Check for updates

Disrupted water governance in the shadows: Revealing the role of hidden actors in the Upper Cauca River Basin in Colombia

Alejandro Figueroa-Benitez[1]*, Mohsen Nagheeby[2], Apolinar Figueroa[1] and Jaime Amezaga[2]

[1]Universidad del Cauca, Doctorado Interinstitucional en Ciencias Ambientales, Popayán, Colombia,
[2]Water Security and Sustainable Development Hub, Newcastle University, Newcastle upon Tyne, United Kingdom

Colombia's policy in the Upper Cauca River Basin is diminished by a lack of legitimacy in local areas respecting the control of territory and water. Such illegitimate interference provides a hiding place and fertile ground for the illegal activities of "hidden" actors. This paper aims to scrutinize the potential power of such hidden actors to influence water governance. We engage with critical discussions of water governance to reveal the role of these actors in controlling territory and water in the Upper Cauca River Basin. Extensive fieldwork was carried out, including workshops, interviews, and informal talks. Despite the Colombian government not recognizing hidden actors and their part in influencing water-related policies, the information gathered revealed their active agency in the basin. The paper shows how these actors play a determining role in territorial development and water resource management, disrupting the functioning of the State's water governance. Hidden actors, to promote their own, mostly illegal and illegitimate businesses, seize upon the current lack of clarity in the national normative standards, the deficiencies created by an inconsiderate implementation of national water policy, and the State's lack of legitimacy at the local level. This paper concludes that the awareness of hidden actors and their invisible power over water governance provide a better sense of the reality on the ground for policymakers in Colombia.

KEYWORDS

hidden actors, disrupted water governance, water-land use, Colombia, Upper Cauca River Basin

1. Introduction

Contrary to past and present *apolitical* views on water issues, this paper seeks to contribute to the critical water governance literature by illuminating the role "hidden" actors have in shaping the complex interplay between water and territory management. We intend to demonstrate how water-related processes are politically driven and cannot be separated from the underlying socio-political and economic realities on the ground (e.g., Rusca and Cleaver, 2022). Water governance is defined here as "the practices of coordination and decision making between different actors around contested water distributions" (Zwarteveen, 2015). Water governance is shaped by political discourses and the practices of many different *actors* with socio-economic and other interests in the institutional arrangements for land management and the related competition over territory.

The competitive relations among actors who seek to control both of these resources make up a complex of dynamic and often ambiguous interactions. In such a contested environment, actors wield sufficient power to influence the balance of resource distribution.

Consequently, a fundamental aspect of the analysis of water governance—either the structure, the process, or the result—is the concept of *actor mapping*. This involves distinguishing and identifying different actors, particularly informal actors, who are explicitly or implicitly involved in shaping water governance, which is crucial to a better understanding of the overall situation. Such identification may help informal actors to perform roles as acknowledged stakeholders and as important forces for processes of reform and development (Wegerich et al., 2015; Reed et al., 2018). However, most studies have focused only on formal actors, particularly those who have a physical presence in water-related decision-making processes. In contrast, critical water governance emphasizes the complexity of interactions taking place between formal and *informal* actors in everyday social life as a window into the "hidden" workings of power relations. This school of thought focuses on discovering hidden actors and invisible interactions within a community, often involving women, children, and those who are discriminated against by another community group and excluded from decision-making. However, limited research has been carried out on those various informal actors who of their own accord choose not to participate in decision-making. These informal actors have the potential to significantly influence decision-making, but tend to work in the shadows and remain invisible to the public; they are indeed almost ghost-like (Nagheeby, 2020). This makes it difficult for researchers and policymakers to find them. They compete over "legitimate" access to land and water and make use of their power to influence decision-making for water governance to their benefit. We call them hidden actors because it is either difficult to detect their footprint in water governance, or most people including the government have no clear picture of their influence. The politics performed by hidden actors in water-related processes lacks theoretical and empirical understanding: although they are not an unknown subject in the study of water governance (Wegerich et al., 2015), very little attention has been paid to examining the role of these informal, hidden, invisible, and "illegitimate" actors fighting for water and territory.

The Upper Cauca River Basin (UCRB) in Colombia offers a perfect example of the intervention of hidden actors. The complex struggle between the central government and illegal, hidden actors to control water and territory is readily apparent here. The UCRB is recovering from long-term conflict. While rural populations struggle with social inequalities, including lack of access to basic sanitation, violence, dispossession, and oppression (Arbeláez-Ruiz, 2021), the catchment has been degraded by various competing human activities, including widespread extractive processes such as legal/illegal mining (Alvarez-Pugliese et al., 2021; Gallo Corredor et al., 2021; Rochlin, 2021), logging (González-González et al., 2021), monocultures (Correa-García et al., 2018), and those associated with illegal activities such as coca leaf production (Thomson et al., 2022). Vélez Torres and Vélez Galeano (2019) reviewed historical environmental conflicts in the UCRB. They found 18 cases between 1980 and 2016 that arguably concern in

some way the role of hidden actors. These cases invariably involved the distribution of economic and political power to control water. The cases were assigned to three main categories: first, those related to agribusiness; second, those concerning mining-related activities; and finally, those regarding the construction of hydraulic infrastructures. At the same time, remote sensing studies have shown that, although land covers have statistically been relatively stable in the UCRB, transitional crops have decreased at altitudes of more than 3,500 m above mean sea level (mamsl), making way for other anthropic land covers, which, it might be argued, are related to the activities of hidden actors displacing cover attributed to the Paramos ecosystem (Valencia-Payan et al., 2018). Besides these interruptions, Colombian water policy has been affected by a lack of legitimacy in rural areas, non-recognition from community stakeholders, and severe disruptions to its capacity to monitor and enforce environmental law with a legitimate and efficient judicial system (Le Billon, 2011). Although large investments have been made in water management, they have been put in place with weak interinstitutional coordination, limited leadership and teamwork, and in some cases with insufficient information, which have contributed to the progressive deterioration of the basin (Sánchez Torres et al., 2022). These hindrances are exploited by actors operating in the shadows, who take advantage of such problems to fulfill their own illegal agenda.

This paper seeks to examine the influence of hidden actors in the UCRB on the competition over water and territory. We intend to uncover recognition and representation processes, the role of hidden, local actors, and the complexity of socio-political settings surrounding water and land management processes. From a practical point of view, understanding these hidden dynamics may help to alleviate the problem of disrupted governance above-mentioned. To achieve this understanding, we adopt a qualitative approach. Data was collected from social-mapping workshops, semi-structured interviews, and informal talks with experts and community leaders. The fieldwork was performed in Cauca Department, south-west Colombia (Colombia contains 32 departments and a Capital District), in the municipalities of Santander de Quilichao, Silvia, Piendamó, and Popayán (Figure 1), and took place principally from mid-2019 and intermittently during 2020 and 2021. The study shows that the national water governance in the UCRB suffers from a lack of clarity in national normative standards, the deficiencies caused by an inconsiderate implementation of national water policy, and the State's lack of legitimacy at a local level. Within such imperfect conditions, hidden actors—e.g., large-scale mining operators and armed groups and their related interests in illicit crops—manipulate national water governance procedures to assist their illegal activities. As a result, hidden actors in the UCRB transform land-planning processes and water-land use dynamics in their own interests, thus affecting the communities' decision-making and autonomy in the river basin.

