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Connecting place and multilevel governance for urban river restoration

Wikke Novalia ^a, Reni Suwarso^b and ling Nurdin^c

ABSTRACT

River restoration in urbanising contexts faces multiple pressures and increased governance complexities. The aspiration for basin-scale policy integration has been widely promoted but is not well tested in urbanising rivers and implementation success remains disjointed across jurisdictions. We link the multi-level governance lens with the notion of place to facilitate a deeper examination of the unique assemblages of socio-material configurations that embed restoration practices across locations. Employing an embedded qualitative case study of the Citarum revitalisation in Indonesia, where a territorialised military operation co-existed with multi-level arrangements, we show that variability, rather than consistency, of governance approaches persisted across geographies. The variabilities were shaped by different place-based conditions – critical in influencing restoration practices and governance processes – such as place leadership, attachment to river, neighbourhood stewardships, issue-based networks and a sense of legitimacy. Thus, our study challenges the normative primacy of the basin-scale integration in existing water governance research and policy, while offering a more robust and critical approach towards gathering place-based insights and in situ evidence of governance complementarity and inconsistency.

KEYWORDS

water governance; multilevel governance; territorial politics; integrated water resource management (IWRM); place

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1. INTRODUCTION

Many rivers worldwide show signs of severe pollution and ill hydrological functions (UN-Water, 2016). Urbanisation, which increases catchment imperviousness, intensifies pollution and reduces floodplain zones, has caused irreversible damage and ecosystem losses to rivers (Grill et al., 2019). Restoring rivers can increase biodiversity, provide flood protection and enhance urban landscape and wellbeing (Bernhardt & Palmer, 2007; Guimarães et al., 2021). River restoration requires governance of collective actions across multiple levels. Policy integration at the basin scale has been widely recognised in the literature as a logical approach (Meijerink & Huitema, 2017) and popularised through the Integrated Water Resource Management (IWRM) paradigm (Global Water

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Partnership, 2010). This dominant thinking amongst water management professionals emerged in the 1990s, propagated across many countries through international donor networks (Biswas, 2008). But the applicability of this conventional approach in urbanising areas is not well understood (Schmidt & Morrison, 2012; van den Brandeler et al., 2019). The role of municipalities in river governance is underexamined (Mancilla García et al., 2019) and disjointed local implementation outcomes have impeded multi-level river governance in many instances (Pacheco-Vega, 2020; Pérez-Sánchez & Senent-Aparicio, 2015).

Restoration, as one approach to river management, typically involves achieving multiple objectives and addressing multiple stressors across geographical and temporal scales. Restoration objectives may focus on allowing ‘the watercourse and its related territory ... to be more closely connected, restoring its natural processes (as much as possible) and its functional characteristics (geomorphological, physicochemical and biological)’ (Guimarães et al., 2021, p. 2). But restoring urban rivers to their natural states may be an unrealistic goal (Walsh et al., 2005). Thus, to broaden restoration goals, indicators need to ‘be established a priori’, informed by both socio-cultural and ecological outcomes (Collier, 2017).

To establish common restoration goals, it might be intuitive to promote policy integration at the basin scale, but this conventional response may ignore the underlying economic disparities, socio-cultural dynamics and potential conflicts that could engender a pervasive sense of ambiguity and uncertainty at the local level (Koop et al., 2017; Wilk et al., 2017). Moreover, water problems and solutions may exist beyond the basin boundaries (Molle, 2015). Scholars have concluded that the scalar fit of basin institutions with given problems is not a sufficient measure of water governance performance (Meijerink & Huitema, 2017). Whilst widespread, basin organisations have had mixed success with regard to driving policy implementation across multiple jurisdictions. Research shows that they might be out of touch with on-ground realities and obstacles, such as conflicts-laden community participation (Morinville & Harris, 2014) and the perennial issue of poor regulatory enforcement (Flores et al., 2019; Zhang et al., 2011). Local stakeholders may also ‘struggle to identify with the regional scale and its concerns’ (Schmidt & Morrison, 2012, p. 50).

Whilst the literature on watershed governance is vast, research on urbanising rivers is embryonic (Francis, 2012; Zingraff-Hamed et al., 2017). The importance of inter-local government cooperation in water resource management amongst rapidly growing Indonesian cities sharing a river basin has been highlighted (Rahayu et al., 2021). Other research has studied cross-level interplay between local and regional governance systems (Patterson, 2017); collaborative governance (Perera & Moglia, 2023) in tackling urban waterway issues; and community perceptions of urban rivers (Procopiuck & Rosa, 2015). In many countries, urban river restoration initiatives have been government-driven (Guimarães et al., 2021), however, success cases were associated with the co-production of knowledge and solutions with diverse stakeholder groups (Chin & Gregory, 2005; Collier, 2017; Lee & Choi, 2012; Zingraff-Hamed et al., 2017). This emerging urban river scholarship is underpinned by collective action and governance perspectives, but to our knowledge, there has been no explicit conceptualisation of the notion of *place* in relation to river governance.

Our research aims to connect place-based conditions with multi-level river governance, hypothesised as materially and socially conditioned within a given physical boundary but retaining fluid relational configurations with other geographies through the movement of people, ideas and resources. This paper asks *how might place-based dynamics shape multi-level governance processes in the context of urban river restoration?* In doing so, we offer (i) a closer look at the emergence and co-existence of a multiplicity of relations – conspicuous in urban contexts – involved in river restoration and (ii) a critical lens to unpack the changing socio-material configurations in urbanising areas, which affect how rivers are being viewed and valued. We draw on human geography scholarships focusing on what *place* means – understood as combinations of location, material and social conditions (Cresswell, 2014). We put an emphasis on *place* because the conventional notion of *scale*¹ reinforces and evokes a sense of hierarchy between ‘nested territorial

containers' (Bulkeley, 2005, p. 876), which whilst useful, might limit examination of river governance in terms of a vertical integration process. We complement this with a synthesis of foundational perspectives on the multi-level nature of river governance, which helps distinguish the underlying logic and relationships between actors and institutions across territories and jurisdictional boundaries (Hooghe & Marks, 2017). In this way, our research concentrates on an on-ground exploration of diverse place-based meanings and governance arrangements, which shape urban river restoration outcomes.

For illustration, we present an empirical study of a river restoration programme in a severely polluted Citarum basin, Indonesia, which includes two place-based cases of urbanising areas embedded within the basin. Our empirical research offers insights into how river restoration has taken a prominent territorial turn through military deployment, which centralised the command over the basin. We also show that this territorialised approach co-existed with a multiplicity of place-based priorities of the decentralised government jurisdictions and an array of place-based movements and river stewardship practices.

2. THEORETICAL BACKGROUND

2.1. Multi-level governance

Multi-level river governance has been operationalised in terms of vertical integration and horizontal coordination across administrative boundaries (Pahl-Wostl, 2009) and hydrological scales, including supra-basin, basin and sub-basin (Vall-Casas et al., 2021). Proponents argue that 'dispersion of governance across multiple jurisdictions is *more flexible* than concentration of governance in one jurisdiction' (Hooghe & Marks, 2017, p. 235). This is a clear departure from a monocentric model, in which control is exercised by the centralised state (Termeer et al., 2010). The shift towards a more decentralised model emphasises local dynamics (Staddon et al., 2017; Van de Meene et al., 2011), yet local governance has mostly been studied in a functional and managerial sense (Clifford-Holmes et al., 2016).

