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## CONFLITOS E CONTRADIÇÕES NA GOVERNANÇA DA BACIA DO RIO FORMOSO

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## ABSTRACT

Water scarcity has been discussed and studied in the last decades from different points of view, from issues related to the effects of global climate change, to factors of governance and political management of water resources, consumption and capitalist exploitation of water, to ways and technologies to rationalize their use. This article sought to understand the conflicts of interest and the contradictions of actions in the scope of governance of water use in the Rio Formoso Hydrographic Basin, specifically in the performance of its Committee. The economic relevance of the basin became preponderant over socio-environmental issues, in view of the massive irrigation project implemented from the 1980s onwards, despite its impacts on the water imbalance of the basin. Through a systematic analysis of environmental legislation, institutional documents, the minutes of meetings of the Rio Formoso Basin Committee and legal proceedings by the Public Ministry of Tocantins, we sought to identify distortions or inconsistencies in the Committee's performance, as well as imbalances in democratic participation of the social actors involved, considering that Brazilian legislation and its regulatory agencies must promote the democratization of water use with social justice and environmental balance. It was found that the discussions within the Committee are poorly qualified, participation is unequal and there is a preponderance of agribusiness interests in decision-making, resulting in the lack of solutions for management in the face of recurring water crises and the need for supervisory interference from the Public ministry.

**Keywords:** River basin committee. Water resources management. Governance.

## RESUMO

A escassez de água tem sido discutida e estudada nas últimas décadas sob diversos pontos de vista, desde questões relativas aos efeitos decorrentes das mudanças climáticas global, aos fatores de governança e gestão política dos recursos hídricos, de consumo e exploração capitalista da água, ou ainda maneiras e tecnologias para a racionalização de seu uso. Este artigo buscou compreender os conflitos de interesse e as contradições de ações no âmbito da governança do uso da água da Bacia Hidrográfica do Rio Formoso, especificamente na atuação de seu Comitê. A relevância econômica da bacia passou a ser preponderante sobre questões de ordem socioambientais, tendo em vista o vultuoso projeto de irrigação implantado a partir da década de 1980, a despeito e seus impactos para o desequilíbrio hídrico da bacia. Por meio da análise sistematizada de legislação ambiental, de documentos institucionais, das atas das reuniões do Comitê da Bacia do Rio Formoso e de processos judiciais do Ministério Público do Tocantins, procurou-se identificar desvirtuamentos ou incoerências de atuação do Comitê, assim como desequilíbrios de participação democrática dos atores sociais envolvidos, tendo em vista que a legislação brasileira e suas agências reguladoras devem promover a democratização do uso da água com justiça social e equilíbrio ambiental. Detectou-se que as discussões no âmbito do Comitê são pouco qualificadas, a participação é desigual e há preponderância dos interesses do agronegócio na tomada de decisões, repercutindo na falta de soluções para a gestão frente às recorrentes crises hídricas e na necessidade da interferência fiscalizatória do Ministério Público.

**Palavras-chave:** Comitê de bacia hidrográfica. Gestão de recursos hídricos. Governança.

## INTRODUCTION

The water crisis is recurrently associated with changes in rainfall patterns and the effects of climate change, but factors linked to governance and political management of water resources are essential and can lead to a situation of crisis in the supply of water to the population. Insufficient water puts human existence at risk, in addition to substantially affecting the essential activities of modern life, such as power generation, basic sanitation and other activities related to industry, fish farming, irrigation, livestock, tourism and river transport.

According to the United Nations (UN, 2018), approximately 70% of the world's drinking water is destined for irrigation processes, 20% for industries and 10% for domestic consumption. In Brazil, the use of water for irrigation, specifically, is approximately 50%, twice the amount collected for urban supply

(ANA, 2021). This quantity is highlighted here in view of the significant agricultural expansion in Tocantins, where the Formoso river basin is located, belonging to the Araguaia-Tocantins Hydrographic Region, located in the southwest region of Tocantins.

The Formoso river basin has a drainage area of 21,328.57 km², approximately 7.7% of the total area of the State of Tocantins and 5.6% of the Araguaia river basin, between the geographic coordinates 10°28' and 13°16' S and 48°50' and 49°57' W (Ana, 2017). The basin is subdivided into six hydrographic sub-basins in the state hydrographic division, namely: Pau Seco river, Xavante river, Dueré river, Piaus river, Urubu river and Formoso river (Tocantins, 2012).

It is located in a transition area between the Cerrado and the Amazon biomes, mainly presenting the Cerrado phytophysiognomies, one of the most important types of savannah in terms of biodiversity and endemism (SIMON; PENNINGTON, 2012). The predominant soils in the Formoso basin are plinthosol, concretionary soils, red-yellow latosol, hydromorphic gleized, powderosol, quartz sand and litholic soils, most of which have low saturation, high 35 acidity, low fertility and low permeability (SEPLAN, 2012).

The Formoso River is the birthplace of the largest project of continuous irrigated areas in the State of Tocantins, called the Rio Formoso Project (SEINF, 2019). The beginning of the operation of this project was in 1980, with an investment of 250 million reais for implementation in an area of 23,000 hectares (Ana, 2020). The project currently requires 664 billion liters per year to irrigate 113,000 hectares of rice, with the main irrigating municipalities Lagoa da Confusão, Formoso do Araguaia and Pium (Ana, 2020).

The Rio Formoso Project was a pioneering initiative that employed flood-type irrigation systems, involving the construction of dikes, reservoirs, adduction, irrigation and drainage channels, used to divert and capture a large amount of water from the original course of the river, aiming to meet the needs of monocultures on a large scale, directly impacting the flow and outflow of water in the Rio Formoso basin (Egger *et al*., 2021).