To arrive at this conclusion, we first review the available knowledge of Colombia's struggle to promote water and territory governance, and its association with hidden actors. Then, Section 3 outlines the theories of water governance that we rely on in this study and describes the research methodology. Next, Section 4 presents the results and explains how our findings support the
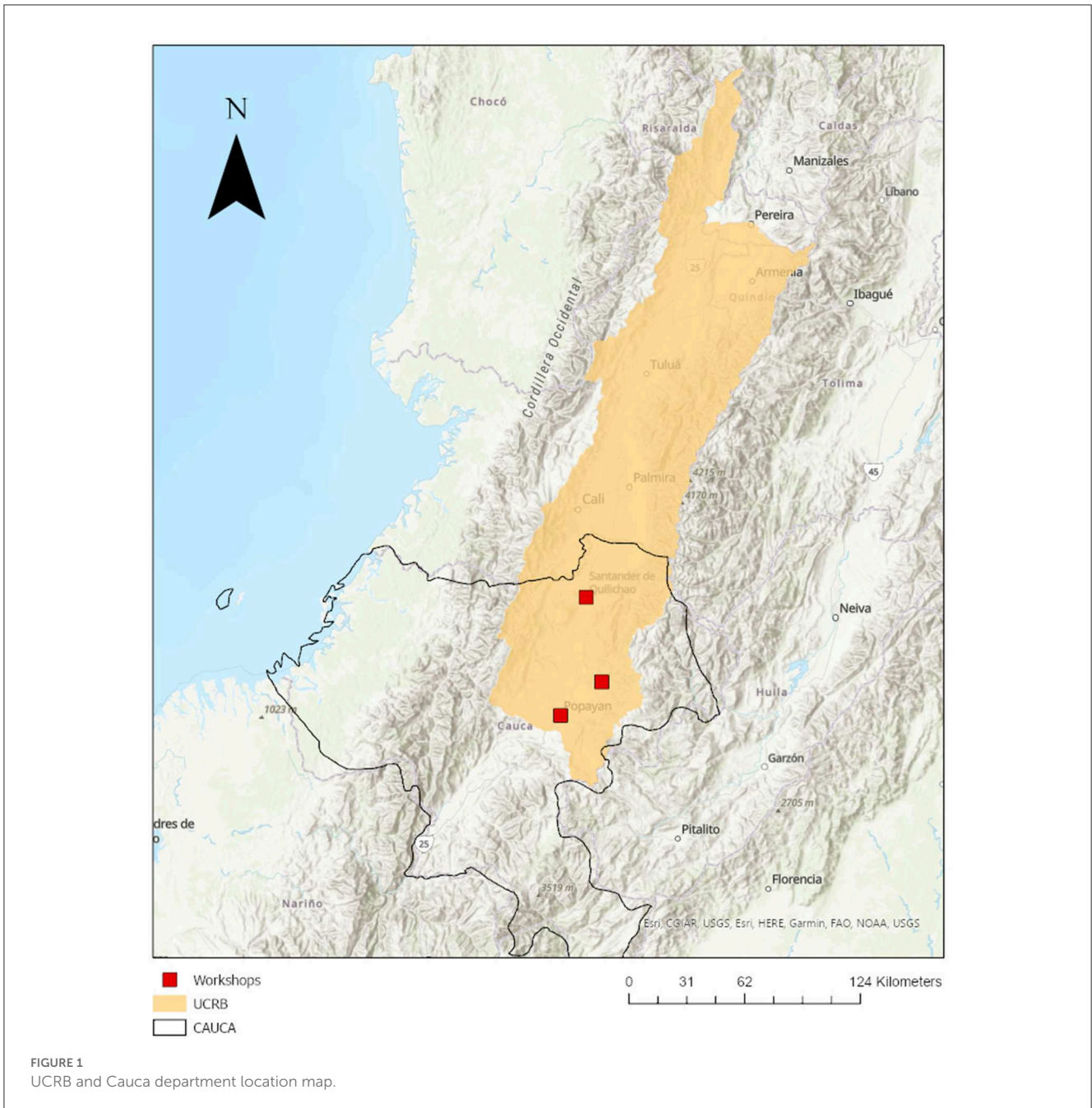
FIGURE 1
UCRB and Cauca department location map.

thinking that hidden actors disrupt national water governance. Finally, in Section 5, we give our conclusions.

2. General background: Colombia's struggle to promote water and territorial development policies

Given the multi-layered complexity of the activities of hidden actors in the UCRB, they must be situated beyond water governance and in Colombia's broader socio-economic and political context.

The Colombian government has been steadily constructing a modern natural resource management model, taking a wider perspective extending beyond water issues. This started as early as 1974, with the National Code of Natural Resources and Environmental Protection (Presidente de la Republica de Colombia, 1974), which was followed by the 1991 Constitution and the 2010 National Integrated Water Resource Management Policy (IWRNP). However, the present condition of the water environment in Colombia does not match the goals and indicators projected in these policies. According to reports by the National Environmental System (SINA) and the National Water Study, this is evidenced by the daily reality for many regions and production

sectors in the country (Instituto de Hidrologia Meteorologia y Estudios Ambientales, 2019).

The Colombian government tries to legitimize water policy, enable further intervention of the State in the country's rural and remote areas, and contribute to improved security and community wellbeing (Schultze-Kraft, 2014). Nonetheless, poor management and a lack of State reach have resulted in policies being implemented without concern for local requirements and desires. Water governance, a central element in the official discourse of IWRM underpinned by the requirements of the UN's Sustainable Development Goal 6.5, has also been affected by such unfitting conditions.

Colombia has aimed to promote territorial development, the provision of public services, and community participation through its system of municipalities. In this system, planning and participation are embedded within the State's institutional structure through its political, administrative, and territorial activity in municipalities. With this rationale, citizen participation aims to design, discuss, and carry out various territorial management and planning models (Andrade and Rodríguez Becerra, 2008). However, in different parts of Colombia, especially rural areas, citizen participation and the practical management of territory are affected by the presence of hidden actors who, to satisfy their own wishes, influence participatory and management processes. These illegitimate actors work as external forces locally and disrupt the territorial realities in their own interests, which are often in opposition to national interests.

The conflicts around water and territory management in the UCRB offer an excellent example of the intervention of these hidden actors. Hidden actors can shape the conditions on the ground, thereby determining hydrosocial realities (Duarte-Abadía and Boelens, 2016) that are often concealed from the State. This suggests the limitations of national and international environmental policy in achieving sustainable development objectives, and highlights a contradiction with the hegemonic discourse of the State. Such is often the case with idealized institutions and policies created within an IWRM framework (Molle et al., 2009; Giordano and Shah, 2014). Also affected are the measures that communities try to take to coexist and survive in their local areas when faced by these often violent actors, who interfere and disrupt communities' capacities to oversee the use and management of the land. Lastly, the influence of these actors makes evident that little or no control is exerted by official territorial environmental planning. The government has an urgent need to reach these peripheries and support there the processes of recognition, representation, and redistribution of natural resources, especially water (Fraser, 2009; Zwarteveen and Boelens, 2014). We will elaborate on these points during our analysis of hidden actors in the UCRB, thereby highlighting a key problem for IWRM in developing countries such as Colombia.

