation and protection units, these first prioritized stretches. In a second moment, we moved to the pre-framing

stage, which consisted of looking at the bodies of water by the users surrounding them and define the water quality needed to serve them.

In the glimpsed regions, we found that the quality limits for the care of these users are extrapolated. Quality modeling was performed to adjust the loads to ensure, in these areas, the quality of the water for users. In this third stage, modeling, loads were standardized and reduced to meet water quality to users (SILVA *et al.*, 2021).

The last step is the proposed framing itself, after modeling and adjusting these loads. Sections were adjusted and the framework proposed according to technical and financial limitations. The framing of water bodies “[...] is the establishment of the meta-goal of water quality (class) to be objectively achieved or maintained in a body of water segment, according to the intended predominant uses over time;” here we talk about goals (ANA, 2007, p. 23).

Classifying water bodies is classifying fresh, brackish, and salt water according to prevailing current and future uses (class system). This is the state of water quality itself. Diagnosis and prognosis show the water quality in regions P2 and P3.

These classes represent a set of conditions and patterns of water required for satisfying current or future preponderant uses. In a close synthesis, to define the water framework is to define the quality of water for that body (MEETING, 2021). For it to serve its users by an established goal, for the current and future time, it is necessary to reach and maintain quality. Finally, to end the program, the stage of implementation of the framework is reached, by presenting one of the proposals whose objective is to give concreteness and effectiveness to this proposal of framework.

These guidelines refer to the protection and preservation of aquatic communities and the use of water, which requires a higher quality: public supply, irrigation; animal watering. Navigation is less demanding (CONAMA, 2005).

Thus, as for the most demanding uses, according to the legal standards of definition, the special class reaches all users. As classes increase (Class 1, Class 2, Class 3, and Class 4), fewer users are served. The special class contains the most demanding uses, excellent water quality and, in class 4, the use is less demanding and the quality of the water is poor (CONAMA, 2005).

In the uses of fresh water, the higher the class, the lower the water quality. In supply for human consumption, it is possible to reach up to

class 3 to serve it. Navigation can be served by all classes, from 1 to 4 (CONAMA, 2005).

The river framework should consider three main pillars, the proposal should contain three perspectives: (1) the river identified by the current condition; (2) the river encircled by will (desire for the water quality of local users); and (3) the river that can be had, considering the existing technical, financial, and socioeconomic limitations. It is about this quality that the proposal is constructed because it is the most realistic, considering the limitations (SILVA *et al.*, 2021).

We find 27 sub-basins, starting in Sepotuba, Cabaçal; Bugres, and Paraguay regions, relevant to PMU P3; and P2 involving the rivers Diamantino, Santana, Pari, Joacoarina, Jauquara, Branco, Sangue, and Onça magra. The proposed framework was made for both the main and tributary rivers.

The suggested framework considered the evaluation of the current, trend, and proposed scenarios. Structuring measures consist of 10 targets (from 1 to 10) in the short-, medium-, and long-term and include structural targets according to five targets (from 11 to 15) which correspond to sanitation works and others requiring a higher financial cost which must have an investment budget (MEETING, 2021).

It is important to highlight the studies for PMU P2 and P3 since the region shows situations of competitive use or real conflict and potential for water in the following segments: agriculture, industry, mining, agriculture, public supply, fishing, hydroelectric, and industry. The steps of the PRH PMU P2 and P3 presented by the technical team were thus arranged: (a) social dynamics: social mobilization meetings, PRH dissemination, communication with the local population; (b) diagnosis: physical, social, economic (among others) characterization of the current reality of the region; (c) prognosis: projection of availability and future demands, with the appropriate recommendations; and (d) definition of short-, medium-, and long-term objectives and strategic goals and actions (SILVA *et al.*, 2021). It is necessary that leaders from the government sphere, academics, innovation agents, water users, and water resources technicians participate in this process.

2.1 Project of the Mato Grosso Public Ministry – Waters for the future – interiorization

The Project Water for the Future, an initiative of the MT Public Ministry, has a UFMT partnership and seeks to ensure water security as a means to prevent the water crisis. Currently, the project is consolidated in Cuiabá (MT), with participation of other municipalities.