In the Project region, the dominant agriculture is the cultivation of rice, an agricultural practice that uses flood irrigation, where the crop is kept covered by a continuous layer of water, requiring a collection of water for irrigation, predominantly obtained superficially (Barcellos, 2017; Ana, 2020). The use of irrigation in rice production allows a yield 3.5 times higher when compared to non-irrigated production (CONAB, 2020). In 2019, rice cultivation in Brazil used 357 m³/s of water from springs, equivalent to 38%

of the total water demand of agricultural production in the country. In Tocantins, 20.8 m³/s of water were required for irrigating rice and 0.7 m³/s for sugarcane production in 2019. According to the projection made by ANA (2021), this value will increase to 34.7 m³/s by 2040.

Borges Sobrinho *et al.* (2020) found a downward trend in water flows in the Formoso River basin, which may be associated with the use of water in the agricultural sector, which has been growing inversely proportional to the water levels of rivers in the region. According to the authors, there are indications that the growth of agricultural activities carried out in the municipalities that make up the Formoso river basin, related to the growth of the Agricultural GDP and the area planted with temporary crops, negatively interferes with the hydrological regime of the region's rivers.

According to Cordeiro (2011), given the economic importance of the Formoso River Basin, there have been several conflicts and lack of consensus on the use of water among the segments that make up the River Basin Committees. It is important to highlight that the social diversity of the region - where there are from landowners to small producers and indigenous communities - pervades the different views of the world, the different ways of using and exploiting water resources and interacting with the environment, which results in conflicts of interest.

According to Brazilian environmental legislation, it is the responsibility of states and municipalities, in accordance with national legislation through the National Water Resources Management System (SNGRH), to implement water management and governance guidelines, inserting their specific water management systems with the objective of meeting regional demands (Brasil, 1997). Governance presupposes the implementation of policies to promote an effective, socially inclusive, environmentally sustainable and economically balanced development over time, requiring the engagement of all sectors of society, including academic participation with regard to the promotion of scientific research and promoting new debates (Cavalcanti, 2002).

Although environmental governance promotes the idea of sustainability in the set of public policies and in their interrelationships, the basin management process is still embryonic, permeated by conflicts arising from issues not only of a technical nature, but also political, economic and cultural, which makes it difficult to consolidate a democratic, shared and integrated management of water resources (Jacobie; Barbi, 2007). In this sense, recurrently the multiple conflicts arising from

the divergence of interests in the use of water reveal contradictions not only of an environmental nature, but social and economic.

In the case of the Formoso River, there have been several actions by the Public Prosecutor's Office in recent years that show water scarcity and point to a lack of governance, considering that this problem has been repeating itself year after year, since the situation of low water level was exposed to the population through journalistic news (G1, 2016). Faced with conflicts of interest in water use, it is possible to question whether the management of the basin has been guided by the balance between economic, social and environmental interests and with plural representativeness, as proclaimed by Brazilian legislation.

## METHODOLOGY

This is an exploratory research carried out through bibliographical and documental survey. Theses, dissertations, scientific publications and institutional documents were used, as well as legislation on water resources and technical documents from federal and state public administration entities.

The legal and institutional apparatuses at the national and state levels were systematized in order to identify institutionally defined bodies, attributions, competences and procedures in order to verify the alignment between the legal determinations and the actions for their fulfillment. Having identified the relevance of the Formoso River Basin Committee (CBH-RF) in the management of water resources, its activities and attributions were evaluated from the perspective of water resources policy in order to know the dynamics of the decision-making process and understand how the socio-environmental issues are considered in this process.

Therefore, a systematic reading of the minutes of the CBH-RF meetings that took place between the years 2012 to 2020 was carried out, considering that the CBH-RF was established in 2011 and its first ordinary meeting took place in 2012. The minutes of 2021 were not publicly available until the completion of the survey in April 2022. The legality of the Committee's composition was verified and the recurrence of participation of the members in the attendance lists, grouping them in the three segments: public power, organized civil society and users. Qualitatively, through the textual content of the minutes, the most active actors in the three segments were identified, the characteristics

of this participation, as well as the prevailing subjects, the most recurrent words, the negotiation process and decision-making within the scope of the Committee. With this, it was possible to detect participatory imbalances, trends in themes of greater or lesser interest and prominent conflicts.

In relation to non-compliance with the attributions of the management bodies, information was sought on the existence and content of interference by the judiciary in the governance of the Formoso River Basin via judicial proceedings. Research was also carried out on jurisprudence and authors in the area, institutional reports, as well as national works and articles.

## CONSIDERATIONS ON GOVERNANCE AND NATIONAL WATER RESOURCES POLICY

According to Bechara (2011), governance is the act or effect of governing, guiding, conducting the public charge, that is, a system by which societies are directed and monitored, involving management relationships that have the purpose of increasing the value of the society, facilitate its access to capital and contribute to its continuity. It translates as the competence of governments to plan, formulate and program policies and fulfill functions, requiring effective implementations and coherent actions for the numerous administrative acts that aim at the common good of the community. According to Câmara (2013), governance is constituted through public policies arising from government actions jointly with other social actors.

In Brazil, public governance is regulated by Decree No. 9,203 of November 22, 2017, which defines it as a set of leadership, strategy and control mechanisms put in place to evaluate, direct and monitor management (Brasil, 2017). The Federal, State and Municipal governments are responsible for the development of society, now resulting from effective, concrete, implemented management and in partnership with the other segments of organized society.

The National Environmental Policy, in particular, has abundant legislation with normative guidelines that aim to regulate, plan, control and protect the waters belonging to the national territory, directing water management policies in states and municipalities. Regarding water resources, the two main federal landmarks date from 1934 and 1997: the National Water Code and the National Water Resources Policy, respectively. From them, laws and decrees have been improved and instituted in other spheres over the years (Chart 1).