Conceptually, it is useful to revisit the proposition that distinguishes multi-level governance into two ideal types (Hooghe & Marks, 2017). Type I governance involves a limited number of nested jurisdictional levels. This is based on federalism, involving power sharing between the central government and a few levels of subnational governments. Although decision-making is shared, local authorities have the so-called 'general purpose jurisdictions', providing a wide range of functions to their communities (Hooghe & Marks, 2017). Membership in Type I is defined by territories with durable boundaries, that do not overlap at any level, e.g., national states, regional and local governments.

By contrast, Type II involves a vast number of specialised jurisdictions, which carry out distinct tasks (Hooghe & Marks, 2017). Restoring rivers may involve specialised organisations, such as basin authorities, intergovernmental task forces, global communities of water practitioners, water user associations, industrial associations, water resource managers, law enforcement, health services, community associations, etc. Each may carry out distinct tasks, which may overlap, complement, or compete with one another. This layering effect of 'jurisdictions on diverse scales' is akin to 'a marble cake' (Hooghe & Marks, 2017, p. 238). Constituencies within these jurisdictions are those sharing geographical space and functional concerns, that need a collective mechanism for decision-making. Typically, these jurisdictions are policy-driven and emerged in an ad hoc fashion, in response to public demands. In other words, they are designed to be flexible and impermanent, i.e., they may be discontinued when public needs are no longer there.

Table 1 summarises key aspects of these multi-level governance types. The approaches may complement one another to accomplish different goals. Thus, it is less about choosing one over the other, but more about understanding trade-offs and finding complementarities between them. In the context of a common pool resource, such as a river, it is not unusual that Type I

Table 1. Types of multi-level governance.

Aspects	Type I	Type II
Number of levels	Limited	Vast
Structure	Nested, hierarchical	Multiple, independent, competitive, polycentric
Purpose	General jurisdictions covering a wide range of functions	Specialised jurisdictions focused on distinct functions
Membership	By territorial boundaries No intersections across levels	By functional associations/goal orientation Intersections across levels/borders
Geographical scope	Mutually exclusive, cascading i.e., territorial scale of jurisdiction decreases across levels	Overlapping with variations in territorial scale, from global, interstate, regional, sub-municipal; organised by policy problems
Design	Systemwide, durable architecture, which is stable over a long period of time (although allocation of competencies across levels are flexible)	Flexible units, ad hoc, impermanent (come and go as demands for governance change)

Source: Hooghe and Marks's (2017) ideal typical multilevel governance approaches.

co-exists with Type II. Whilst these governance types presented are not new, this insight helps unpack the territorial and/or jurisdictional logics that underpin a given approach.

In an authoritarian political regime, like Indonesia during Soeharto's rule, top-down policy implementation, as hypothesised in Type I, was dominant. Following Soeharto's fall and political reforms in 1998, Indonesia transitioned towards a more decentralised regime, which is characterised by pluralistic conditions and messy state-society relations (Novalia et al., 2021) and overlapping networks of political-economic interests across national and local levels (Hadiz, 2004). No central government agencies can wield sufficient authoritative power to enforce implementation across multiple jurisdictions. The responsibility for policy implementation is devolved to local governments. For example, local authorities may undertake physical and infrastructure improvements for riverbank communities (Wicaksono, 2020). Municipalities may issue warnings, impose sanctions, or even take criminal actions against polluters within their jurisdictions.

Following Type II logic, multiple organisations and specialised jurisdictions may work in an overlapping fashion and semi-autonomously to tackle common problems. Basin organisations may be established as special purpose jurisdictions, working alongside governments, to coordinate action. Depending on the geographical boundaries of a country or a region, one or many basin organisations may be established. In Indonesia, river basin management planning is based on Water Resources Law No. 17/2017 and regulations issued by the Ministry of Public Works and Housing. It features a 'one basin-one plan-and one management' principle for 131 river basin territories (Rahayu et al., 2021, p. 775). The implementation units for watershed management consist of four overlapping task-based and territorial agencies. Embedded within the Ministry of Public Works, the following agencies share responsibilities over basin-level planning and coordination (1) *Balai Besar Wilayah Sungai (BBWS)* and *Balai Wilayah Sungai (BWS)*. State-owned corporations, (2) *Perum Jasa Tirta (PJT)*, are set up to operate and maintain basin scale infrastructure and provide water related services, including, but not limited to, bulk supply, flood management and hydrological monitoring. At the provincial level, (3) *Balai Pengelola SDA (BPSDA)* play administrative and technical roles in the management of river(s) and water

resources (e.g., allocation, conservation, development, flood risk management and irrigation services) across municipalities. At the municipal level, (4) water-related technical units have responsibilities related to management of river(s) and water resources within their jurisdictional boundaries.

Furthermore, river restoration involves multiple sectors and private operators to deliver water- and waste-related services, such as planning and development control, sewerage systems, solid waste management, pollution monitoring, wastewater treatment systems, etc. Such cross-sectoral coordination is challenging in a multi-level context, not just in terms of allocating responsibilities and developing common goals, but in negotiating layers of involvement where overlapping functions and jurisdictions prevail. Thus, policy implementation in the context of multi-level river governance can involve varying degrees of Type I and Type II logics, depending on specific place-based conditions.

2.2. Place-based approach

Place cannot be understood as a static backdrop or merely in terms of areas with locational boundaries around them (Massey, 1991). Human geographers have highlighted the open and interconnected character of place (Malpas, 2018) and studied them in terms of flow, connectivity and plural spatial connections (Amin, 2004). Yet, place is not a boundless concept. The structure of a place may be constituted by a combination of different elements, including physical landscape, social and cultural features, through which action and experience is created (Malpas, 2018). In a similar vein, place has been defined as a 'meaningful location' (Cresswell, 2014). Thus, places are material things with meanings that are subjective to people.

In emphasising *place*, we offer a broader conception of rivers as 'the product of wider relations' (Massey, 2004, p. 10), which departs from a narrow portrayal of rivers in terms of biophysical territories, common in much of the existing watershed governance literature focussing on the basin. Whilst intuitive, the basin boundary oversimplifies what restoration objectives and practices may entail with regard to the varied and plural nature of place. A strictly nested view of different locations under the basin scale evokes subordination to higher level jurisdictions. By this logic, the hierarchy confines cross-level interactions into the downward enforcement of rules and imposition of programmes, which constrain or override other governance mechanisms. Restoration initiatives are translated into programmes and targets to be realised within territorially bounded physical locations, e.g., riverbanks, sub-catchments, some river sections, or across nested jurisdictions, e.g., national, municipalities and villages.

Urbanisation has brought upon a particular assemblage of socio-material configurations that affect how rivers and waterways are viewed and valued. Undergrounded and disappearing waterways become the norm in many modern cities (Teh, 2011) as have prevailing views of water-courses as dumping grounds or drains for flood conveyance purposes (Novalia et al., 2022). Place is, thus, 'a way of seeing, knowing, and understanding the world' (Cresswell, 2014). A sense of place also facilitates the emergence of other worldviews, knowledge and meanings, which underpin action-taking. For example, scholars have shown the importance of a sense of place and practice of place in shaping 'riverhood' that underpins new water justice movements, which promote alternative governance models and river communing initiatives (Boelens et al., 2022). Boelens and colleagues argue that translocal riverine justice coalitions play a transformative role by travelling and networking horizontally and vertically to challenge expert-driven hydrocracies.

To be clear, territorial boundaries remain important for restoration practices. Territorialisation can serve as a mechanism to delineate responsibilities, authorised through the exercise of political ruling and enactment of binding decisions on the population (Jessop, 2016). Through a process of territorialisation, hydrosocial boundaries are not inherently fixed to a particular scale, but could be transformed and reproduced through negotiation and struggle (Boelens

et al., 2016). But difficulties can arise when such territorial boundedness is strictly interpreted in terms of physical locations or rigid interrelationships between higher and lower-level jurisdictions. From a planning perspective, this dominant discourse on nested hierarchy conjures the so-called ‘territorial trap’ (Faludi, 2012). The discourses through which place is defined, thus, convey important meanings and establish normative codes for decision-making and how river restoration ought to be carried out.