The project aims to increase the actions of pollution surveillance and degradation of water resources and Permanent Preservation Areas (APP), in accordance with the Institutional Strategic Planning (PEI) (2020-2023) of the MT MP. In 2020, the Project Water for the Future – Interiorization was developed. Following the action plan, the project contains the preliminary prospect mapping springs in the field as steps for future actions in other municipalities, aiming at confirming, characterizing, and evaluating environmental damage in APP (MORAES; PANSONATO; BARBOSA, 2018).

This document will anchor technical teams for field work, increasing the number of potential springs and their geographical location, contributing to the planning, saving resources and accelerating the technical teams' performance in the municipalities which adhere to the Water for the Future project, adding to the promotion of supervision and repair of environmental damage pertinent to water resources (MORAES; PANSONATO; BARBOSA, 2018).

2.2 Prospect mapping springs in the municipality of Diamantino (MT)

Prospect mapping the springs in the Diamantino municipality (MT), which composes one of the stages of the Project encamped by the State MP, entitled 'Waters for the Future,' developed in the municipality of Diamantino (MT), resulted in technical report no. 60/2020 of the technical team composed by geologists Chauanne da Cunha Guimarães and Jessica Melanya Sisti de Paiva, the Forest Engineer José Guilherme Roquette, and the Prosecutor Marcelo Caetano Vacchiano, who brought the technical note.

The municipality of Diamantino has 1,703 springs preliminarily mapped, of which seven are in its urban perimeter. We observed that the

proportion between the number of springs and the municipality area (urban and rural areas) corresponds to 0.20 springs/km². We should mention the possibility that other springs were not contemplated in the mapping according to the scale of the work performed, recommending the analysis of the landscape in more refined scales to identify other springs, especially in the Diamantino urban area.

CONCLUSION

This study aimed to shed light and discuss a theme materializing into a great problem humanity currently experiences: the water crisis. It intersects other crises, such as the energy crisis in subordinate countries and the production of energy by stream in Brazil.

Marked by challenges including conflicting interests between different sectors, it is also linked to a food crisis since lack of water prevents food production. Our research was based on bringing a prospective look at the future, without the intention of covering all dimensions related to water.

We should remember that this study addressed a reality reinforcing the need to improve our view on water security, fostering reflection and discussing DBCs as an instrument for managing and implementing water policies in MT. More punctually, we discussed the framing of water bodies, prospect mapping of springs and the DBC in Diamantino.

In these opportunities, the complex set of uses and users can generate different points of view on water use. Water use concerns are quite distinct and condition a particular look on stakeholders. The water available in drainage basins must meet often competing demands, thus accommodating all these visions and interests is no easy task.

Bringing the discussion back to the present, we highlight that the actions developed by the MT Public Ministry project, entitled 'Water for the Future – Interiorization' is a technical document. In addition to meeting ANA guidelines, the revision and consolidation of future activities configure technical support, anchoring more coordinated and integrated actions to defend the interests which we now recognize as common, and no longer isolated. Thus, they support the elaboration, implementation, and improvement of management instruments with the inclusive participation of diverse actors.

In this bias, we found that the notes to which the technical report referred came from Committee members and the population's meetings and

technical suggestions, contributing to the drainage basin plan of Planning Unit (PMU) P3. This articulation would relate to the strengthening of local institutions in a form of decentralized management via an integrated action, giving concreteness to users and society's participatory process. We should mention the prospect mapping of springs presented by the State MP which evinced that Diamantino is endowed with a wide water network concentrated in its rural area, which requires a planning focused on this environment and its specificities.

We conclude that the steps making up the Planning Unit (PMU) P3 drainage basin plan, belonging to the Paraguayan Water Resource MT for Diamantino, has overcome the phase of presenting its prognosis, i.e., constructing scenarios to define goals, guidelines, and strategies of action in the implementation phase, and began the preliminary stages of the process, in line with what is recommended in the essence of an integrated water resources management. The Upper Paraguay DBC, on the other hand, undergoes bureaucratic adjustments, resolution no. 116-2019 in progress.

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