**Chart 1** | Chro nological order of the main norms of the National Water Resources Policy and of the state of Tocantins.

| National Sphere |
|---|
| Decree 24.643/1934 - creates the Water Code (public and private waters) |
| Law 9,433/1997 - institutes the National Water Resources Policy, creates the National Water Resources Management System |
| Law 9.984/2000 is regulated by Decree 3.692/2000 - creates the National Water and Basic Sanitation Agency (ANA) |
| Decree 4613/2003 - regulates the National Water Resources Council. |
| Law 10.881/2004 - provides for management contracts between ANA and delegated entities |
| Law 11,445/2007 - establishes national guidelines for Basic Sanitation |
| **State Sphere - Tocantins** |
| Law 262/1991 - institutes the Environmental Policy of the State of Tocantins and creates the State Environmental Policy Council. *Note – 1989: creation of the state of Tocantins |
| Decree 10,456/1994 - grants NATURATINS powers to control the execution of environmental policies. |
| Law 1.307/2002 - provides for the State Water Resources Management System |
| Decree 2,141/2004 - Approval of the Internal Regulations of the Tocantins State Water Resources Council. |
| Law 1.789/2007 - provides for the State Council for the Environment of Tocantins (COEMA/TO) |
| Law 2096/2009 - Amends Law 1789/2007 giving COEMA/TO powers to control, inspect and deliberate on the State Environmental Fund |
| Law 2097/2009 - provides for the Tocantins State Water Resources Council (CERH/TO) |
| Law 3,519/2019 - changes the composition of CERH/TO |

Source: The various laws cited in the figure, systematized by the authors (2022).

Law No. 9,433 of 1997 establishes the National Water Resources Policy and creates the National Water Resources Management System (SINGREH), based on the multiple use of water, decentralized management by river basin and integrated participation among users, community and government. Among the objectives of the law is to ensure water in adequate quality and quantity for current and future generations. SINGREH defines competences and assigns management responsibilities to states and municipalities, formed by the following components:

- National Water Resources Council: coordinating body (advisory and deliberative);

- National Water Agency: helps states create their own agencies and committees, in addition to providing technical training for these sectors;

- State and Federal District Water Resources Councils: normative and deliberative bodies that are regulated by their own state laws, varying from state to state;

- River basin committees and agencies: formed by federal, state, municipal and Federal District public authorities. They are consultative and deliberative entities with jurisdiction over the management of water resources in their respective hydrographic scales.

As a result, from 1997 onwards, water use management began to be attributed to the state sphere by state and municipal councils, committees and management bodies. A change in the management of water resources began, allowing a multilevel, decentralized and participatory approach, through state laws, state and municipal participation and the creation of a variety of institutions, among them the river basin committees and agencies, state and national water resources councils, which contributed to the initiation of policy strengthening for the water sector (OCDE, 2015).

Although the management of water resources in Brazil has undergone reforms, the Organization for Economic Cooperation and Development (OECD, 2015) states that there are several governance failures that need to be corrected and that there is a discrepancy in water management in relation to other public policy areas, areas that are correlated and need to be integrated into management. Still according to OECD (2015), three changes need to be made for water governance to be more effective in the country: (i) strengthening of states; (ii) stakeholder engagement and social mobilization with technical expertise and immune from political authority and particular interests; (iii) the integration of the sectors that make up SINGREH in the "bottom-up" and "top-down" senses, where this complementation will allow the national objectives and targets to be met.

The effective participation of the various social actors involved is a fundamental issue for a representative, efficient, fair and democratic management process (Oliveira, 2013). One of the great challenges of the management sectors is to continue the projects and works carried out in a short political cycle, with frequent changes of representatives, which ends up generating a low institutional memory (OECD, 2015). Especially in Tocantins, the youngest state in the country, the low institutional memory is intensified when we are faced with two removals from the position of governor, two indirect elections and the removal of the last governor elected in October 2021 in just 33 years of emancipation.

## STATE WATER RESOURCES POLICY AND MANAGEMENT OF THE FORMOSO RIVER BASIN

Water governance in Tocantins[1] begins with the enactment of Law No. 261, of February 20, 1991 (TOCANTINS, 1991), which provides for the Environmental Policy in the State of Tocantins and creates the State Council for Environmental Policy (Art.40), which was later regulated by Decree n.10.459, of June 8, 1994 (Tocantins, 1994). This Decree grants the Instituto Natureza do Tocantins – NATURATINS full powers to control the execution of environmental policies.

In 2002, State Law No. 1,307 (Tocantins, 2002) came into effect - under the aegis of the National Water Resources Policy of 1997 - which provides for the State Water Resources Management System (SEGRH-TO), composed of the State Council of Water Resources, by the Hydrographic Basin Committees, by the Hydrographic Basin Agencies and by State and Municipal Government Bodies (Chart 02). With this, new guidelines are defined on the State Water Resources Policy, including bringing the definition of outlining instruments of the State Water Resources Plan and the SEGRH-TO.

**Chart 2** | Composition of the State Water Resources Management System of Tocantins.

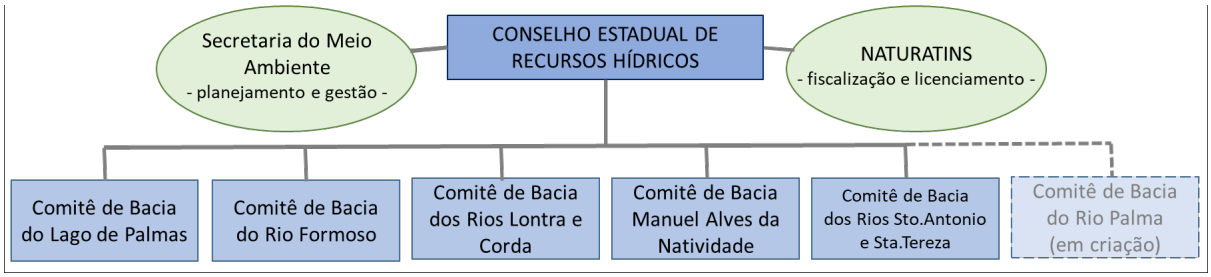
| State Water Resources Management System (SEGRH/TO)<br>Law N° 1,307/2002 | | | |
|---|---|---|---|
| State Council of Water Resources | Hydrographic Basin Committees (CBH) | Hydrographic Basin Agencies | State and municipal public authorities bodies |

Source: Tocantins (2002) organized by the authors (2022).

