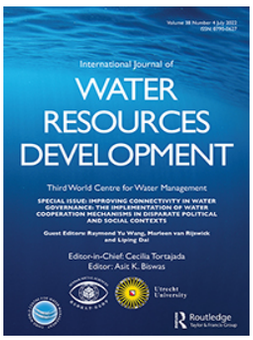

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INTRODUCTION

Improving connectivity in water governance: the implementation of water cooperation mechanisms in disparate political and social contexts

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Introduction

Water governance inevitably entails a complex bureaucratic matrix in which various functional agencies and territorially based administrative units operate at various institutional levels. These governmental actors have asymmetric rights and responsibilities, unbalanced powers, and divergent socio-economic interests, which may lead to water conflicts and governance failures. Likewise, non-governmental organizations, enterprises and community members do not necessarily concur with one another or with governmental actors on how water should be defined, used and/or transformed. The problems of disconnection and fragmentation can result in loosely institutionalized water governance systems, which may not be sufficiently equipped to render effective solutions to escalating tension and intensifying conflicts over water (Dellapenna et al., 2013; Gevers, 2018; Gupta et al., 2013; Wang et al., 2017). In response, various water cooperation mechanisms have been proposed at both international and national levels, focused on improving sustainability, efficiency, effectiveness and equality of water governance.

Existing water governance literature has given much attention to the early stages of water cooperation mechanisms, such as the formulation of goals and discourses, deliberation over formal rules, and the establishment and reform of integrated water institutions (Gleick, 2003; Global Water Partnership, 2000; Schoeman et al., 2014). However, few studies have investigated how these mechanisms are implemented at the operational level and how various actors animate cooperation in practice (Pahl-Wostl, 2020). Inadequate examination of the full policy cycle could obscure two important but understudied issues. On the one hand, various political, socio-economic and cultural factors may influence the process of implementation. It would be oversimplistic to analyse a water cooperation mechanism without closely examining its contextual configurations. In this sense, the implementation of water cooperation mechanisms is subject to complex interactions between those mechanisms and the contexts in which they operate, resulting in diverse outcomes that may not be fully consistent with policy goals (Schlager, 2016; Wang & Chen, 2021). On the other hand, the actors engaged by

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water cooperation mechanisms may not blindly follow imposed scripts. Rather, it is more empirically plausible to understand these actors as bricoleurs who constantly invent, modify and restructure water cooperation mechanisms based on whatever resources available to them (Cleaver, 2002, 2012; Wang et al., 2021). Consequently, the implementation of water cooperation mechanisms may be interpreted as ad-hoc processes contingent upon complex power relations, technologies, knowledge and institutions.

This special issue presents nine articles covering the implementation of various forms of water policies and cooperation mechanisms across states and regimes. With evidence collected in different political and societal contexts, these articles explore how water policies and cooperation mechanisms are animated and exercised in empirical settings. Their findings not only reveal previous underreported processes and dynamics of water policy implementation but also inform future water policy agenda and institutional reform, aiming to enhance governance connectivity and increase cooperation and coordination among different organizations and stakeholders across scales.

Seeking conditions for successful implementation

The search for conditions conducive to successfully implementing water policies has been a key task for many water scholars. This is necessary because policy processes are not always straightforward and thus require adjustments and contextual sensitivity. The implementation of the European Union (EU) Water Framework Directive (WFD) (Directive 2000/60/EC) provides a good example in this regard. This special issue includes two articles on how the WFD works out in practice and how implementation problems can be effectively solved by member states at the domestic level.