Transcending this requires conceiving place-based river governance in terms of bounded territories and fluid relational ties across levels and jurisdictions. From an urban planning scholarship, Healey (2013) views implementation in terms of multiple interactions between different sets of actors, involved in a negotiation over how various principles and norms (within given plans) were taken up and used in practice. While the multi-level governance accentuates a normative call for enhancing vertical integration and horizontal coordination, the place-based approach interrogates this assumption and pays a closer look at the multiplicity of relations, coordination included, but also tensions, competitions, or conflicts. A myriad of relational entanglements co-exist in shaping the riverscapes. We argue that place-based analysis can lead to a more robust interpretation of multi-level governance challenges through a critical examination of the unique assemblages of socio-material configurations – how these, in turn, mould and colour how rivers are being valued across different locations.

3. METHODOLOGY

To develop insights into the multiplicity of governance modes and socio-material configurations shaping the Citarum river restoration, we employed an embedded qualitative case design (Yin, 2009). This design included a single overall case with two embedded units of analysis as shown in Figure 1. This allowed a deep dive into the embedded units whilst situating the findings

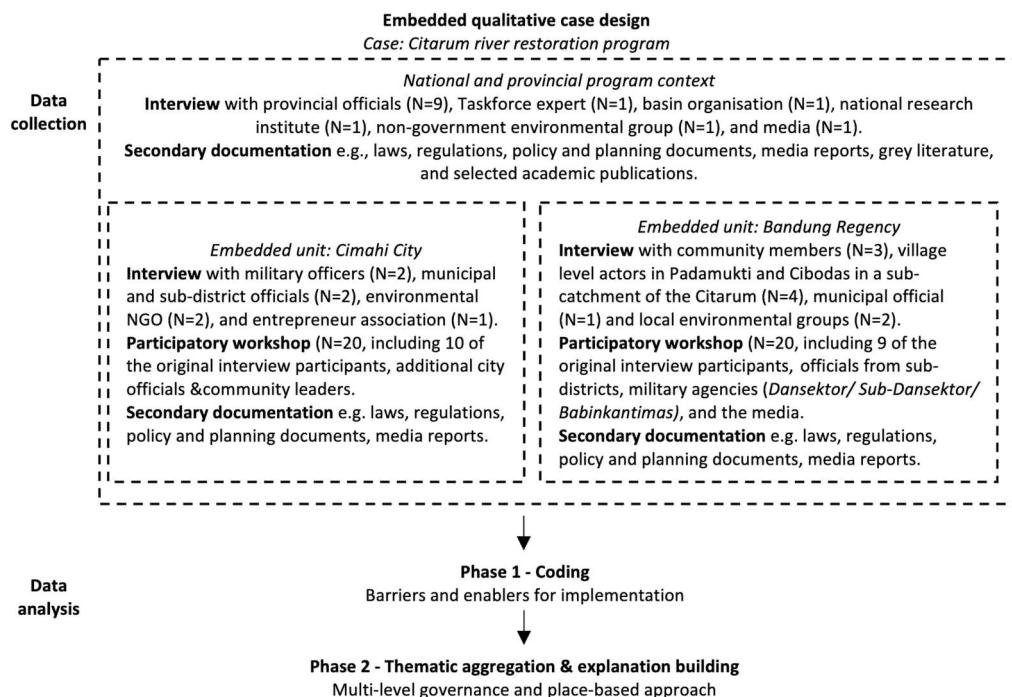


Figure 1. Research design.

within the broader basin context, reflective of the multi-level governance setting of the programme.

3.1. Case selection

Our study examined the implementation of the river restoration programme in Citarum – one of the largest rivers in Indonesia and considered the most polluted in the world. The Citarum stretches out around 12 km², divided into 19 sub-basin areas across 13 administrative jurisdictions. The national government enacted a Presidential Regulation in 2018 to implement the basin-scale programme, titled the '*Citarum Harum*' (or 'Fragrant Citarum'). This programme is the latest in a series of iterations of the IWRM approach in the Citarum (see Section 4.1). This case offers insights into how the programme has taken a prominent territorial approach through military deployment while highlighting the co-existence of multiple governance types.

The implementation of the restoration programme was analysed in two place-based cases within the Citarum, reflecting the embedded case design. The two embedded units of analysis were Cimahi City and Bandung Regency (see Figure 2 for their locations and more contextual details are presented in Section 4.2). The two municipalities were amongst the biggest polluters, in terms of domestic, agricultural and industrial wastewater and solid waste, in the basin (Kusuma et al., 2018). The purpose of the embedded cases was to expand understanding of the variations in place-based conditions, rather than to compare performances across the municipalities per se. Our study was exploratory, and we have chosen a diversity of places to broaden our understanding. This limits the generalisability of our findings but allows us to examine a range of place-based practices within the same basin and national regime. We also note that our findings are not a comprehensive account of the role of place but offer empirically grounded perspectives on how place-based conditions influence river restoration processes.

3.2. Data collection and analysis

Data collection involved multiple methods as outlined in Figure 1. We employed a purposeful method to identify research participants involved in and impacted by the programme. This

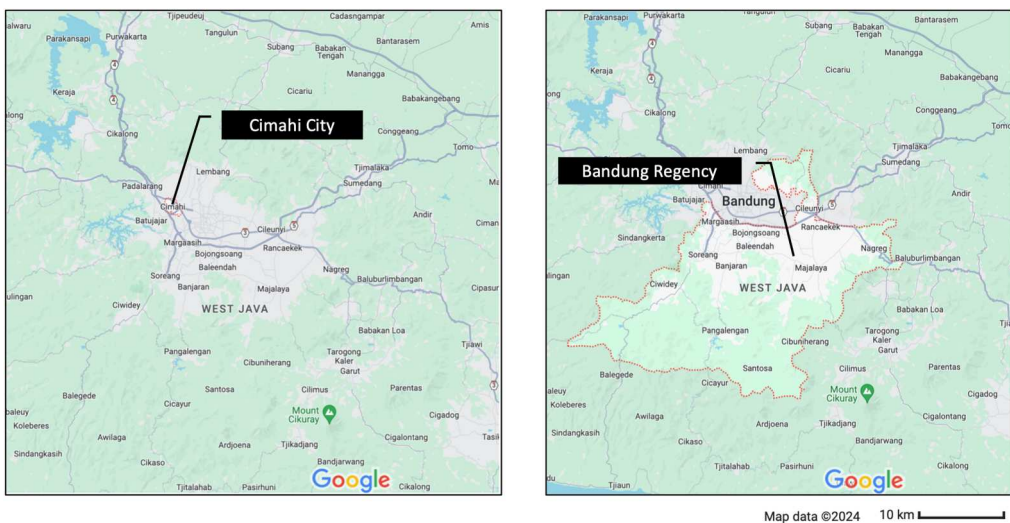


Figure 2. Locations of embedded cases: Cimahi City and Bandung Regency (red lines show administrative boundaries).

Source: Google (2024) *Cimahi City* and *Bandung Regency*. Available at <https://maps.google.com>.

sampling captured a wide range of perspectives across government levels and different groups of actors, e.g., government officials, military personnel, community members, non-governmental organisations (NGOs), media and professional associations. The interviews were conducted from September 2021 to April 2022.