Hierarchically, the State Water Resources Council centralizes the actions taken in the various specific Committees for the river basins (CBH). Among the various attributions of the State Council is the competence to authorize the institution of River Basin Committees and River Basin Agencies and arbitrate, in the last administrative instance, existing conflicts between River Basin Committees. Currently, Tocantins has five CBHs installed (from Lago de Palmas, Rio Formoso, Rio Lontra and Corda, Manuel Alves da Natividade and Rio Santo Antônio and Santa Tereza) and one in the process of being created (Rio Palmas) (Tocantins, undated) (Figures 1 and 2).

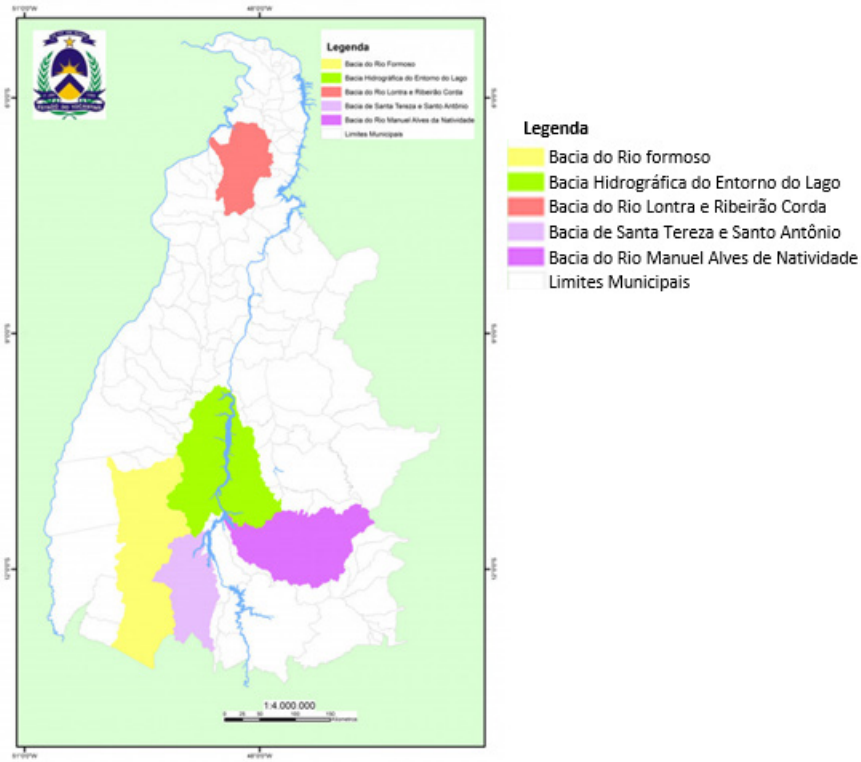
1 The state of Tocantins was created in 1989, dismembered from Goiás.

**Figure 1** | Organization chart of the Tocantins State Water Resources Council.




Source: Prepared by the authors (2022) in accordance with Law No. 1,307/2002.

**Figure 2** | Existing committees in the state of Tocantins.




Source: Tocantins (undated)

The Committees are the instances that are closest to the discussion of local problems with great articulation between municipalities and organized civil society. They are collegiate bodies made up of representatives of water users, organized civil society and public power (Tocantins, undated), in accordance with federal law, and its board of directors is democratically elected. According to Tocantins (undated), the committees are spokespersons for the claims and needs of the users of that basin. The Agencies, on the other hand, have the role of executive support entity for the Committees.

The Hydrographic Basin Committees of the State of Tocantins have their legal provision in Law No. 1.307/2002 (Art. 32), being a collegiate body with normative, deliberative and advisory attributions. It is CBH's responsibility to ratify the approval of the Water Resources Plan for its respective basin, classify the water bodies in a class of use and conservation, define the values and criteria for charging fees for the use of water, as well as monitor the Plan and prepare an annual report on the status of water resources in the basin in question. In addition, it must approve the annual budget forecast and the annual and multi-year investment programs in services and works, ratify agreements of interest, implement joint actions with other bodies and resolve conflicts over water use (Tocantins, 2002).

It should be noted that the Formoso Project was implemented in 1979, in a period prior to state legislation on water resource management and the National Water Resources Policy, and measures to control and mitigate environmental impacts were not considered at the time, a fact which triggered several conflicts between farmers and the people and communities that traditionally lived and still live in the basin. Currently, the Formoso River is one of the largest rivers in the number of water grants for irrigation in the state of Tocantins.

## THE ACTIVITIES OF THE FORMOSO RIVER BASIN COMMITTEE

Fully controlled by the state of Tocantins, the municipalities that make up the Formoso river basin are Aliança do Tocantins, Formoso do Araguaia, Alvorada, Gurupi, Araguaçu, Lagoa da Confusão, Cariri do Tocantins, Nova Rosalândia, Cristalândia, Crixás do Tocantins, Dueré, Sandolândia, Santa Rita do Tocantins, Figueirópolis and Talismã (Tocantins, 2007), which must participate in the management of the basin through the Committee. The water resources of greatest quantitative significance in the upstream basin are the Escuro, Pau Seco, Piaus rivers, Tranqueira and Piraruca streams and the Formoso river. Downstream are the Xavante, Dueré, Urubu rivers, Taboca and Lago Verde streams. (Tocantins, 2007).

The Rio Formoso River Basin Committee (CBH-RF) was created in 2011 (Decree No. 4.252/2011) and its Internal Regulations in 2012[2]. This Regulation defines the composition of the

2 The 2012 Internal Regulations, despite not having been published in the Official Gazette, are available on the State Government website <https://www.to.gov.br/semarh/documentos-oficiais/qlc3fxiemkd>.