Wuijts et al. (2020) take two Dutch cities, Amsterdam and Rotterdam, as examples and apply a water governance assessment framework (content, organizations and realization) to examine what governance conditions may influence the realization of safe urban bathing waters. Bathing sites symbolize a healthy lifestyle and significant improvements in water quality, and have been increasingly developed by European cities over recent decades. However, their realization currently faces various challenges, such as the persistent presence of multiple potential sources of pollution; knowledge gaps regarding water-system responses; and the complexities of multiple stakeholders, interests and legal frameworks. Based on their analysis, Wuijts et al. identify five important conditions for effective governance that may contribute to the realization of bathing water objectives: (1) using incentives to initiate programmes; (2) establishing urban bathing policies; (3) clearly assigning roles and responsibilities; (4) enabling comprehensive, interactive communication between stakeholders and citizens; and (5) setting up targeted monitoring and follow-up strategies. Their article also argues that a broader perspective (beyond water) is important when assessing the effects of policy interventions and creating stakeholders' engagement. This argument resonates with the call for unpacking the interconnections between water governance and other policy domains for understanding water policy implementation (Wang et al., 2018).

The practical implementation experiences of member states are increasingly acknowledged by EU policymakers. For instance, the European Commission initiated the 'Better Regulation' agenda, including a series of commitments to evaluate and modify existing

policies with the aim of improving the quality, practicability, legitimacy and simplicity of European legislation (European Commission, 2021). Partly because of these commitments, the European Commission relies increasingly on structured feedback via evaluations and consultations to 'close the regulatory cycle' (Mastenbroek et al., 2016; Polman et al., 2020). This feedback process is termed 'reloading' by Van Eerd and Wiering (2021). They take water reuse as an example to explore how different coalitions compete in the reloading of implementation experience in EU water governance: a group of southern member states advocates policy change, whereas a group of northern member states supports maintaining the status quo. In their empirical analysis, Van Eerd and Wiering (2021) unfold some invisible processes of implementation feedback in the water sector: policy reloading is a bottom-up process in which implementation experiences are amalgamated and selected at multiple levels of governance and exchanged between countries. National representatives at the EU level are using this bottom-up experience to contribute to ongoing policy-implementation discussions. Member states strategically ally with one another to gain support and speak with a stronger voice, aiming to influence the EU's water policy process. These nuances of information reloading reveal the politics of practical implementation and show the success of EU water policy process is not as simple as it seems.

Deviation from designed policies and mechanisms

Although the paths towards expected policy outcomes are appealing, the implementation of designed policies and mechanisms has proven difficult and complex in practice. Studying the Ems–Dollard estuarine area (on the northern Dutch–German border), Van der Werf et al. (2020) consider the dynamic natural functioning of the system alongside the static laws and policies. They show that the interplay of natural processes, policy, law, economy and society's view of the natural system jointly dwarf water governance at the operational level. The article argues that the dynamic interplay between different aspects of hydro-morphodynamics – which characterizes the functioning of riverine and estuarine systems – is not supported by current regulations such as the WFD, which includes only static definitions of the natural system. In addition, current law and policy still favour economic interests over the sometimes contradictory aims of nature conservation. For example, the channels of Ems–Dollard must remain deep to enable the navigation of large ships, even though this disrupts the natural balance of the river. The underrepresentation of hydro-morphodynamic functioning and the strong economic components of current legislation and policy have thus obscured the water goals of the WFD, making successful implementation elusive (Van der Werf et al., 2020).

Relatedly, Sok et al. (2021) report on the implementation of Cambodia's open-access fishery policies, which aim to improve the sustainability of local livelihoods but have been undermined by the widespread occurrence of illegal fishing. Despite the development over time of a series of reforms to enable small-scale fisherfolk to participate in fisheries management, the goal of ensuring long-term resource-based livelihoods has not been realized because of legal, institutional and social restrictions. For example, conflicts over fishery resources and illegal fishing have persisted because fishery authorities are unable to protect legal small-scale fishery activities and prevent illegal fishery practices.

Furthermore, although the legal framework has been revised over time to improve fishery governance, it is ineffective without sufficient institutional support and cooperation among key stakeholders (Sok et al., 2021).