The interviews were semi-structured, designed to unpack participants' knowledge and experience of the programme and identify examples of restoration efforts. The typical duration was about one hour. We explored key themes to identify roles played by different actor groups, main implementation challenges, specific actions taken to support on-ground implementation, and factors influencing multi-level coordination. We asked government officials to reflect on their direct experience of coordinating with the Taskforce, which revealed barriers and enablers in the multi-level relationships. Due to pandemic restrictions on international travel, the lead author conducted the interviews virtually. Most interviews were conducted in a hybrid mode—a mix of in person and virtual meetings—where team members based in West Java met informants in person, following health protocols. Interviews were mainly conducted in Bahasa Indonesia, with a mix of local Sundanese language in some cases. The interviews were audio and video recorded with consent and transcribed verbatim. Field notes were taken in each session by the lead researcher.

Two half-day hybrid workshops were conducted on 12–13 December 2021 in Cimahi City and Bandung Regency. The workshops were designed following the preliminary analysis of the interview results, which were the basis for the presentation material. The workshops followed a similar format where the lead researcher provided a presentation on research findings and a short video, showcasing the interview data. Following this, the second author, who participated in person, facilitated a group discussion, creating opportunities for participants to reflect on the preliminary findings and provide feedback. In the first workshop, an additional step involving smaller discussions (5–6 participants per group) was undertaken. The workshops were conducted in Bahasa Indonesia and video recorded. Workshops' minutes were taken by two field members. On 20 September 2022, a dissemination workshop was held at the Citarum Taskforce office, attended by officials from the central government offices, West Java Province, Bandung Regency and Cimahi City. The workshop discussed research results written in the form of policy recommendations (Suwarso et al., 2022).

Secondary data was reviewed based on desktop search and content analysis of relevant laws, regulations, policy and planning documents, media reports, grey literature and selected academic publications. This data facilitated the construction of the case context and served as a means for evidence triangulation. Research data were uploaded to NVivo, a qualitative research analysis software.

We adopt abductive reasoning to move back and forth between inductive analysis of our empirical data and verification of our theoretical positions (Pietarinen & Bellucci, 2014). Qualitative techniques, including coding, thematic aggregation and interpretation (Bryman, 2012) were employed. Coding was performed by the lead researcher and interpretative notes were taken. The initial coding developed categories of barriers and enablers for implementation (e.g., leadership, formal structure, law enforcement, participation, resource availability, etc.). Codes were progressively refined as more data were analysed and shared with other team members, where similarities and differences across statements and interpretations were compared and became internally consistent. The thematic aggregation and explanation building phase were grounded in the Phase 1 results. Following the abductive reasoning, we linked our empirically derived barriers and enablers with the multi-level governance and place-based perspectives and refined our interpretations. This analysis involved building case narratives and identifying explanatory factors on how each site of implementation was bounded (or territorialised) and what and how relational ties were formed to achieve outcomes. The explanation building involved an iterative process to ensure a high degree of internal consistency. Results were shared with other team

members following a peer debriefing and member checking processes (Creswell, 2007) to discuss commonalities and discrepancies between the researchers, which reduced subjectivity and increased internal validity. In the workshops, we followed a qualitative validation approach in which participants' feedback was solicited on the preliminary findings to weigh in on the credibility and validity of the interpretations. Whilst steps have been taken to triangulate evidence from multiple sources and to reduce researchers' biases, we recognise that the findings presented are not entirely free of interpretations.

4. RESEARCH CONTEXTS

4.1. The upper Citarum basin and the emergence of Citarum Harum

The upper Citarum shoulders much of the urban growth in the region. It is host to the Bandung Metropolitan Area (BMA), which includes Bandung City, Cimahi City, Bandung Regency and West Bandung Regency. The BMA has driven economic growths, which pose significant pressures to sustainable development (Tarigan et al., 2016). There is a high concentration of industries in the region. Some 3000 textile factories produce untreated sewage, which is discharged daily into the river (Kusuma et al., 2018). Rapid population growth has compounded river pollution due to limited domestic sewage and solid waste collection and treatment services (Citarum Taskforce, 2019). Open defecation is practised along the river, while 78% of solid waste in the basin is generated in the BMA (Citarum Taskforce, 2019). Pollution in Citarum has a range of negative impacts, including unsafe water supply and water-related diseases, common amongst communities in direct contact with the polluted river through daily consumption or their livelihoods (Kurniawan et al., 2018).

For three decades the Indonesian governments have grappled with these complex socio-ecological problems. Several basin-scale programmes were funded through international loans and direct government subsidies. In 2002, the Governor of West Java, launched the 'Citarum Bergelar' programme. In 2008 there was the Integrated Citarum Water Resources Management Investment Program funded by the Asian Development Bank (ADB), producing a roadmap called 'Cita Citarum', which adopted an IWRM approach. In 2010, the Japan International Cooperation Agency facilitated the Upper Citarum Basin Flood Management Program. In 2013, the West Java Provincial Government launched the 'Citarum Bestari' programme employing a philosophical and socio-cultural approach. These past programmes have not yielded satisfactory outcomes. Reflecting on lessons learned from its investment programme, the ADB reports there have been no significant increases in budget allocation by provincial and local governments (ADB, 2018).

Our research focuses on the latest programme, the *Citarum Harum*, with a short implementation timeframe of 7 years to improve river quality. The President, Joko Widodo, enacted Presidential Regulation Number 15 Year 2018 to accelerate pollution control. Basin-scale coordination is central to this programme (see Figure 3). The regulation establishes the Citarum Taskforce as a basin coordinator, reporting directly to the President. Specifically, this regulation establishes a military-like management structure for the programme, employing a command-and-control approach in the mission delivery. The Taskforce is authorised to develop an Action Plan (or *Rencana Aksi*) and establish working areas for implementation based on 22 military sectors, plus one sector specifically targeting the upper stream planting and revitalisation.

Although the programme was designed to be multi-level, in practice a command-and-control approach prevailed. The involvement of military forces was unprecedented in the context of an environmental programme in Indonesia. This signalled a political push by the government to drive implementation within a short timeframe. The military was mobilised under an extraordinary 'emergency' circumstance. Social pressures and political drivers appeared as antecedents. A social media campaign by French citizen journalists caught national attention and set the scene

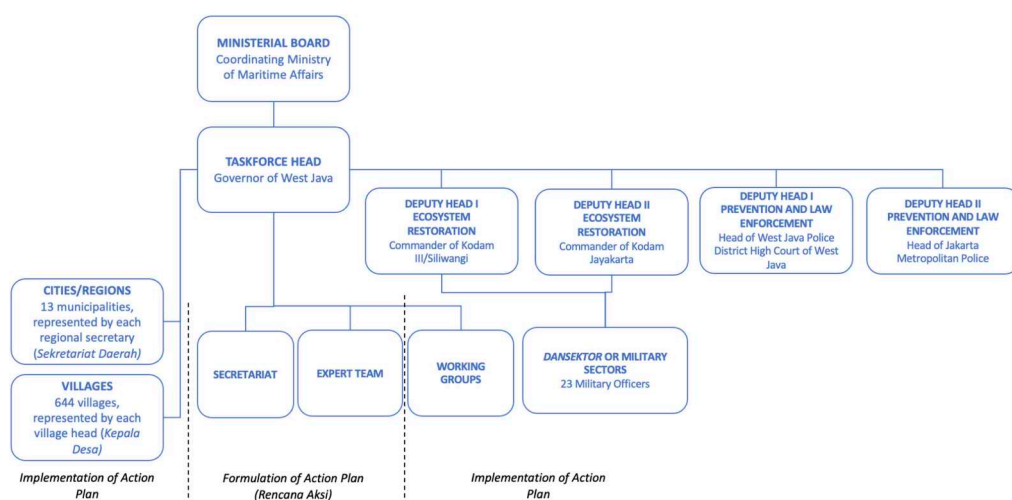


Figure 3. Formal coordination structure of the Citarum Taskforce.