Committee in proportion of 30% of the civil society, 30% of the public power and 40% of the water users[3]. In a new publication of the 2016 Internal Regulations, already in the Official Gazette of the Secretariat for the Environment and Water Resources (DO No. 4.718/2016), this proportion changes to 33.33% for civil society, 33.33% for public authorities and 33.33% Water user. It is noted, therefore, that the Committee worked disproportionately throughout its first years in favor of the water user group, which is precisely the one that exploits this resource for the purpose of capital reproduction.

Barcellos (2007) comments that the scarcity of water resulting from climate change and its uncontrolled use, combined with management failures, provoke water injustice, mainly affecting traditional and local populations, who belong to social classes with lower purchasing power and less power of political representation, such as the community of small producers, riverside population, quilombola and indigenous people.

The representation of the CBH-RF is diverse and follows the guidelines in force by law, grouping representatives of public power in different spheres (municipal, state and federal), organized civil society and users (Chart 3).

**Chart 3** | Representation of the Formoso River Hydrographic Basin Committee (CBH-RF).

| **Public Authorities** | |
|---|---|
| **Municipal** | |
| Aliança City Hall | Alvorada City Hall* |
| Araguaçu City Hall | Cariri City Hall* |
| Dueré city hall | City Hall of Crystalland* |
| Fatima City Hall | Crixas City Hall* |
| Figueirópolis City Hall | Lagoa da Confusão City Hall* |
| Formoso do Araguaia City Hall | Nova Rosalândia City Hall* |
| Gurupi City Hall | Oliveira de Fatima City Hall* |
| Pium City Hall | Sandolândia City Hall* |
| Santa Rita City Hall | Talismã City Hall* |
| **State** | |
| Instituto Natureza do Tocantins – NATURATINS | |
| Secretariat for the Environment and Water Resources - SEMARH | |
| Secretariat for Planning and Budget | |
| Institute of Rural Development of the State of Tocantins – RURALTINS* | |
| Secretariat for the Development of Agriculture and Livestock * | |
| Secretariat for Education, Youth and Sport * | |
| **Federal** | |
| National Indigenous Foundation – FUNAI | |
| Brazilian Institute of Environment and Renewable Natural Resources – IBAMA | |
| Ministry of Agriculture, Livestock and Supply – MAPA* | |

3 The civil society group includes organizations or entities that represent the interests of the local community, while water users are those who enjoy the water resource and, therefore, are subject to grant or concession of right of use.

| Organized Civil Society | |
|---|---|
| **Associations** | |
| Associação Ambiental Vale do Javaés | |
| Associação dos Pequenos e Micro Produtores PA Lago Verde* | |
| Associação dos Agricultores Rurais do PA Fortaleza I | |
| Associação dos Produtores do Córrego Matinha* | |
| Associação Comunitária dos Pequenos Produtores Rurais do Assentamento Santa Rita | |
| Instituto de Desenvolvimento Sustentável Sertão Ecológico* | |
| Associação do Povo Indígena Kraho-Kanela | |
| Cooperativa dos Produtores de Açúcar Mascavo, Melado, Rapadura e Derivados – Dueré/TO* | |
| Associação dos Agricultores Familiares do Assentamento Vale de Santa Tereza – PA Arlindo | |
| Associação dos Produtores Rurais do Projeto São Judas Tadeu – Santa Rita/TO* | |
| Associação Empresarial Comercial e Industrial de Lagoa da Confusão | |
| Associação de Produtores Rurais do Cariri* | |
| Associação Filhos do Cerrado | |
| Associação Firmino Prudêncio do Assentamento Padre Josimo – AFPAP* | |
| Associação São José – PA Itimirim | |
| Grupo Raiz da Terra – Anjos da Selva | |
| Associação de Pequenos Agricultores do Projeto de Assentamento Alegria – APAPA* | |
| Centro de Direitos Humanos de Formoso do Araguaia | |
| Associação dos Pequenos Produtores Rurais da Aliança – APRAT* | |
| Associação Apícola de Araguaçu – APPIAÇU* | |
| Universidade Federal de Gurupi – UFT Gurupi/TO | |
| Associação de Pequenos e Médios Produtores da Região de Baianópolis* | |
| Associação da Região das Sete Lagoas | |
| Associação da Comunidade dos Trabalhadores Rurais do Assentamento Lagoão – ACTRAL* | |
| Associação Comunitária dos Amigos da Lagoa | |
| Associação dos Pequenos Produtores Rurais Estrela Guia – PA Renascer* | |
| **Users** | |
| **Supply** | |
| BRK Ambiental | Agência Tocantinense de Saneamento – ATS* |
| **Irrigation/General** | |
| Sindicato Rural da Lagoa da Confusão | Fazenda Varjão* |
| Sindicato Rural de Figueirópolis* | Alfredo Carlos da Silva Júnior |
| Sindicato Rural de Formoso do Araguaia | Fausto Vinícius Guimarães Garcia* |
| Cooperativa Agroindústria Rio Formoso LTDA – COOPERFORMOSO* | Cooperativa Mista Rural Vale do Javaé LTDA – COPERJAVA |
| Distrito de Irrigação Rio Formoso | Nelson Alves Moreira & Outros* |
| André Miranda Mendonça*’ | Semente Vale do Javaés |
| Zeninho Luiz Gasparetto | Eduardo Sakai* |
| Ildo Wolmar Snovareski* | Cereais Vale do Javaés Agroindustrial S/A |
| Xavante Agroindustrial de Cereais LTDA | Fazenda Guarujá* |
| Vomir Snovarski* | José Rubens Mazzaro* |
| Ricardo Fernandes de Souza | Fazenda Dois Rios LTDA |
| Diamante Agrícula S/A* | Luis Antônio Santos Anjo* |
| Agropecuária Ilha do Formoso LTDA – ME | Associação dos Produtores Rurais do Vale do Rio Urubu – AVAU |

* substitutes.

Source: CBH-RF Minutes organized by the authors (2022).