3. Theoretical perspective and methodology

While the examination of water governance rides on varied theoretical waves, it centers mainly on uncovering the role and linkage among power, structure and agency in shaping water governance. However, in practice, different actors have diverse, often contradictory, understandings of governance which reflects the contested nature surrounding the control of water and results in very different policy strategies and decisions. Governance concerns the activities to influence "the social construction of shared beliefs about reality" (Castro, 2007) in which different actors are competing for (1) distributions of water, (2) distributions of voice and authority and (3) distributions of knowledge and expertise (see Zwarteveen et al., 2017). In such competition, various individual and collective, formal and informal actors within different territorial bounds use their capability to shape, sustain or resist the arrangements of authority and power to control water in their own favor. Therefore, water governance is a political process in which political actors exercise their political power to define the ends and values concerning the socio (and economic) water development. However, defining these powerholder actors, which is not an easy task in practice, is crucial for better understanding of the reality concerning water governance. As already mentioned, the water governance literature tends to capture rather formal and informal actors who are often visible to us and make a legitimate part of "civil society." In this paper, we intend to highlight those actors who are often invisible and seen as illegitimate in water governance but play a crucial role in shaping the surrounding reality.

Against this backdrop, the general concept of Integrated Water Resource Management (IWRM) and the principles of good water governance assume that there is a necessity to create a wider spectrum of stakeholders who should be able to engage in a constructive governance process (Harrison, 2019). Contrary to the functionalist approaches and normative notions of good water governance, which tend to overpass the operations of those in power, the critical water governance perspective (e.g., Warner et al., 2008; Perreault, 2014) attempts to carefully elucidate the political nature essential to the institutional arrangements and historical socio-environmental relationships in question. This paper takes a critical water governance perspective (Castro, 2006; Molle and Mollinga, 2009; Swyngedouw, 2009; Zwarteveen et al., 2017; Kumar et al., 2021; Rudolph and Kurian, 2022), in which governing procedures take place in pre-existing societal and physical landscapes and in diverse complexities.

Water management requires adequate territorial management that recognizes the systemic nature of this resource (Pérez Correa, 2014). It is not enough to regulate or manage only water; it is also necessary to deal with the territorial dynamics in which water and its management are integrated. However, while river basins may be considered natural units, they are in practice represented more as political units connected to parts of a territory (Warner et al., 2008). Power imbalances and disconnections between agents and structures at three levels—local, regional, and national—which comprise the nation's governance structure may impair water governance processes (Clement and Amezaga, 2013).

In addition, competition for the control of land and water emerges from political processes that are influenced by different stakeholders, who often have conflicting interests. Since by its nature water governance is complex, the relations between the participants are multidimensional. In places like Colombia, such complexity can be socially constructed by way of a vast diversity of

TABLE 1 Activities, scope and methods used.

Activity	Scope	Method
Stakeholder mapping	Identify stakeholders that partake in water governance associated processes	Developed throughout 2019–2020 and 2021 following the Public-Private Dialogue (PPD) Stakeholder Mapping Toolkit by The world bank group (Kuriakose and Eknath, 2020) Literature reviews complimented the information collected on stakeholders present in the UCRB and policy reviews that already identified critical stakeholders for policy design and implementation
Participatory workshops	Interact with communities in the basin to create rapport and establish connections with the broader community from the basin. These workshops were held from January through March 2021	Social cartography was used to understand the reality culturally constructed by the people from their territorial, interpersonal and political experiences (Mancila and Habegger, 2018). This information allowed the research group to identify community concerns and priorities regarding processes related to water governance in their territories
Key stakeholder interviews	Identify discourse trends found during the participatory workshops that had also been encountered during the stakeholder mapping process	Semi-structured interviews are used to perform this task to compare the findings amongst all interviewed leaders

ontologies, epistemes, and images of what constitutes a particular reality, creating an amalgam of diversity and conflict (De la Cadena and Blaser, 2018). Within this competition for water and land, some actors may find advantages in running their business from the shadows and they accordingly tend to remain hidden. We follow this way of thinking to critically examine water governance in Colombia's UCRB to discover the frequently missing pieces of the puzzle—*hidden actors*. However, investigating these hidden actors is no easy task and needs to be done very carefully due to many concerns, including security.

To investigate the role of hidden actors in the UCRB, this study adopts qualitative research methods. The most important source of information on this analysis of water governance in the UCRB was field research that lasted nearly 3 years from 2019 to 2022. The COVID-19 pandemic seriously affected our fieldwork and we had to further extend it due to several other disruptions. Apart from the extensive analysis and desk reviews of the available policy documents, the following main methods were employed to better capture the real-world complexity of the UCRB: (a) stakeholder mapping; (b) participatory community workshops; (c) key stakeholder interviews including consultations with experts; and (d) participant observation—these are explained in greater detail in Table 1.

For 18 months (non-continuously), starting in the second part of 2019 and proceeding intermittently throughout 2020 and 2022,

a stakeholder mapping exercise was carried out with input from the Water Security and Sustainable Development Hub.[1] The goal of this exercise was to gain an overall image of the status of water governance at the UCRB. The findings of this stakeholder-mapping process were presented and discussed at several Hub-run workshops, where experts from five different countries and of differing backgrounds commented and gave feedback upon the findings. The stakeholder mapping gave a foundation from which to explore how the campesino movement,[2] afro-Colombian groups,[3] and indigenous communities[4] settled in the UCRB, particularly in the areas of the Cauca Department. It is hoped that this mapping will help to enlarge our understanding of the occupation, ownership, use, and exploitation of natural resources in their territory, including production activities, territorial risks, and water hazards. This knowledge provided a solid basis for the social-mapping workshops (Powell, 2010; Wilson, 2014; Hamilton and Salerno, 2020), which aimed to represent the communities spatially and seek their knowledge and perspectives on decision-making processes. The knowledge acquired was subsequently systematized by delineating the narratives and symbolism discerned in the social-mapping workshops and cross-checking them with the results of the stakeholder-mapping process. Finally, the knowledge gathered allowed us to analyze interests and positions in favor of or contrary to specific public policy actions, and to measure the potential benefits and drawbacks of these actions.

Additionally, we organized a series of community workshops, as detailed in Table 2, with the participation of 60–80 people from 15 different communities, NGOs and private stakeholders. The workshops served as meeting-places with the communities to gain an understanding of the socio-cultural, environmental, and economic dynamics that assist a territorial diagnosis. These workshops were held from January to March 2021 and from July to November 2022 taking place at the Cauca Department's

---

1 For more information, please see Water Security and Sustainable Development Hub, Available at: https://www.watersecurityhub.org/.

2 The Campesino is a producer who lives from production for self-consumption and who, in the case of excess harvest, can market it, without this being his or her purpose. It a group of people with a joint historical basis and its productive inheritance.

3 Afro communities, unlike indigenous communities, have a much harder time at receiving differential recognition, even if the term refers to the fact of having as ancestors Africans who were captured, enslaved and transplanted to different territories outside Africa and therefore being heirs to their physical characteristics and possibly those of their culture. It is an umbrella term that encompasses other categories that are separate in their legal treatment, such as black communities, Raizal and Palenquero communities, but serves to affirmatively nominate all of them. This means they lack an established institutionality that empowers the communities as a whole.

4 Within the UCRB there is a great number of indigenous communities constituted by several indigenous ethnicities, located within different indigenous reservation areas. Amongst these many communities are the Kisgo, Ampiule, Misak, Paez, and Nasa. The Resguardo (Reservation) is a socio-political legal institution of Spanish colonial origin in America, consisting of a recognized territory of a community of Amerindian descent, with inalienable, collective or communal property title, governed by a special autonomous statute, with its own cultural guidelines and traditions.

TABLE 2 Workshops detail.