Source: Adapted from Citarum Taskforce coordination and implementation directives outlined in Presidential Regulation No.15/2018 and Citarum Action Plan 2019–2025.

for the Presidential tour of the Citarum (Taylor, 2018). Lieutenant General Monardo – head of the Kodam III/Siliwangi – raised the idea to launch the *Citarum Harum* programme with the President, which was followed by the enactment of the Presidential Regulation.

4.2. Embedded cases: Cimahi City and Bandung Regency

Cimahi City is one of the smallest municipalities in West Java with an area of about 40,48 km² and a population of 575,235 (Statistics of Cimahi Municipality, 2023). It is one of the most urbanised, second only to the West Javan capital, Bandung City (Tarigan et al., 2016). There are 15 sub-districts (*Kelurahan*) identified as priorities for the Citarum Action implementation, being driven by two military sectors. Since the colonial period, Cimahi has been a military city with almost 60–70% of the area dominated by military buildings, schools and hospitals. Textile industries are dominant and the service sector is growing. There are some agricultural lands spread throughout the city. In terms of pollution reduction, Cimahi has recently put in place policy frameworks on solid waste management (*Peraturan Daerah Kota Cimahi No. 6 Tahun 2019*) and development of community-based sanitation systems (*Peraturan Walikota Cimahi No. 14 Tahun 2019*), which demonstrate alignment with the Citarum programme. Nonetheless, solid waste management remains challenging as the final disposal facility (*TPA Sarimukti*), with a capacity of about 165 tonnes per day, is overloaded with more than 275 tonnes of waste generated per day (Pemerintah Kota Cimahi, 2023).

Bandung Regency covers a much larger area of 1762.40 km² with about 3.6 million population (Statistics of Bandung Regency, 2022). Its topography is mountainous with elevation ranging from 500–1800 m. The revised Citarum Action Plan identified 277 villages within this regency as priority and implementation is driven by nine military sectors (Citarum Taskforce, 2021). Designated as a buffer zone, land use is prioritised for nature conservation, agriculture and non-agricultural activities (e.g., roads, industries, residential). About 53% of the land is agricultural, while some 33% are reserved for conservation. The regency is less urbanised than Cimahi. The conservation zone is important for the hydrological system, providing rainwater recharge and catchment functions for freshwater storage and flood control. Agriculture is an important economic driver with specialised commodities such as strawberries, coffee and milk

products. The Majalaya district in Bandung is an established centre for textile industries (Argo, 2015). An industrial wastewater treatment facility for Majalaya has been included in the regional infrastructure plan. Solid waste management is an important issue due to the growing population, economic growth and challenging topographies of the region. The municipality has released a related guidance document, which provides references for multi-level policy and regulatory frameworks at national and local levels, however, the implementation remains weak.

5. RESULTS

In this section, we present the analysis of the co-existence of multiple governance types observed in the Citarum programme and identify the place-based conditions that influence the river restoration (see a summary of the findings in Table 2).

5.1. Enforcement through militarised territories

According to our military interviewee, about 1700 personnel were deployed in the beginning to perform physical upkeep and stop industrial polluters. The Citarum was divided into 22 work areas, aligned with the military sectors (see Figure 4). A commissioned military officer led each sector. The military followed a strictly hierarchical and territorial order, delivering immediate outcomes, such as solid waste removal in the river channel and reduction of industrial pollution. This success reinforced a worldview that the military was more effective compared to the sluggish bureaucrats. One interviewee used the metaphor of *'tabu bulat'* (a popular street snack cooked promptly as per order) to describe the military operation, characterising its exceptional responsiveness. However, the number of field personnel and funding for the military operation has gradually declined, particularly in the context of the pandemic (interview with an environmental organisation, Cimahi).

In dealing with industrial polluters, the military exercised coercive forces, which involved physically blocking discharge pipes from factories and utilising social media to publicise and set examples to deter polluters. Some interviewees argued in favour of the command-and-control approach, considering it appropriate for the Indonesian context:

The leadership of the Indonesian National Army (TNI) is very necessary because the people here really respect and listen to the advice of army commanders and soldiers ... only the army has the courage to take direct action against industries, businesses and communities that dump waste into the river. (Community leader, Bandung Regency)

Development in Indonesia has been shaped by a deep network of strong political, business and military elites (Kosandi & Wahono, 2020). Industrial expansion across West Java has forced out agricultural landowners (interview with a military officer, Cimahi). These elites entrenched land ownership and backed (polluting) industrial activities in the region. For this reason, the military's involvement gave the state a tool for 'cracking down' on hard pollution cases.

There was evidence that some industries, nevertheless, found ways to get around this enforcement strategy (e.g., discharging their pollution during heavy rains). Bribery practices have been a perennial issue in the past (see Suwarso et al., 2022), and remained a problem because industrial polluters can buy their way out with a fraction of the cost of installing a wastewater system. An industry association highlighted that amongst private businesses there was an understanding of the pollution damages, but little financial incentive to transition toward cleaner productions. There were also smaller industrial facilities along the river – many in Cimahi City were too constrained, in the economic and spatial senses, to afford an individual wastewater system and would be forced out of business (interview with Cimahi's entrepreneurs association).

With regards to domestic pollution, blame was consistently placed on the so-called environmentally unconscious community, illustrated below:

Table 2. Connecting multi-level governance with place-based conditions.

Governance modes	Approaches to navigating multilevel relationships	Place-based dynamics
Type I – Enforcement through militarised territories	Rigid military territories superimposed on river basin boundaries, ruled by physical means and social control through a prominently hierarchical approach.	<p>The imposition of Type I military control was more suitable in the Cimahi context, with the unique combination of the following socio-material configurations:</p> <ul style="list-style-type: none">• historically entrenched military power, playing a strong symbolic role and having an extensive physical presence across the city to enforce pollution control,• a relatively small urban area and river territories overseen by two military sectors, facilitating quick removals of waste and monitoring of pollution,• a closer interface between military, city officials, academia and industry players, which sowed a loose network of collaboration on greener industries. <p>The approach was not well suited to the Bandung region with greater river territories to look after and shared by larger numbers of military sectors and geographically more dispersed sources of pollution across a mix of urbanising population and remaining agricultural communities. Political fragmentation also lessened the influence that military might have over local powerholders.</p>

(Continued)

Table 2. Continued.

Governance modes	Approaches to navigating multilevel relationships	Place-based dynamics
Type II – Muddling about in cross-jurisdictional ambiguities	Bioregional overlaps between river basin and administrative boundaries of cities, regencies and villages, ruled by decentralised governments with relative political autonomies from higher level governments and shared responsibilities in addressing environmental degradation; cross-level interplay appeals to the normative aspirations for vertical integration and horizontal coordination of collective actions.	<p>Across Cimahi city and Bandung region – both represent politically autonomous decentralised governments – the Type II flexible and ad hoc coordination exercise holds no power over local offices. The normative call for policy integration was clear and the Taskforce has established programme-level priorities by involving relevant government agencies, but the restoration programme shows a low level of place-based legitimacy. Similar across both contexts, the dominant socio-material configurations include:</p> <ul style="list-style-type: none"> • a sense of disconnect between programme-level objectives and preferred on-ground developmental priorities, driven by local socio-political needs and aspirations, • lack of technical and fiscal capacity of lower-level governments leading to missed opportunities to link with strategic national/provincial programmes and funding on environment and infrastructure development, • a strong sense of autonomy across decentralised governments over how developmental priorities are set and contextualised within a given location, which may lead to inconsistent relationships across levels.