In practice, according to the attendance list in the minutes, public authorities are recurrently the group with the largest number of representatives at meetings, followed by civil society and users. Generally, just over 20 people participate, except for the election and inauguration meetings of Committee members, which register the presence of more than 50 people, most of them from public authorities. This disparity in participation can have several causes, such as lack of knowledge about the Committee's attributions, the high party politicization of the group, the lack of mobilization of the actors or the discredit on the participation process.

In addition, the lack of qualified discussions that address the environmental problem in a broader and more complex way or that relate it to the daily life of the local population can discourage the active participation of civil society representatives. To strengthen participation and ensure that their voices are meaningfully heard, it is necessary to create an environment conducive to qualified discussions, allowing civil society representatives to bring up issues that directly affect their communities.

In the minutes of the 1st and 2nd Extraordinary Meeting of the CBH-RF, which took place in 2012, the lack of knowledge of the attributions of the CBH-RF is evident, with the frequent transfer of responsibilities to other bodies (NATURATINS, SEMADES ). This fact ends up reflecting in the lack of effectiveness in the management of water resources in the basin and in the deviation of the Committee's function.

The constant speeches in the minutes portray the lack of training of the CBH-RF members and pressure from large users and the public power to approve matters that the committee members are not aware of. For example, at the 2nd Extraordinary Meeting of the Committee in 2012, which had the objective of presenting and approving the Rio Formoso Hydrographic Basin Plan, the representative of the Federal University of Tocantins, after listening to various pressures from state agencies for the approval of the plan, reported:

> [...] most committee members may not even know what a basin committee is, this plan presented is a plan prepared by people with experience in this area, it is necessary to qualify the committee and make resources available so that committee members can be present at meetings (TOCANTINS, undated, Minutes of 2012, s/p).

The lack of knowledge and training on the part of members of river basin committees is not unique to the Formoso River. According to Tucci (2001), there are major challenges involving, mainly, the training and funding of river basin committees, which face difficulties, such as: (a) incipient decision-making capacity; (b) lack of resources to implement decisions; (c) lack of permanent staff to implement decisions.

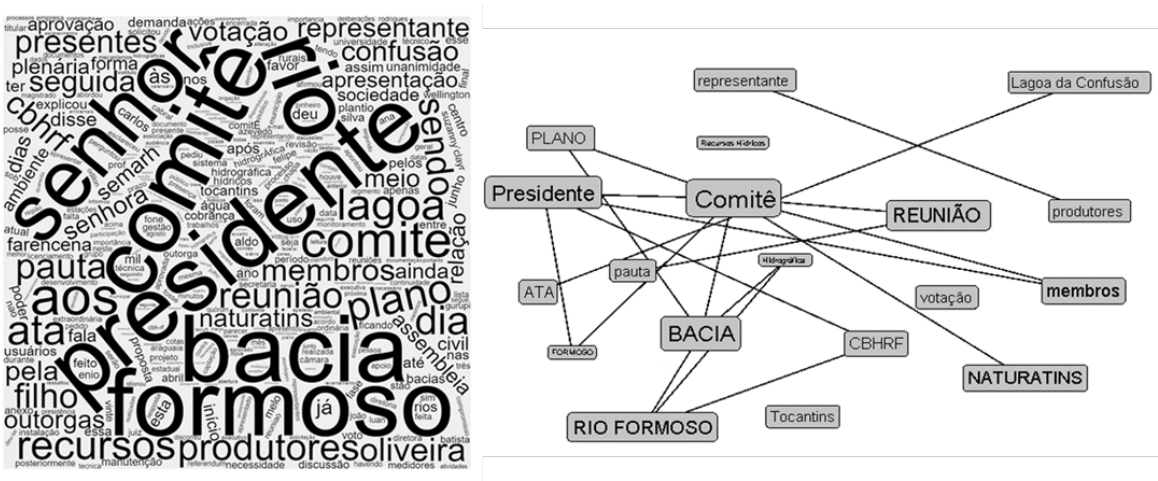
Another problem observed in the discussions recorded in the minutes was a constant tendency to defend specific sectors, mainly those related to agribusiness. As an example, in a 2015 minute, proposals for charges on water use were negatively questioned by sector representatives, justified by the difficulties the country is facing and the tax burden that farmers already pay to produce. Despite this, studies for charging for water use were carried out and approved by the Committee in 2015, however, its application has not yet been implemented.

It was also observed that proposals to reduce planting and/or related to the reduction of water catchment for irrigation were recurrently rejected by the Committee. On the contrary, there were constant intentions to increase the planted areas and, consequently, the demand for water for irrigation, without taking into account the sustaining capacity of the rivers, evidencing a high power of action of sectors related to agribusiness in decision-making.

The CBH-RF held, on average, four meetings per year, however the problems of water scarcity in the basin were rarely discussed by the Committee. In only four of them was the water crisis mentioned and without the presentation of proposals. In most meetings, the main topics revolved around the internal management of the Committee's activities, such as elections, resource management and membership. The most pronounced words in the minutes were committee, president, basin formoso, mister, river, meeting, producers, voting, resources, plan and NATURATINS, and the strongest relationships between the words occurred from the word committee with: meeting, members, president, plan, formoso, NATURATINS and basin (figure 3[4]).

4 Figure created with the help of TagCrowd and Sobek tools. TagCrowd is a web application for viewing word frequencies in any text through what is popularly known as text word clouds, or tag cloud. Sobek is a tool capable of extracting the most frequent terms in documents, finding the relationships between them.

**Figure 3** | Word cloud (on the left) and word diagram (on the right) based on the content of the CBH-RF minutes.




Source: Elaborated by the authors (2021) from the texts of the minutes of the CBH-RF (2012-2020).

There is no risk management of the basin's waters and restrictive measures such as the suspension of water abstraction, restriction of use, issuance of new licenses/permits. Fines for illegal and excessive catchment are adopted only in emergency situations in water crises. The adoption of conservation and prevention measures for the maintenance of water resources in the basin is little and superficially addressed in the Committee's discussions. In this regard, one of the possible factors is the incipient environmental education in society, including among Committee members, which contributes to decision-making based on individual, economic or political-electoral interests to the detriment of collective and socio-environmental interests.