Workshop	Description
1st workshop (North of Cauca)	The northern part of the Cauca department is a highly productive area agriculturally wise. However, most of its economic activities rely on large scale sugarcane production. This workshop sought to bring together some of the most relevant stakeholders identified within the UCRB and aid in identifying undisclosed or hidden dynamics within the basin. In this workshop, 20 people participated, representing 15 different communities, NGOs, and private stakeholders
2nd workshop (Palace Basin)	The Palace River Basin is one of the Water Security Hub Colombia Collaboratory research interest areas. It is located in a mountainous area characterized by its highly diverse geography and rich ecology. Given its biophysical characteristics, it is an area of high importance for water resource production and preservation. Several small towns are located thorough the basin as well as indigenous reservations. This workshop was carried out in an indigenous reservation with around 25 participants from ages 17–85, both men and women selected previously to the research team's arrival by the reservation authorities. Although COVID restrictions were in place during this workshop, the reservation, using its autonomy, determined the event's conditions and attendance
3rd and 4th workshops	These workshops were carried out in the City of Popayan, the capital city of the Cauca department. It was carried out between municipal authorities and some community leaders from tributaries of relevance to the city's water supply. Unfortunately, COVID restrictions were in place when this occurred, so attendance was highly restricted, and only ten people attended each time
5th to 13th	During the second half of 2022, eight workshops were carried out within the frame of a Water and food Security Diploma Course in Silvia, Totoro, Cajibio and Popayán. The diploma course aimed to develop a co-constructed understanding of governance. The Universidad del Cauca team presented relevant information about the construction of meaningful governance processes, and the communities provided feedback and insight into the research. Unveiling hidden actors were not the aim of this workshop; nonetheless, several points were made by the communities highlighting the necessity to unveil the hidden dynamics in water governance. To further elaborate on this point, communities were asked to answer the question, "Who manages the territory?"; this question prompted the communities to question the central government's authority and to deepen the subject of hidden actors

indigenous reservation areas, campesino territories, and municipal capitals. As explained below, the analysis of these interactions showed anomalies in what the research anticipated would be local public policy preferences in certain regions, which point toward disruption of governance.

With the knowledge acquired, an in-depth study of the UCRB case was performed with additional observations from actors at the local and regional levels, who were identified using a "snowball technique" (Mirzaei et al., 2017). The initial identification of the actors, groups, and institutions with direct influence in the area of interest provided an essential basis for understanding the innate dynamics of the basin. All the stakeholders and actors who took part in the community workshops were contacted, and following dialogue with the community leaders, they decided to send designated speakers to be interviewed. A total of seven representatives agreed to be interviewed. These community leaders anonymously expressed their opinions and confirmed the research team's findings of disrupted governance processes.

One may reasonably ask whether or not an interview sample of this size is sufficient for attempting such an analysis. An adequate sample size in qualitative research is one important way to support the quality and credibility of the data, analysis, and results (Spencer et al., 2003). Contrary to quantitative research, samples in qualitative research may in some cases be relatively small when the objective is to substantiate a case-oriented analysis, depending on the scope, aims, and nature of the research, the quality of the data, and the study design. In addition, qualitative samples are often purposive, in that the knowledge sought is for a particular purpose and so not necessarily to be generally applied. The purposive sampling technique is a deliberate and non-random informant selection tool. In this approach, the researcher decides to interview *key informants* who are able to provide knowledge of a depth fitting to the purpose of the study. Key informants are representative of the community and can provide this comprehensive understanding of a certain situation (Tongco, 2007). In our case study, our key informants are community leaders, and we chose to interview them because of their extensive knowledge and experience and their leadership role in their community, as well as the unwillingness of other community members to be interviewed due to security issues.

Some rural communities in the UCRB are highly organized. They have a robust institutional infrastructure with communication channels in place to protect highly vulnerable people from exposing themselves to or creating security risks for communities in an area with a history and present of violent conflict. For this reason, most engagements with communities are arranged through community leaders who have appropriate socio-political insight and knowledge of their territory, as well as the consent of all the communities they represent to speak for them. The processes of collective deliberation in these communities are well-documented. They are based on deep ethical roots (Varese, 2018) by which leaders represent what the community has decided through their discussions.

In the circumstances, it was necessary to request the participation of community leaders to corroborate the findings and find explanations for the dilemmas encountered. These key stakeholders functioned as verifiers or revisors to confirm or correct the hypothesis created during the other two parts of the research process. The researchers fostered a space of trust and credibility with the communities to enable the actions of the research group in the study area. However, the open nature of this space made public verification of potentially dangerous information difficult. It required an alternative form of communication in which the actors

were not exposed to the other participants, since they considered it a priority to maintain their anonymity as a necessary condition for their safety. The interviewees were unwilling to have their voices recorded or to be filmed: the interviews were therefore conducted in person and individually, with the information provided by the interviewee recorded in written form by the first author. This unwillingness to leave concrete evidence of their participation is a fundamental condition for the security and cooperation of the actors interviewed.

4. Results and discussion

4.1. Contested agenda over land and water: State vs. communities vs. the hidden actors

Our analysis of the dynamic relationship between the State and local communities shows that water governance in the UCRB can be understood as both a result (for communities) and as a process (by State). Water governance, in its form as a result, understands governance as a system which determines who gets what water, when and how, and who is entitled to water and related services and their benefits (Allan, 2001); water governance as a process considers governance as the processes and institutions involved in decision-making, rather than the outcomes of this decision-making (Lautze et al., 2011; De Stefano et al., 2014). How are such results and processes manifested in Colombia and the UCRB?

In Colombia, the IWRNP comprehends sustainability within the systemic compass of the hydrological cycle, the natural system's (ecosystem's) central ecological structure, and the interactions associated with physical, biotic, social, economic, and political-institutional elements. Its managerial attempts to operate a national strategy in the entire territory are based on a participatory principle involving government and community actors. The government accordingly seeks to ensure the effective implementation of a programmatic agenda, to handle not only the use and misuse of water resources, but also the economic development and social welfare of the country through proper management and governance of water.

In this agenda-setting process, institutions intervene as representative bodies but are confronted by individuals who are not necessarily recognized as an active part of the system. On the contrary, they are perceived as outside influences that affect the capacity of institutions to grasp a true understanding of society. This misrecognition counteracts the conception of autonomy that communities and individuals have in the basin.

The term agenda itself indicates a set of perceived problems that require public debate or even direct and active intervention by legitimate authorities. For this reason, not all issues end up on the political agenda; there are entry conditions and, therefore, exclusion mechanisms (McGinnis, 2011). However, the social and political processes concerning the IWRNP are inextricably embedded in the governmental agenda itself. The effort to transform the discourse into solid, palpable facts is much more than just an administrative problem; it is the continuation of the political struggle with other means and in different scenarios.

In the south-west of Colombia, in the UCRB, the communities' attempts to exercise autonomy when managing their territory have

taken place in an environment of conflict and not of consultation. The Colombian State has severe difficulties recognizing and representing in its territories the ancestral communities and their wishes. This situation is provoking disputes over the use of water resources and land (sugar cane, coffee, avocado) or mining activities (gold, coal, silver), which are evident at the eastern slopes of the western mountain range (Cordillera Occidental) and the western slopes of the central mountain range (Cordillera Central), putting water at risk. These circumstances are not recognized as a fundamental principle of negotiation between the communities and the State, which creates violence, forced displacement, poverty, soil and water contamination, and toxicological harm against the communities (Gallo Corredor et al., 2021).