China offers another important empirical context in this special issue. From the perspective of institutional arrangement, Xu (2021) examines the implementation of China's water governance reform that aims to rebalance central–local relations and improve water quality. In response to problems of fragmentation caused by weak enforcement, bargaining and local opportunism (Marks, 2010; Ran, 2013, 2017), China's central government initiated a national 'vertical reform' programme in the water sector in 2016. This reform centralizes the inspection and monitoring of water quality to the provincial level, while also decentralizing the enforcement of water quality control to the municipal and county level. Focusing on water quality management in Hebei province, the article reveals that clearer responsibility divisions have enabled higher level governments (i.e., central and provincial) to collect more reliable information than before. This leaves less room for manipulation by local governments, and thus somewhat facilitates improving water quality. However, the effectiveness of this vertical reform is limited by local governments' ongoing incapability and reluctance to strongly enforce restrictive measures that may impede local economic development. In addition, the reform further widens the central–local power gap and redirects the governance model towards the conventional 'command-and-control' approach, resulting in selective implementation in practice because local governments lack incentives (Xu, 2021).

Creation of new institutions and mechanisms for connectivity

Beyond these successes and failures of water policy implementation, the Chinese context also demonstrates the emergence of improvizations and the creation of new institutions and mechanisms. This special issue includes three empirical articles reporting such improvizations and creations within government, civil society and the market, respectively.

Huang et al. (2021) unfold the complexity of central–local relations nested in large-scale water diversion infrastructure, focusing specifically on the Yangtze-to-Huai Water Transfer Project (YHWTP). From the perspective of scalar politics, they demonstrate that the involved actors (i.e., authorities at the basin, province, township and village levels) have adopted diverse scalar strategies to pursue their political interests. This has resulted in fluid politics of the YHWTP, characterized by central–local conflicts, basin-level authorities' inability to coordinate sub-basin interests, and a strong public desire for engagement in project decision-making. In response to the constant reconfiguration of power, the actors have adjusted their strategies accordingly. For example, despite its claims to power devolution, central government often acquiesces when low-level governments compete over financial investment; meanwhile, some provincial governments establish technical teams to influence decision-making and bypass the basin commission. These responses, in turn, not only stimulate the redistribution of political power but also produce material consequences in project planning, design and construction. In this sense, implementation of the YHWTP and the regional water cooperation plan is not a fixed outcome of horizontal and vertical configurations of power but is shaped by continuous, fluid and contingent interactions among various actors.

In the civil society sector, Wang et al. (2022) show how environmental non-governmental organizations (ENGOs) may create a new public participation mechanism alongside the formal water governance reform. Based on two case studies of grassroots ENGOs in southern China, their article reveals that the implementation of the 'river chief system' – which attempts to address problems of cross-sectoral, interdepartmental and transregional collaboration within government (Wang & Chen, 2020) – brings an opportunity for Chinese ENGOs by creating the role of 'civilian river chiefs'. Applying a framework of 'double embeddedness', the article argues that although environmental participation has been fragmented and spontaneous in China, the establishment of political and social legitimacy, reciprocity, and networks could allow ENGOs to be embedded in the state and in society, thus achieving sustained participation in water governance. In this sense, despite being established to address disconnection through a traditional, hierarchical and territorially based approach, the river chief system might also be transformed into co-management in the process of implementation. This could enable the state, communities and ENGOs to achieve a certain degree of synergy on water governance issues.

The water market is another mechanism increasingly promoted in China as a means to address failures in the public water system. Establishing a water market is expected to direct water towards higher value uses, increase water use efficiency and thus improve coping with challenges of water scarcity (Shen & Speed, 2009; Svensson et al., 2019). Jiang et al. (2021) explore the establishment and functioning of China's water market. They illustrate the complex interorganizational dynamics that led to the creation of the China Water Exchange as the country's first and only water trading platform at the national level. The article identifies political ideology, institutional arrangements and broader governance environments as the three major factors that influenced the creation of the China Water Exchange. More importantly, the article shows how the characteristics of this market intermediary are shaped by interactions among various actors (e.g., the Ministry of Water Resources, the Beijing Municipal Government and provincial water authorities), who act strategically under the constraints of formal and informal institutions. This dynamic process indicates that the water market mechanism is underpinned by substantial accommodation, compromises, and efforts to create mutual trust and congruent goals, despite asymmetric power and divergent political and economic interests.