(Continued)

Table 2. Continued.

Governance modes	Approaches to navigating multilevel relationships	Place-based dynamics
Type II – Emerging self-organisation and collaborative networks	Specific physical locations or sites (e.g., neighbourhood units, villages, river bodies) situated within the basin or locally manifested river-related issues/problems, which hold important meanings and values for different group(s) or networks of non-state actors and/or governments across different jurisdictions; the sense of place and attachment to those sites, in turn, embed specific environmental values and restorative practices.	<p>Across Cimahi city and Bandung region, there were emerging and sporadic patterns of Type II polycentric arrangements, consisting of self-organised and semi-autonomous communities driving collective actions to address river pollution within their localities. In Cimahi, community-based initiatives took place in the neighbourhood units (or <i>RW</i>) whereas in Bandung the villages (or <i>desa</i>) were important sites of intervention. Despite geographical differences, the initiatives were influenced by some place-based configurations, including:</p> <ul style="list-style-type: none"> • a sense of place and stewardship for enrolling communities and fostering participation; collective actions were framed in in terms of contributing towards better quality neighbourhoods and built upon emotional attachment with the river and/or neighbourhood, • place leadership in the formal and informal sense and with sensitivity to the varied conditions appear as key to connecting multiple actors around common issues, • ambivalent discourses surrounding community participation, where communities were portrayed in either a positive or negative light. This leads to inconsistencies across different locations and require tailored approaches to fostering participation.

In Cimahi City there is already Regional Regulation No. 12/2015 regarding Domestic Wastewater Management. But it is very difficult to implement this regulation. In fact, there are those who deliberately go against the rules by continuing to throw their domestic wastewater into the river. (Environmental officer, Cimahi)

I can take the example of Citarik, those living on the banks of Citarik they will take care of the environment but ... those who just pass by while going to work or doing something else, they throw their garbage

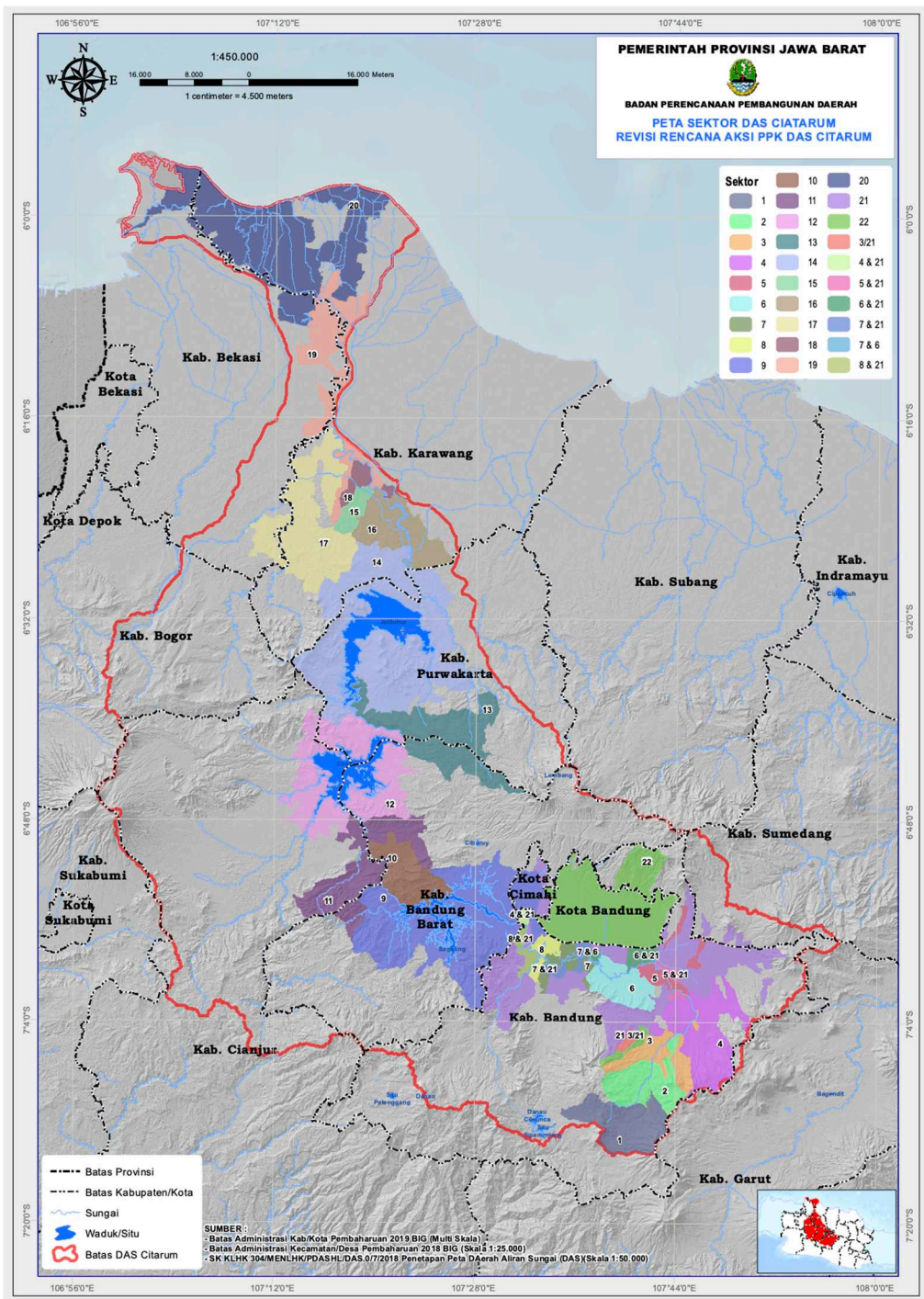


Figure 4 Military sectors in Citarum.

Source: Citarum Taskforce, 2021.

without any thoughts ... we need to socially engage and approach not just communities living on the riverbanks but also those outside. (Community leader, Bandung Regency)

The military enforced behavioural change through what they termed 'shock therapy', including small fines and physical punishment (e.g., push ups, sweeping the pedestrian, collecting rubbish, washing the litter bin, etc.). One officer in Cimahi suggested that effective monitoring and enforcement involved social sanctions, e.g., making the sanction public in front of others or through social media. The military employed territorial strategies including establishing site boundaries, military bases, deploying soldiers and daily reporting within their sectors. In this way they could closely monitor the behaviours of the population. For some, this territorial and social order was considered appropriate in the context of a low trust society, where rule-breaking was common and law enforcement poor.