In terms of the implementation of the IWRNP, i.e., the phase during which actions and effects are produced within a normative framework of intentions, the link between the decision-making process and execution can be seen as a "top-down" implementation model based on the hierarchical distribution of authority (Roth Deubel, 2002). But the implementation process is also experimental; it is constantly redefining its objectives and reinterpreting the results (with an emphasis on the production of indicators). This process is evolutionary. Since the first efforts by the central government to instate resource management policies in the 1970s, those have been in constant change and adaptation. This means it is impossible to separate the distinct stages of this policy and its transformation process, which tends to be reformulated as needed according to the context.

In accordance with these principles, those in charge of implementing the IWRNP have sought to improve its capacity to achieve its objectives. It is possible to observe strategies and implementation mechanisms in constant evolution, which implies persisting revision of policy to adjust it to the political agenda; they could in other words be said to be part of a learning process (Guhl Nannetti, 2014). The solution is not only technical; it also involves giving priority to a political approach of recognition, redistribution, and representation (Yaka, 2019). The IWRNP has accordingly required constant refinement to harmonize it with the varying environmental policies already in place. It has sought to use environmental planning as an articulating, integrating, and systemic instrument of local, regional, and even national initiatives which promote the harmonization of state planning between the government, the community, and the individual.

While citizen participation offers a valuable path toward achieving equitable and sustainable water resource management, the study of hydrosocial relations reveals the existence of multiple normative orders (Wilson, 2014). Viewing water resource management in Colombia from this perspective, policy actors increasingly recognize the constraints that follow from growing institutional involvement as the intricacy of territorial water resource management rises. However, they also recognize how opportunities arise to develop effective policies that provide solutions to problems originating in the territory.

With the above in mind, although IWRM is a significant initial effort by the Colombian government to build water security nationwide, it does not recognize that, in some cases, the colonial conception of IWRM infringes upon sovereign models of indigenous territorial and resource management historically

practiced by local communities (Wilson, 2014). It also assumes that the national government has a high capacity for territorial management. However, government management of land shows how these processes are marred by power imbalances and disconnections between actors and structures at the three levels constituting the governance structure of Colombia: local, regional, and national. As a result of the desk review of existing policy documents and the social-mapping workshops, the following national, regional, and local actors were identified (Table 3).

During the stakeholder recognition and analysis procedure in the UCRB, it was noted that there is no direct participation from the water resource users in the decision-making processes of water resource management; in the IWRNP, users are theoretically included by way of the democratic mechanisms through which Colombian citizens are represented, i.e., through local, regional, and national governments. However, this situation presents great difficulties because the real needs of the water users are interpreted by the elected representatives of the government institutions. From this standpoint, the planning and management of water resources assumes that official participatory processes are sufficient to regulate a territory.

It is necessary therefore to ask whether adequate consideration is given to the views and realities of the disputants, and if not whether this leads to an inappropriate diagnosis and definition of the problems, i.e., potential solutions to undefined problems are proposed, giving rise to their impracticality. Transversal conflicts or conflicts arising from intercultural interactions related to management processes are not necessarily resistant to a solution; however, they need to be fundamentally reinterpreted to reach agreements. Therefore, it is required to use an approach that allows the disputants to create new alternatives to understand the problem as a way of transforming conflicts to avoid falling into identity politics.

The need to recognize the specific identities of the various groups present in the territory aligns with the requirement to appreciate the position of the multiple individuals who make up these groups, and who wish to participate in their management mechanisms. Currently the implementation IWRNP assumes that justice is achieved by giving equality of status to all the participants, without paying attention to the different specific identities of these participants. This validation is a reasonable expectation for any group participating in the process. Unfortunately, this recognition has not been achieved and is one difficulty facing water resource management and land-use planning in the UCRB.

It is therefore necessary to identify the injustices to cultural values resting in institutionalized hierarchies, injustices which prevent some members of society from participating as equals in a variety of social processes. It is not a case of redesigning users' identities but de-institutionalizing the norms that prevent parity and replacing them with others that promote it. It is from here that an initial model of hierarchical levels can be formed, where interactions are promoted from within the territory (the communities and those who inhabit a determined space) to foster the processes of sharing information, interests and knowledge between each level of the system. This affords a way to deal with the asymmetries present in the current strategies of interaction, which represent rifts and manifest in conflicts.

When drawing the interaction model emerging from the fieldwork, it became evident that external agents have designed policies, because they aim at objectives and goals that are alien to the local communities. From this reality, inconsistencies are projected which alter the UCRB's theoretical approach to water resource management. They have resulted in an environmental management policy with strategic shortfalls in key territories for vulnerable local communities. According to the communities, this problem is manifested by mining concessions, hydropower permits, and access to land for large-scale monocultures, which have been granted to multinational corporations without considering the desires of rural inhabitants or possible effects upon their livelihoods through the degradation of water resources in the area. According to Duarte-Abadía et al. (2015), large-scale projects of this kind "tend to produce severe social and environmental impacts, with burdens and benefits unevenly distributed among different social groups, regions, and scales."

This state of affairs has given rise to conflicts resulting from differing conceptions of desirable land usage that cause a three-way collision between the State, the communities, and the hidden actors. The implementation of policies for land use and the conservation of natural areas are necessarily affected by how far the central State are able to enforce these regulations. The oversights in public policy decision-making due to a hegemonic vision of environmental policy aggravate the communities' vulnerabilities and enable the hidden actors to promote their political and economic agenda.

After identifying the actors, a collation process was carried out to discover what has been done to further the development of the territories of cabildos and municipalities[5] in the UCRB. These developments concerned access to roads and drinking water, crop improvement, the upgrading of educational facilities, and citizen participation in the decision-making processes behind budget implementation. However, it was not easily understandable why these activities, which would improve living conditions in some department sectors otherwise overlooked for assistance, were not given priority by the communities as actions necessary to assist their progress and that of their land. This finding was made following an in-depth consultation with entities and communities during the initial stage of the study, which confirmed the varying levels of demand for these activities, leading to concerns within the research team as to why such a condition was being encountered. However, it is not an easy task to recognize hidden actors, since they thrive amid regulatory confusion, which hinders transparency and accountability, reinforcing knowledge and power asymmetries between users, providers, and decision-makers. These circumstances help hidden actors to keep their illegal activities

---

5 The Cabildo is a post-colonial administrative organ that ruled over a particular municipality or, particularly, an area within a municipality. It serves now as a representation tool toward the larger State bureaucracy, where the will of a group of people, in this case, Indigenous, is manifested and vested with autonomy and its legislative structure within the Colombian central government. The aforementioned is different to the Municipality as conceived by the national constitution of Colombia, which is recognized as a local level jurisdictional unit of the central government. Currently in the UCRB there are more than 100 indigenous reservation areas articulated with as many cabildos.

TABLE 3 Identified national, regional, and local actors in relation to water governance of the UCRB.