## JUDICIAL INTERVENTIONS AND THE "IMPOSITION" OF TECHNICAL MANAGEMENT

In 2016, complaints of low water volume coming from the various communities dependent on the Formoso river basin led to the situation being reported on national television[5]. Asked about the causes that led the Formoso river basin to exhaustion, the executive bodies reported that the rainfall in that period was below normal (G1, 2016). However, allegations of dams, changes in land use and irregular collections in the course of rivers were confirmed, which led the State Public Ministry (MPE) to intervene in the case. (G1, 2016).

5 One of the programs that showed the situation was Fantástico, from Rede Globo, in 2016.

According to Barcellos (2017), public agents used extrajudicial instruments to resolve disputes over water use on several occasions. Noteworthy is the Precautionary Action No. 0001070-72.2016.8.27.2715/TO filed by the MPE on August 1, 2016 against Instituto Natureza do Tocantins (NATURATINS) and against the Association of Rural Producers of Lagoa da Confusão. In it, the MPE requests the annulment and suspension of licenses issued in the name of the Association for the damming and construction of elevating dams, the demolition of all pumps and dams, in addition to condemning all rural producers to pay compensation for possible damages caused to the environment (MP-TO, 2016).

This injunction resulted in the summoning of the actors involved to a Public Hearing by the Cristalândia District Court to discuss and negotiate the measures to be taken to recover the environmental damage caused. Those summoned were the producers, the population, the CBH-RF Committee, public bodies, city halls and the Federal University of Tocantins (UFT). According to Magalhães (2016), this call was aimed at integrating knowledge in an interdisciplinary way due to the complexity of the case and the management of water resources.

A single proposal for a project to resolve this crisis was presented, called "High Level Management – GAN", by the UFT Institute for Attention to Cities (IAC). In the proposal, the management and water security of the Formoso river basin would be reestablished after the execution of four phases of the project: A – Diagnosis of Water Availability; B – Water Demand Diagnosis; C – Monitoring and Automation; D - Review of Grants and Operating Rules (IAC, 2017). The meeting resulted in the signing of a Term of Judicial Commitment acknowledging all those involved with their responsibilities. The Association of Producers of the Vale do Rio Urubu and the Association of Rural Producers of Rio Formoso assumed the obligation to invest around R$ 2,500,000.00 (two million and five hundred thousand reais) in actions to monitor the water availability and demand in the hydrographic basin, associated with Phases A, B and C of the GAN, to be executed by the IAC, being defined, in the Term, that phase D would be executed by NATURATINS through the technical and scientific studies developed by the IAC (IAC, 2017).

Significant advances and technological innovation were achieved in relation to the way of managing the Formoso river basin after choosing to carry out the GAN Project, which started in 2017. The first three phases (A, B and C) were completed, making the Formoso river basin, the first in Brazil to have remote monitoring of water availability and demand, in real time, 24 hours a day (IAC, 2017). Phase D, which deals with the review of grants for capturing water resources from rural producers registered in the GAN and large producers in the Formoso river basin, should have started shortly after the completion of Phase C, completed in August 2017.

It is important to emphasize that a series of inconsistencies were found in the application of the grant instrument in the previous phases of the GAN project, where the withdrawal of water volumes was incompatible with the water availability of the water courses (IAC, 2017). On April 11, 2018, at a Public Hearing, a Working Group (GT) was set up so that, while the grant review phase lasted (Phase D), the group would develop a Contingency Plan with the purpose of ensuring the water availability of the basin, due to the diagnosis on screen. Subsequently, this Contingency Plan was named the 2018-2019 Biennium Plan (MP-TO, event 146, 2021).

In the 2018-2019 Biennium Plan presented at a new Public Hearing, on August 1, 2018, four strategies were defined for managing the crisis in the Formoso river basin, namely: I – Spatial Strategy, aiming at geographically redistributing the catchment pumps with the intention of balancing the catchment along the stretches of the Basin; II – Temporal Strategy, proposing catchment rotations between three groups in critical periods during the dry season; III – Hydrological Strategy, proposing minimum reference levels for each section of the basin and using the telemetric stations installed by the GAN, where a traffic light system would issue green, yellow or red signals for decision-making and suspension of catchment, in case the red alert was issued; IV – Technological Strategy, recommending permanent monitoring of water levels through the information system produced by GAN. In the end, the Plan presented thirteen recommendations for the effective management of all available strategies and tools. (GT, 2018).

The aforementioned Plan and its subsequent revision were accepted by court decision in a Public Hearing on December 3, 2018, when the traffic light system was also instituted to monitor the levels of the watercourse in the Basin (MP-TO, event 304, 2018). Reports of delay in the delivery

of documentation (MP-TO, event 378, 2019), financial renegotiation and new execution schedule (MP-TO, event 571, 2019) demonstrated that State institutions were unable to complete Phase D of the Project, making it impossible to apply the strategies defined in the 2018-2019 Biennium Plan, culminating in the consensual termination of Agreement No. 001/2019 due to technical differences between the parties (MP-TO, event 763, 2021).

Throughout what has been exposed, it was observed that there is an ineffectiveness of the Executive Branch with regard to compliance with the decisions handed down since the first public hearing after the Precautionary Action filed. In at least three events, the Judge refuted arguments that accuse the Judiciary of encroaching on the legal competences attributed to the CBH-RF, the State and NATURATINS (MP-TO, 2021). In defense, the judge maintains, based on the author Lage (2013), that such arguments are not valid:

> Fundamentally with regard to environmental issues, the judiciary is expected to play the role of "conforming preferential public policies, already provided for in the constitutional text, to the executive (...) activity''. Therefore, the magistrate, in the exercise of his jurisdictional function, only determines that the Constitution is complied with, which puts an end to the discretionary freedom of the administrator (LAGE, 2013, p. 177).