Complementing the three empirical cases, Liu et al. (2020) performed a qualitative systematic review of English-language academic articles on how the Chinese government improves connectivity among administrative jurisdictions, functional agencies, industrial sectors and individual stakeholders in the water governance system. Following a step-by-step screening process, their article reveals increasing academic attention on coordination and cooperation in this system. The authors carefully selected a pool of 102 articles pertinent to the subject of governmental tools, operational mechanisms, and the applications and ramifications of different water governance approaches, all published over a 20-year period (1999–2018). The selected articles show that the Chinese government has deployed various technical, institutional, and discursive instruments – ranging from 'hard' to 'soft' – with the aim of improving connectivity among administrative levels, regions and departments. Underpinned by a powerful state, these three approaches have greatly addressed the problems of disconnection and improved water governance performance. Yet various limitations in terms of cost-effectiveness, practicality, stability, durability and transparency should

also be noted. In a rapidly changing and complex context, focusing on nuances, improvizations, and creations can enrich our understanding of the dynamics of water governance, providing greater insights than fixating on a prescribed panacea for successful outcomes.

Conclusions and prospects

With growing complexity and uncertainty against the backdrop of climatic and socio-economic changes, it is reasonable to expect the continuation of water policy and institutional reform to improve connectivity among jurisdictions, departments and sectors in water governance systems. Considering the full policy cycle, this special issue moves beyond the justification, deliberation, configuration and establishment of water cooperation mechanisms by focusing on their implementation in empirical settings. This grounded approach allows water governance scholars to situate prescribed institutional solutions in rigorous, heterogeneous and dynamic operational contexts. Supported by empirical evidence, the collected articles not only present conditions for successes and reasons for unsatisfactory deviations but also illustrate fuzzy and ad-hoc scenarios where new institutions and mechanisms are created during implementation. Their findings enhance our understanding of how water policies and institutions are animated in reality and why diverse outcomes of implementation may emerge in different social and political contexts.

To build on our attempt to unpack the process and dynamics of implementing water policies and cooperation mechanisms, two lines of inquiry warrant further investigation. One is the translation of written and formal rules in diverse social and political conditions. As Granovetter (1985, p. 487) nicely elaborated:

> Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them by the particular intersection of social categories they happen to occupy. Their attempts at purposive action are instead embedded in concrete, ongoing systems of social relations.

In this sense, the successes and failures reported in this special issue are manifestations of broader social and political structures, which may vary significantly across contexts. To explain how water policies and cooperation mechanisms are translated into practice, scholars should move beyond the assumption of institutional rational choice and particularly consider the complexity of contextual configurations and how they interact with stakeholders involved in the implementation. The combinations between various contextual variables and institutional arrangements thus have great potential to explain why similar water cooperation mechanisms operate distinctively in practice.

The other line of enquiry should probe the creation of new institutions and mechanisms in the process of implementation. Several articles in the special issue demonstrate that diverse new patterns of coordination and cooperation can emerge within government, civil society and the market during the implementation of water mechanisms. Moreover, the outcome of each new pattern is not artificially designed but characterized by its own governance settings and implementation challenges. From this perspective, much remains to be discussed on why innovations, improvisions, and transformations often emerge in the implementation of these mechanisms, which are often guided by similar principles of neoliberalism and managerial professionalism. A dialectical and relational approach might provide more insightful answers to these questions by focusing

on the continuous process of implementation, during which water policies and institutions are continuously produced by, and reproducing, power relations, knowledge, technologies and nature.

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