Stakeholder	Resources allocation and pollution control			Watershed management		Sectoral water demand management and drinking supply	
	Technical and scientific support	Management	Education	Policy and regulatory implementation	Intersectoral coordination	Public Sphere	Operators
Potable Water Commission		X					
Environment Ministry	X	X	X	X	X		
National Teaching Service			X			X	
National Utilities Superintendence		X		X			
NGO's						X	
National Natural Parks Authority	X		X	X			
Colombian Geological Service	X			X			
Water Viceministry	X	X	X	X	X		X
Departmental Coffee Growers Committee						X	
Compañía Energética de Occidente (Electric Utility Company)							X
Consejo Regional Indígena del Cauca (Council of Indigenous Communities of Cauca)						X	
Corporación Autónoma Regional del Cauca (Regional Env. Auth.)	X	X		X	X	X	
Totoró Municipality		X		X			
L. Piedras Basin Planning Committee						X	
Fundación Procuenca Río Las Piedras	X		X		X		
Acueducto y Alcantarillado de Popayán – D. Ambiental (Water Utility Company)	X	X	X		X		X
Asociación campesinos Quintana						X	
Asociación campesinos red de reservas- sociedad civil cuenca Piedras						X	
Indigenous reservations and cabildos (Quizgó, Guambia, Ambalo, Totoró, Puracé)						X	
Municipal Planning Office (Silvia, Totoró, Puracé, Popayán)		X		X			
Municipal Agriculture Office (Silvia, Totoró, Puracé, Popayán)		X		X			
Municipal Government Office (Silvia, Totoró, Puracé, Popayán)		X		X			
Municipal Health Office (Silvia, Totoró, Puracé, Popayán)		X		X			

☐ National, ☐ Regional, ☐ Local.

undetected. The centralized nature of the Colombian State is partially responsible; it isolates the government and makes certain activities hidden, or easily overlooked by policymakers. Moreover, on many occasions, due to a lack of logistic, financial, or political capacity (or willingness), the State does not have a legitimate presence in the development of local municipal policies, especially those located at the periphery (far from the centers of power and social, political, and administrative control), allowing them to be adapted by hidden actors to push their agenda (Ballvé, 2012).

4.2. Hidden actors

> "*We do not exist for the government; we are just a stepping-stone for someone else.*"—a member of an afro-descendant community in the UCRB

At this point, we began to question, who are these hidden actors? What are they doing? What is their business? Only through the interviews and discussions with community leaders and experts could we seek answers to these questions.

In the interviews, we observed an underlying distrust of most people external to their communities. Though as researchers we have a long-standing research and empowerment relation with communities, there was a lack of willingness among the interviewees to speak openly on the observed anomalies; this meant that the process was slow and had to be done carefully to avoid complicated or even dangerous situations.

To achieve this, we agreed with the interviewees to conduct interviews outside of community boundaries. According to the interviewees, it is never entirely clear who might be listening in and how they might react. All participants had a firm comprehension of the geographic boundaries of their land; they also had a thorough understanding of how their communities came to be. It was evident that the communities had a distinct identity that greatly varied from one community to another. Grouping them as a single stakeholder when planning strategies would be a mistake, given that the aspirations, objectives, goals, and identities of these communities are entirely different.

However, as questions concerning the hidden actors emerged during the interviews, similarities in the conception of the problem began to appear. Interviewees drew associations between hidden actors and acts of violence, dispossession, exploitation, and environmental degradation. For example, a member of an Afro-descendant community explained that the river was "everything" to them. It has sustained them and helped form their identities. The economic phenomena happening within his territory have affected their habits and physical features of their culture. He refers to large-scale sand-dredging in a river near his territory. He explains that a mining enclave has formed around the river since the operation commenced with the national government's approval.

This enclave restricts access to previously open land and river sections, with consequent cultural and economic effects on the community. Their quality of life has significantly decreased since the operation started. All efforts to contact the central government and bring this issue to light have been unsuccessful. He

indicates that positive statistics and indicators have overshadowed his community; he explains that most development and quality of life metrics have improved on paper since the mining operation started. Nonetheless, very few members of his community have benefited in actuality; many of them have lost their livelihoods due to a decrease in water quality, which is of course particularly damaging for a fishing community.

However, he explains that some community members held an opposing view, and were very vocal at supporting the project even before it began operating. These people have left the community and are now located in nearby larger cities with wealth they did not possess before. The interviewee speculates that they were bribed by the owners of the mining operation to persuade the community of its worth and to support the build-up of the enclave.

In the few years since the enclave formed, violence has increased around the community: armed actors, acting as paramilitary forces, have emerged in the interviewee's territory, and have protected and expanded the mining enclave. However, he believes that these forces are either ignored by or hidden from the State. Moreover, these violent acts are considered part of the Colombian armed conflict against of FARC (Revolutionary Armed Forces of Colombia) or other guerrillas.

This is a clear example of how hidden actors push development and economic agendas that directly affect the livelihoods and wellbeing of a community and take part in processes of dispossession, environmental degradation, and exploitation. It also hides community struggles behind a statistical improvement in the region's indicators that can be used to justify policymakers' inaction, something that he thinks is because "we do not exist for the government, we are just a steppingstone for someone else."

Another case that illustrates the presence of hidden actors, as reported by the interviewees from indigenous communities, is that of illicit crop cultivation in some regions of the basin. Indigenous communities have sought to preserve and expand community rights and autonomous land management as part of their political projects. From here, scenarios can arise in which the activities of large landowners with large crop monocultures collide with the indigenous claims for land expansion; this is widely recognized land ownership conflict in the Cauca department. Yet, it hides deep-rooted ethnic violence that can be traced to the colonial era.

Indigenous communities have thus adopted a stance which rejects outsider interference and upholds their claims to the ancestral ownership of the land. This is supported by the presence of cabildos, by which the national constitution permits autonomous management of the land. Indigenous communities consider their ancestral territory a space of memory and continued existence. Their land is a place where they can preserve their culture and pass it to future generations to avoid assimilation and the loss of their ancestral ontologies.

In these circumstances, indigenous communities openly oppose all illicit activities on their lands and disapprove of the use of their ancestral territory as safe havens for illicit actors. In spite of the absence of the government in these areas, these communities actively oppose this intrusion. This resistance model has set the stage for a tripartite conflict. First, the communities think that the government facilitates the exploitation of natural resources. For example, in Colombia, all commercial water usage must be regulated by the central government through the vigilance

of Regional Autonomous Corporations; this conception directly creates a conflict with indigenous authorities, who consider all natural resources in their land to be under their autonomy. This situation is aggravated by the lack of a normative framework regulating the interaction between indigenous communities' autonomy and government regulations, a clash of jurisdictions manifested in Article 246 of the national constitution: "The authorities of the indigenous [Indian] peoples may exercise their jurisdictional functions within their territorial jurisdiction in accordance with their own laws and procedures as long as these are not contrary to the Constitution and the laws of the Republic. An Act shall establish the forms of coordination of this special jurisdiction with the national judicial system." It is not clear therefore which of the indigenous laws and procedures are incompatible with the State's, and in any case only the State holds the authority to decide this. Accordingly, the presence of the military on indigenous land is frowned upon by the communities. Armed groups exploit this by infiltrating and misusing indigenous land and cultivating the illicit crops that fund their warfare against the Colombian government. If communities oppose this activity, they are in danger of being systematically murdered or coerced by these illicit hidden actors.

Despite the peace deal the Colombian government signed with FARC in 2016, hidden actors still play a determining role in territorial development and water resource management. Their actions affect the quality, access to, and distribution of water. The State has great difficulties identifying these actors and taking effective measures to protect the communities and avoid intensifying conflicts in the basin. It can therefore be argued that the role of the hidden actors in the UCRB is one of opposition to the State and one of territorial control to enable the management of resources according to the hidden actors' economic interests.

Our findings and observations suggest that the influence of hidden actors and stakeholders on water governance in the Cauca department is heightened by different factors associated with socio-ecological systems, as explained above: (a) the low capacity for follow-up action by and participation from the State in the regions to promote efficient governance of public policies associated with water resources; (b) disruptions within communities seeking to develop their own organizational processes related to water governance and social control; (c) and the absence of a culture of collaboration and cooperation for accessing quality technical information that supports decision-making. But there are additional factors that require further research, since they were found to be likely related to the presence of hidden actors yet fell outside the scope of this research. These include: (d) the prominence of the monetary value of water in institutional processes; and (e) environmental conditions, such as climate variability and change.