This dominant Type I approach was suited to Cimahi, which was territorially controlled by two military sectors. Since colonial time Cimahi has been a key military base in West Java. The military held a prominent position, embodied through the physical presence of military-centric facilities across the city and strong ties between the military, academics and industries. By contrast, the Bandung Region involved nine sectors. A key challenge in Bandung is that the population was spread across a wide geographical area. A military officer shared his experience of implementing animal waste programme in one district in Bandung:

Pangalengan has about 14,000 animals, each generating 25 kg of waste discharged directly into the river. Until now this has not been addressed, we have not been able to manage it. I was posted there for 2 years but failed because of the dispersed population, which couldn't be integrated. (Military officer)

5.2. Muddling about in cross-jurisdictional ambiguities

According to Law Number 23/2014, local governments are administratively required to support strategic national programmes, while the national government is required to empower and facilitate municipalities in implementing state policies. Municipalities were considered as Taskforce members but with ambiguous roles. Higher-level officials viewed municipalities as implementers of targets set by the Taskforce (interview with Taskforce). Whilst this might suit an autocratic system, the underlying conditions of Indonesian politics mean that the national and provincial governments cannot enforce implementation at the municipal level. A recent revision to the programme proposed through the West Java Governor Regulation No. 37/2021, aims to rectify this issue, and enhance multi-level coordination by assigning Regional Secretaries (at both provincial and municipal levels) as counterparts and contact points for policy programming and implementation. The challenge is illustrated below:

Problem is no coordination, so we gathered the provincial government, Bandung Regency, Bandung City, and Cimahi City to discuss the issue of autonomy to clarify responsibilities in each jurisdiction. There is still sectoral ego and 'raja-raja kecil' ['small kings' referring to powerful local leaders] in policy making, for instance a regent overseeing minimum budget with no involvement of national and provincial government will give more priority to other agendas that they consider more important. (River authority official)

The dominance of the military also created tensions with municipal jurisdictions. The national fund has been largely funnelled to support the military. The Taskforce holds a coordination-related operational budget but does not control the programme budget. There was no direct budgeting for supporting programme implementation by municipalities, as the expectation was for municipalities to reallocate regional funds towards the national programme. Although

municipalities of Cimahi and Bandung have allocated funding towards some river-related programmes within their jurisdictions, these were not well-coordinated.

Another key barrier is that municipalities were characterised by higher-level officials as poor performers – with weak planning and technical capacity to develop projects and proposals that could tap into earmarked national budgets held by specific ministerial sectors and national government agencies. The norm is that funding from relevant ministerial agencies must be administered all the way to the district level. This fuelled a vicious cycle of under-resourcing and dissatisfaction across governance levels:

I have brought this up—that municipal governments need to develop proposals and ideas to be presented to higher level [government agencies], I've raised this multiple times but it's not yet working. This circumstance leads to a question about municipal governments. I'd say that their participation is extremely low, this lack of planning capacity is a problem for municipal governments. (Taskforce expert)

Besides municipalities, village governments in the Bandung Regency, were identified as key enablers in community-based initiatives through the allocation of village funds or land grants for infrastructure sites. Village funds may cover infrastructure construction, but according to existing rules, it cannot be utilised for operational and maintenance costs of solid waste collection systems (e.g., wages for operators and managers of the facilities). Whilst waste services are vital, existing waste management facilities (*TPS3R*) struggled to make financial returns as collection rates tend to be low and poor communities might be reluctant to pay for these services. With no working business model and existing rules preventing the utilisation of village funds for non-staff personnel, community-driven services remain unfeasible in the long run. Some respondents suggested that there should be transparent and participatory budgeting processes with clear allocation rules, which could increase trust and cooperation between the community and the village governments.

The relationship between higher and lower-level governments represents Type II relationships, where geographical and functional concerns over river restoration are shared, but each lower-level jurisdiction responds to place-based drivers and distinct sets of priorities. The latter may overlap, complement, or compete with a higher level agenda. Although the Taskforce has established a collective mechanism for decision making and enhancing synergies, our interviews reveal that coordination emerged in an ad hoc manner and the programme has low place-based legitimacy across both study areas. Local politics in each autonomous municipal office mean that the improvement of the riverscapes competes with many other place-based development priorities (e.g., roads, health, education) for limited funding. There were no set rules specifying how municipal or village funds should be allocated towards the programme. We found that the local powerholders tend to support place-based issues urgent to them, notably to fulfil campaign promises.

5.3. Emerging self-organisation and collaborative networks

Across Cimahi and Bandung, self-organising communities have mobilised to lessen pollution within their localities. Their activities ranged from door-to-door education campaigns across neighbourhoods aimed at behavioural change; development of small-scale infrastructures and innovations (e.g., zero waste movements, black flies technology); and river patrols to monitor pollution. In Cimahi, an environmental organisation conducted pollution investigations in some tributaries and provided recommendations to the Taskforce. According to a military officer, there have been instances of participation from communities in monitoring and reporting industrial polluters.

We visited one neighbourhood in Bandung Regency, where solid waste initiatives (e.g., household collection, waste sorting and waste storage) have been driven by community members. The operation was funded through household retribution on an informal donation basis:

Ideally, the village fund should include some millions [in Rupiah] per year for waste collectors, for each neighbourhood [RW] ... to pay the person a salary, but for now, they are only paid poorly based on individual household retribution. (Community member, Bandung Regency)

There were also examples of neighbourhood (*RW*) based waste management programmes in Cimahi, as highlighted below:

In RW 3 the waste management system was autonomously organised with a good structure ... this includes community participation where waste sorting is undertaken by households ... the RW head and his wife are deeply concerned with environmental issues ... in RW 15 waste management was initiated by Karang Taruna (youth association) ... they were supported by local companies in the area because the land [for waste facilities] was owned by the companies. (District official, Cimahi)

In Bandung, there were examples of semi-autonomous informal associations and community organisers (e.g., *Citarik Resik*, *Badega Desa*, *Karang Taruna*). These informal groups involved a broader network of individuals/organisations concerned with environmental issues. They received some form of technical or funding support from village or municipal governments. Members were geographically tied to the neighbourhood by a sense of place and socio-cultural connection. A sense of attachment with the Citarum as 'a place of birth' (*tempat kelahiran*) and place stewardship in the form of voluntaristic maintenance and upkeep of the natural environment and neighbourhood reputation were highlighted as important drivers (interview with community leader):

Our community organisation was established to take care of the river and manage solid waste, governments have also provided lots of supports, from technical assistance to funding. (Community leader, Bandung Regency)

Emotional connection – this needs to be developed by fostering an understanding that communities who live in the location have the capacity and access to monitor the environment directly, so we tried to establish a social monitoring system through Badega Lingkungan [referring to community champions]. (Senior municipal officer, Bandung Regency)

Although Cimahi and Bandung are vastly different in terms of geographical and population size, community-based projects on zero waste and sanitation have emerged sporadically across different locations. The ideas have travelled through government-initiated interventions as well as through networks of non-profit organisations. Rapid urbanisation in Cimahi has constrained land provision for waste infrastructure. Local officials and military personnel noted that abandoned or empty plots were often informally designated as waste disposal sites. In Bandung, village-owned lands have been identified as potential sites for community recycling centres. Unfolding place-based tensions between community members and village officials over the utilisation of the land assets was notable (interview with community leader). Meanwhile, promoting pro-environmental behaviours at the societal level proved difficult, given an entrenched cultural perception of rivers as dumping sites:

Culturally, the public thinks of the river as the back of the house rather than its front part if they consider it as the front of the house efforts will be made to maintain and clean it up ... whereas the back of the house is used for waste disposal. (Community leader, Bandung Regency)

Some environmental networks involved not only community-based organisations or NGOs, but also local academics with track records of developing grassroots education, research and academic forums, and social engagements in the Citarum. In Bandung collaboration with universities

through a long-term programmatic approach for field-based student placements could help support villages with developing knowledge and capacities for fostering place-based environmental initiatives (interview with a senior bureaucrat). In Cimahi, our informant suggested opportunities to share knowledge across industries and academia (with military endorsements) and potentially develop a local vision for more sustainable and greener industries (interview with Cimahi's entrepreneurs association). The Taskforce have consulted various communities and environmental NGOs in the Citarum, however, there was limited evidence of long-term partnerships being formed.