When the responsibility to implement the agreed actions is not met and there are constant omissions by the Executive Branch in relation to the decisions of the Judiciary, this raises legitimate concerns about the possibility of political and economic interests prevailing over the interests of Brazilian society and the protection of the environment. This situation has a negative impact on the preservation of the Formoso river basin and on the environmental issues associated with it.

In these cases, it is important to establish mechanisms for transparency, accountability and civil society participation. Through the implementation of accountability mechanisms, it is possible to monitor the performance of the Committee and the Executive Branch. In addition, it is essential to create effective means for involving civil society in decision-making and policy-making related to the environment. This will ensure that decisions are made transparently and for the benefit of the community.

On November 8, 2020, in the last sentence published to date, the State of Tocantins and NATURATINS are again summoned by the Judiciary to the obligation to review the grants for catchment and water resources within 180 days, as well as analyze all the Rural Environmental Registers (CAR's) linked to the pumps granted in the Formoso river basin. If the sentence is not complied with, those

mentioned may be held civilly liable if any rural producer causes damages due to omission or inefficiency of the environmental authority, as well as may be held criminally liable and for administrative impropriety if, by action or omission, they have not complied with the determination, causing damages and losses to the sustainable development of the region (MP-TO, 2021).

It is possible to notice a great effort by the Judiciary in finding alternatives to the crisis in the Formoso river basin, acting in the conciliation of the parties, helping in the inspection of the commitments assumed in a process initiated five years ago, with more than seven hundred procedures, hearings and terms of commitment linked to Civil Public Civil Action No. 0001070-72.2016.8.27.2715/TO. As a whole, it is observed that there is an ineffectiveness of the Executive Power with regard to the observance of the laws, the fulfillment of the terms, on a matter that has its own legislation, which involves rights of the whole society and that could be decided administratively, with greater dynamism and speed, since they are sensitive rights, susceptible to great losses and environmental, social and economic impacts for the State, not requiring constant judicial intervention for the realization of fundamental rights and guarantees.

According to Araújo et al. (2017), the phenomenon of judicialization, that is, the constant search by the Judiciary to resolve issues of great social and political relevance, refers to the redemocratization process of Brazil after the elaboration of the Federal Constitution of 1988, where the new Political Charter brought society closer to the Judiciary. At the same time that the approximation and acceptance of citizens and their requests for rights violated by the Judiciary is seen as an achievement of the Brazilian people, this phenomenon ended up causing an overload on Brazilian courts (Mapelli Júnior, 2015, P. 210; Araújo *et al*., 2017).

In any case, the Judiciary is not formed from the choice of the population through the electoral process, so it is not commendable that it constantly remains deciding on public policies for resource management (SILVA, 2018). According to Barroso (2007), political actions or omissions may violate fundamental rights, and when this occurs, the Judiciary must act together with other powers to enforce the law or preserve a fundamental right provided for in the Constitution.

## FINAL CONSIDERATIONS

The analysis of the water governance process in the Formoso river basin revealed weaknesses, conflicts of interest and contradictions in the analyzed perspectives. The Rio Formoso River Basin Committee presented itself as the space that is closest to the specific problems and the local community, and that it should be a democratic space for sharing visions and interests to contribute to the management of the basin. However, it was found that the participation of the groups is disqualified and unbalanced.

Disqualified due to the fact that most of its members are not aware of their attributions and matters related to water management in the basin. It is noteworthy that the Committee does not act in defining priority actions in the basin, does not carry out risk management, does not act in the promotion and dissemination of important debates for participatory management, often functioning only as a space for sharing information already taken externally and with specific interests, as well as to define internal administrative matters of the Committee itself. There is no planning agenda; consequently, the discussion guidelines arise from demands.

Unbalanced in relation to who actually participates. Although the CBH-RF has a tripartite structure, consisting of public authorities, civil society and users, public authorities and users related to agribusiness are the main actors in the decision-making process. Even though civil society is represented on the Committee, its participation has little effect in practice because the discussions are not qualified to bring up the environmental problem that affects, above all, civil society.

The Executive Power has shown inefficiency, whether due to the lack of fulfillment of the responsibility to carry out the agreed actions, or due to the Committee's lack of qualification actions, or even due to the discontinuity in settling a systemic environmental policy to preserve the Formoso river basin. Reflection, among other things, of the constant change of the Committee's presidency and other representations appointed by the State, through positions of trust, which end up overlapping individual, political and economic interests to the socio-environmental interests of this and the next generations.

The role of the Judiciary is precisely due to failures in the governance process, in an attempt to bring about the necessary adjustments so that environmental legislation is complied with in order

to mitigate the impacts of water exploitation for the purpose of large-scale agricultural production in the water crisis. The need for their participation only confirms the poor governance that has occurred over the years.

Although Brazilian legislation presents the Water Resources Council and, in particular, the Hydrographic Basin Committee as extremely important tools for democratic and participatory water management, the work has shown that there is a long way to go for its implementation. The management process must be improved by promoting the qualified participation of the various actors, with greater articulation between the bodies and civil society and with the expansion of knowledge about socio-environmental issues, allowing the recognition of the different visions and needs among the groups with interests and, consequently, the search for balanced solutions, pacts and consensus that promote sustainability.

The investigation carried out in this work opens possibilities for expanding and deepening the theme in future studies, such as the evaluation of the impacts of the Committee's decisions in order to examine whether the implemented policies are in fact bringing tangible benefits in terms of water preservation, ecosystems conservation and local community engagement. It is also possible to carry out analyzes of public policies and management instruments that may be implemented for the management of the Formoso River Basin, involving a review of the relevant legislation, water resource plans, economic instruments, control measures and monitoring mechanisms. In addition, a comparison of management processes in other river basins in Brazil can also be made, highlighting similarities and differences in relation to the Rio Formoso Basin, aiming to identify good practices, common challenges and lessons learned in other regions.

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