5. Conclusion

We have proposed that hidden actors, who consciously endeavor to remain invisible, play a determining role in territorial development and communities' ways of life in regard to water

resources in the UCRB. The hidden actors' deeds, which are part of their effort to enforce their will on the political agenda, directly affect the communities, who are subjected to violence if they attempt to oppose these actions. Inevitably, the activities of hidden actors seriously disrupt water governance and impede the establishment of government policies. The lack of clarity in national normative standards and the deficiencies caused by an ill-considered implementation of IWRM policy have created places from which these actors can safely emerge and gain force. Besides, institutional arrangements still lack the strength to mitigate the degradation of water resources in the Cauca region. The State's lack of legitimacy in the eyes of communities makes it difficult to create adequate participatory spaces that truly represent the diverse nature of the territory. This, by itself, is evidence of the problems in policy implementation by the State, which are magnified by hidden actors' workings in the regions that lack State presence.

We have also contended that problems of recognition and representation by the State have favored the emergence of hidden actors due to the lack of a comprehensive notion of the constituent elements of rural society. This creates a vacuum that favors illicit stakeholders on the ground and hinders long-standing efforts by different ethnic and campesino communities to be represented and recognized on a larger scale. However, while we have sought to incorporate awareness of hidden actors and their invisible power influence over water governance, there remain other questions meriting further investigation: how do hidden actors exercise their power to influence decision-making? To what extent might the communities give priority to the activities of hidden actors? How do the hidden actors' illegal activities correlate with broader political corruption in Colombia and beyond also influenced by broader global capitalism?

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

AF-B: ground research and initial discussion based on the findings. MN: problem and aim definition, coherence editing, and literature support. AF: methodological approach. JA: literature support, overall structure and review, and editing. All authors contributed to the article and approved the submitted version.

Funding

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

Allan, T. (2001). *The Middle East Water Question Hydropolitics and the Global Economy, 1st Edn*. I.B. Tauris & Co. Ltd. I.B. Tauris & Co. Ltd.

Alvarez-Pugliese, C. E., Machuca-Martínez, F., and Pérez-Rincón, M. (2021). Water footprint in gold extraction: a case-study in Suárez, Cauca, Colombia. *Heliyon* 7, e07949. doi: 10.1016/j.heliyon.2021.e07949

Andrade, G. I., and Rodríguez Becerra, M. (eds.). (2008). *Gobernabilidad, Instituciones y medio ambiente en Colombia, 1 edition*. Bogotá, Colombia: Foro Nacional Ambiental.

Arbeláez-Ruiz, D. C. (2021). Indigenous resistance to mining in post-conflict Colombia. *Extract. Indust. Soc*. 2021, 100953. doi: 10.1016/j.exis.2021.100953

Ballvé, T. (2012). Everyday state formation: territory, decentralization, and the narco landgrab in Colombia. *Environ. Plan. D* 30, 603–622. doi: 10.1068/d4611

Castro, J. E. (2006). *Water, Power and Citizenship*. London: Palgrave Macmillan. doi: 10.1057/9780230508811

Castro, J. E. (2007). Water governance in the twentieth-first century. *Ambiente Soc*. 10, 97–118. doi: 10.1590/S1414-753X2007000200007

Clement, F., and Amezaga, J. M. (2013). Conceptualising context in institutional reforms of land and natural resource management: the case of Vietnam. *Int. J. Commons*. 7, 140. doi: 10.18352/ijc.338

Correa-García, E., Vélez-Correa, J., Zapata-Caldas, E., Vélez-Torres, I., and Figueroa-Casas, A. (2018). Territorial transformations produced by the sugarcane agroindustry in the ethnic communities of López Adentro and El Tiple, Colombia. *Land Use Policy* 76, 847–860. doi: 10.1016/j.landusepol.2018.03.026

De la Cadena, M., and Blaser, M. (eds.). (2018). *A World of Many Worlds*. Durham: Duke University Press.

De Stefano, L., Svendsen, M., Giordano, M., Steel, B. S., Brown, B., and Wolf, A. T. (2014). Water governance benchmarking: Concepts and approach framework as applied to Middle East and North Africa countries. *Water Policy*. 16, 1121–1139. doi: 10.2166/wp.2014.305

Duarte-Abadía, B., and Boelens, R. (2016). Disputes over territorial boundaries and diverging valuation languages: the Santurban hydrosocial highlands territory in Colombia. *Water Int*. 41, 15–36. doi: 10.1080/02508060.2016.1117271

Duarte-Abadía, B., Boelens, R., and Roa-Avendaño, T. (2015). Hydropower, encroachment and the re-patterning of hydrosocial territory: the case of hidrosogamoso in Colombia. *Hum. Organ*. 74, 243–254. doi: 10.17730/0018-7259-74.3.243

Fraser, N. (2009). *Scales of Justice: Reimagining Political Space in a Globalizing World*. New York: Columbia University Press.

Gallo Corredor, J. A., Humberto Pérez, E., Figueroa, R., and Figueroa Casas, A. (2021). Water quality of streams associated with artisanal gold mining; Suárez, Department of Cauca, Colombia. *Heliyon* 7, e07047. doi: 10.1016/j.heliyon.2021.e07047

Giordano, M., and Shah, T. (2014). From IWRM back to integrated water resources management. *Int. J. Water Resour. Dev*. 30, 364–376. doi: 10.1080/07900627.2013.851521

González-González, A., Villegas, J. C., Clerici, N., and Salazar, J. F. (2021). Spatial-temporal dynamics of deforestation and its drivers indicate need for locally-adapted environmental governance in Colombia. *Ecol. Indic*. 126, 107695. doi: 10.1016/j.ecolind.2021.107695

Guhl Nannetti, E. (2014). *Documento de Políticas Públicas No 42. Evolución del Ministerio de Ambiente de Colombia en sus primeros veinte años - Foro Nacional Ambiental*. Available online at: https://foronacionalambiental.org.co/publicaciones/detalle/documento-de-politica-publica-no-42-evolucion-del-ministerio-de-ambiente-de-colombia-en-sus-primeros-veinte-anos/ (accessed June 9, 2022).

Hamilton, M., and Salerno, J. (2020). Cognitive maps reveal diverse perceptions of how prescribed fire affects forests and communities. *Front. For. Glob. Change* 3, e75. doi: 10.3389/ffgc.2020.00075

Harrison, A. M. (2019). Critical governance problems for farmer-led irrigation: isomorphic mimicry and capability traps. *Water Int*. 12, 16. Available online at: https://www.water-alternatives.org/index.php/alldoc/articles/vol12/v12issue1/477-a12-1-3

Instituto de Hidrologia Meteorologia y Estudios Ambientales (2019). *Estudio Nacional del Agua 2018*. Bogota, D.C. : IDEAM, Available online at: http://documentacion.ideam.gov.co/openbiblio/bvirtual/023858/023858.html (accessed February 13, 2023).

Kumar, A., Singh, N., Cooper, S., Mdee, A., and Singhal, S. (2021). Infrastructural violence: five axes of inequities in water supply in Delhi, India. *Front. Water* 3, 727368. doi: 10.3389/frwa.2021.727368

Kuriakose, S., and Eknath, V. (2020). *Public-Private Dialogue in Business Regulation Reform*. Washington, DC: World Bank.

Lautze, J., de Silva, S., Giordano, M., and Sanford, L. (2011). Putting the cart before the horse: Water governance and IWRM: Putting the cart before the horse: Water governance and IWRM. *Nat. Resour. Forum*. 35, 1–8. doi: 10.1111/j.1477-8947.2010.01339.x

Le Billon, P. (2011). Extractive sectors and illicit financial flows: what role for revenue governance initiatives? *U4 Issue*. 1–13.

Mancila, I., and Habegger, S. (2018). El poder de la Cartografía Social en las prácticas contrahegemónicas o La Cartografía Social como estrategia para diagnosticar nuestro territorio. Universidad de Malaga, España. Available online at: http://beu.extension.unicen.edu.ar/xmlui/handle/123456789/365

McGinnis, M. D. (2011). An introduction to IAD and the language of the ostrom workshop: a simple guide to a complex framework. *Policy Stud. J*. 39, 169–183. doi: 10.1111/j.1541-0072.2010.00401.x

Mirzaei, A., Knierim, A., Fealy Nahavand, S., and Mahmoudi, H. (2017). Gap analysis of water governance in Northern Iran: a closer look into the water reservoirs. *Environ. Sci. Policy* 77, 98–106. doi: 10.1016/j.envsci.2017.08.004

Molle, F., Mollinga, P., and Wester, P. (2009). Hydraulic bureaucracies and the hydraulic mission: Flows of water, flows of power. *Water Alternat*. 2, 328–349. Available online at: https://www.water-alternatives.org/index.php/allabs/20-a-1-1-8

Molle, F., and Mollinga, P. P. (2009). Hydraulic bureaucracies and the hydraulic mission: Flows of water, flows of power. *Water Alternat*. 2, 328–349. Available online at: https://www.water-alternatives.org/index.php/allabs/65-a2-3-3

Nagheeby, M. (2020). The ghosts around the coasts: anarchy and equity in transboundary river basins. *SJPPAR* 2, e927. doi: 10.19164/sjppar.v2i1.927

Pérez Correa, F. (ed.) (2014). *Gestión pública y social del agua en México. Primera edición*. México: Universidad Nacional Autónoma de México.

Perreault, T. (2014). What kind of governance for what kind of equity? Towards a theorization of justice in water governance. *Water Int.* 39, 233–245. doi: 10.1080/02508060.2014.886843

Powell, K. (2010). Making sense of place: mapping as a multisensory research method. *Qual. Inquiry* 16, 539–555. doi: 10.1177/1077800410372600

Presidente de la Republica de Colombia (1974). *Código Nacional de Recursos Naturales Renovables y de Protección al Medio Ambiente.* Available online at: https://www.minambiente.gov.co/wp-content/uploads/2021/10/Decreto-2811-de-1974.pdf (accessed February 13, 2023).

Reed, M. S., Vella, S., Challies, E., de Vente, J., Frewer, L., Hohenwallner-Ries, D., et al. (2018). A theory of participation: what makes stakeholder and public engagement in environmental management work? A theory of participation. *Restor. Ecol.* 26, S7–S17. doi: 10.1111/rec.12541

Rochlin, J. (2021). Obstacles to mining formalization in Colombia. *Resour. Policy* 73, 102135. doi: 10.1016/j.resourpol.2021.102135

Roth Deubel, A.-N. (2002). *Políticas públicas: formulación, implementación y evaluación.* Bogota, DC: Ediciones Auroras.

Rudolph, M., and Kurian, R. (2022). Hydro-hegemony, water governance, and water security: palestinians under israeli occupation in the jordan valley, west bank. *Water Alternat.* 15, 73–92. Available online at: https://www.water-alternatives.org/index.php/alldoc/articles/vol15/v15issue1/654-a15-1-5

Rusca, M., and Cleaver, F. (2022). Unpacking everyday urbanism: practices and the making of (un)even urban waterscapes. *WIREs Water.* 9, e1581. doi: 10.1002/wat2.1581

Sánchez Torres, L. D., Galvis Castaño, A., Gandini, M. A., Almario, G., Montero, M. V., and Vergara, M. V. (2022). Commission for the Upper Cauca River Basin recovery, collaborative governance for sustainability and water security. *Front. Water* 4, 782164. doi: 10.3389/frwa.2022.782164

Schultze-Kraft, M. (2014). Why a governance perspective could contribute to improving drug policy and engaging the international development community: lessons from Colombia. *Int. J. Drug Policy* 25, 1038–1039. doi: 10.1016/j.drugpo.2013.12.011

Spencer, L., Ritchie, J., Lewis, J., and Dillon, L. (2003). *Quality in Qualitative Evaluation: A Framework For Assessing Research Evidence.* Government Chief Social Researcher's Office Occasional Papers Series No. 2.

Swyngedouw, E. (2009). The political economy and political ecology of the hydro-social cycle. *J. Contemp. Water Res. Educ.* 142, 56–60.

Thomson, F., Parada-Hernández, M., and Acero, C. (2022). Land formalization—The new magic bullet in counternarcotics? A case study of coca cultivation and tenure (in)formality from Colombia. *World Dev.* 149, 105680. doi: 10.1016/j.worlddev.2021.105680

Tongco, D. C. (2007). Purposive sampling as a tool for informant selection. *Ethnobot. Res. App.* 5, 147–158.

Valencia-Payan, C., Pencue-Fierro, E. L., Figueroa-Casas, A., and Corrales, J. C. (2018). "Multitemporal land cover change analysis in the Upper Cauca Basin in Colombia," in *Advances in Information and Communication Technologies for Adapting Agriculture to Climate Change Advances in Intelligent Systems and Computing*, eds P. Angelov, J. A. Iglesias, and J. C. Corrales (Cham: Springer International Publishing), 209–222. doi: 10.1007/978-3-319-70187-5_16

Varese, S. (2018). Los fundamentos éticos de las cosmologías indígenas. *Alhim*. 36. doi: 10.4000/alhim.6899

Vélez Torres, I., and Vélez Galeano, H. (2019). Plexos conflictivos: una visión territorial e histórica de los conflictos ambientales en la cuenca alta del río Cauca. *Rev. Colomb. Soc.* 42, 177–206. doi: 10.15446/rcs.v42n1.73181

Warner, J., Wester, P., and Bolding, A. (2008). Going with the flow: river basins as the natural units for water management? *Water Policy* 10, 121–138. doi: 10.2166/wp.2008.210

Wegerich, K., Warner, J., and Tortajada, C. (2015). The dark side of governance an introduction to the special issue. *Int. J. Water Govern.* 1, 1–6. doi: 10.7564/XX-IJWGXX

Wilson, N. J. (2014). Indigenous water governance: insights from the hydrosocial relations of the Koyukon Athabascan village of Ruby, Alaska. *Geoforum* 57, 1–11. doi: 10.1016/j.geoforum.2014.08.005

Yaka, Ö. (2019). Rethinking justice: struggles for environmental commons and the notion of socio-ecological justice. *Antipode* 51, 353–372. doi: 10.1111/anti.12422

Zwarteveen, M. (2015). *Regulating Water, Ordering Society: Practices and Politics of Water Governance. Vossiuspers, UvA.* Available online at: https://hdl.handle.net/11245/1.477464

Zwarteveen, M., Kemerink-Seyoum, J. S., Kooy, M., Evers, J., Guerrero, T. A., Batubara, B., et al. (2017). Engaging with the politics of water governance. *WIREs Water* 4, e125. doi: 10.1002/wat2.1245

Zwarteveen, M. Z., and Boelens, R. (2014). Defining, researching and struggling for water justice: some conceptual building blocks for research and action. *Water Int.* 39, 143–158. doi: 10.1080/02508060.2014.891168