Collaboration, a key element of Type II governance, appeared to be fostered by some individuals, who demonstrated skilful networking capabilities. Military leadership in Cimahi could disrupt existing customs by resisting disengagement or negative sentiments against non-state actors and, instead, promoting partnerships in programme implementation. These leaders were known for their technical expertise and passion for environmental issues. They orchestrated collaborative networks and trust building to bring perspectives from NGOs, media partners, universities and experts to solve problems. They were skilled in public engagement:

In an average day, Sector 21 engage [communities] through mainstream and online media for about 20 times. I spoke with TVRI [National Television] nearly every week ... so the public became familiar. But unfortunately, other Sectors are not taking up this lesson. (Military officer, Cimahi)

The emergence of self-organised movements, community-based organisations and collaborative networks demonstrate the Type II approach. The community-based initiatives have a strong sense of place and identity embedded in them. They were led by individuals who were considered place-based leaders. Collective actions were framed in terms of place stewardships for better neighbourhoods and built upon emotional attachment with the river to activate participation.

6. DISCUSSION

This paper offers a way to rethink how place-based dynamics shape multi-level governance processes in the context of urban river restoration. The notion of place – understood as a meaningful assemblage of location, material and social conditions – challenges the hydro-territorial trap of the basin, which evokes a normative hierarchical order to drive implementation across jurisdictions. Although the multi-level perspective foregrounds vertical integration and horizontal coordination, it glosses over the place-based complexities of weaving different relations and assembling various socio-material conditions towards shaping collective actions and the riverscapes, which can be revealed more explicitly through a place-based investigation.

Our study shows that the Citarum restoration has taken a prominent territorial turn, emboldened by a militaristic approach. The division of the river body into military sectors accomplishes basin territorialisation and is touted as effective for implementing technical solutions. The military showed impressive vertical integration capabilities within its regiments but remained weakly coordinated with other government agencies. The operation is a clear departure from the IWRM paradigm, promulgated in the Indonesian water sector (World Bank, 1999), which focuses on capacity strengthening at the regional level and participatory approaches. The government framed the pollution in terms of a crisis, which justified the military intervention in non-defence activities.

Even though the military has a role to play in natural disaster events (Rusfiana & Nurseta, 2021), their systematic involvement in river restoration was the first of its kind in Indonesia (Safitri et al., 2020). Our place-based investigation reveals that the territorial approach was more suited to Cimahi, which (i) has a smaller geographical area to command, compared to Bandung, (ii) has been a military base since the colonial time, where the military wields power through

extensive physical presence of military facilities and the social prominence of military officials and symbols and (iii) has a closer interface between military, city officials, academia and industry associations. While the proponents highlighted its relative successes compared to previous government-led programmes, our place-based findings challenge this oversimplified assessment. In practice, the military primarily concentrated efforts on pollution reduction along the main river body through the removal of visible waste. This approach offered a temporary technical and visual fix. The quick pace of this technical operation stood in contrast to the slow bureaucracy. However, the military's success in Cimahi was not replicable in Bandung. Our military informants admitted that implementation efforts varied depending on place-specific configurations, e.g., leadership styles, community participation, resource availability and geographical spread of the pollution issues.

Uncertainties over the continuation of the military operation beyond the programme's lifetime have been raised by some insiders. Our interviewees noted that significant numbers of personnel have been pulled back since their initial deployment. From a legal standpoint, the Presidential Regulation is about to expire in 2025 and there has been little consideration given to what lies beyond for a long-term military intervention. Reflective of this, within the military, there has been an acknowledgment of the importance of gradually scaling back their operation whilst expanding the role of non-state actors in the programme. More fundamentally, the operation raises a question on conflict of interests involving military officers, who might (mis)use their forces in the Citarum to pursue economic interests under the pretext of ecological restoration (Safitri et al., 2020). Scholars have cautioned that territorial discourses in water governance can 'lead to empowerment of certain groups of actors while disempowering others' (Boelens et al., 2016, p. 5).

Looking at the formal structure of the Citarum programme, we can discern a clear normative call, in agreement with the IWRM paradigm, for coordination between government agencies. This was corroborated in our interviews, which underlined the Taskforce's central role in coordinating actions and building platforms for cross-jurisdictional interactions. Given the relative autonomy of the decentralised governments, this Type II ad hoc coordination exercises little to no power over local offices. We found that although the Taskforce has established programme-level priorities by involving relevant government agencies, the programme was dissociated from place-based priorities. In other words, the programme and its coordination showed a low level of place-based legitimacy. Lower-level governments appeared to prioritise locally favourable development issues, such as direct social grants or education support, and road construction, rather than environmental issues. Lack of technical and fiscal capacities led to lower-level government agencies missing opportunities to develop strategic initiatives that may tap into sector-based national and provincial budgets while allocating too little funds of their own. Oversimplification of the role of lower-level jurisdictions as the so-called 'action implementers' was common amongst the Taskforce and higher-level government agencies. This obscures the strong sense of autonomy in decentralised governments, which, depending on how programmes and priorities are contextualised within a given location, may lead to conflict and competition across levels.

Within the emerging literature on municipalities in urban river governance, there were indications that city governments can play generative roles. In a Canadian case, the city of Dawson Creek demonstrates capacity in formulating strategic actions, e.g., directing investments in water research programmes to build their planning and implementation capacity (Whiten, 2019). Municipal government has been shown to facilitate horizontal relationships by working together with local NGOs to implement solutions along urban streams (Lee & Choi, 2012). In Bandung Regency, we found evidence of municipal officials facilitating village-based initiatives. Seeds of collaboration in Cimahi were being sown by a loose network of place-based actors, including military, academics and industry associations, on the issue of greener industries. To increase

place-based legitimacy, a recent programme update has required each local government to assign their regional secretary – a relatively permanent and senior role in the local office – to directly coordinate with the Taskforce. This was designed to provide a sense of political legitimacy and administrative continuity for devolving the programme priorities to the local office, however, it has not addressed the prescriptive nature of the implementation plan and the lack of technical and fiscal capacities to deliver the plan.

Our case also offers insights into Type II polycentric arrangements, consisting of semi-autonomous communities driving collective actions on pollution issues. Viewing this sporadic emergence of environmental initiatives through a place-based lens, we noted ambivalent discourses surrounding community participation. On the one hand, communities were viewed in a positive light as environmentally conscious groups and active participants in river restoration. On the other hand, a negative discourse was evident, where communities were portrayed as irresponsible or uncaring. In this light, it is not possible nor useful to generalise the extent of and approaches to community participation across locations or at the basin scale.

Place plays a significant role in imbuing meanings and contextualising participation. Across Cimahi and Bandung, we saw emerging patterns of community-driven initiatives, especially around solid waste management. In Cimahi, these initiatives took place in the neighbourhood units (or *RW*) whereas in Bandung the villages (or *desa*) were important sites of intervention. Place leadership in the formal and informal sense and with sensitivity to the varied socio-material conditions, not just in hierarchical terms, emerged as key to connecting multiple actors (Hornings, 2016) and driving collective actions. A sense of place and environmental stewardship were key in the enrolment of communities. Our findings show that these movements coalesced around place leadership, place attachment, river stewardship and neighbourhood reputation i.e., the presence of these place-based conditions appears necessary for fostering participation. This implies that community-based initiatives are hard to translate or transfer across multiple locations, without these necessary conditions. We found examples of failed state-led community interventions, which focused on the delivery of community infrastructure but neglected local conditions that ensured long-term operation and maintenance.

7. CONCLUSIONS

In combining the multi-level and place-based perspectives, our findings reveal the on-ground nuances and unique assemblages of conditions that influence river restoration in urbanising contexts. The Citarum case illustrates the entanglements of socio-material configurations with different governance modalities across locations. The Citarum Taskforce, in its ad-hoc and flexible role, was established to ensure that different governance mechanisms were compatible within the basin by aligning interests and strategic priorities across jurisdictions. But we conclude that such multi-level meta-governing (Jessop, 2016) remains problematic due to the lack of place-based insights, low enforcement powers, limited capacities to direct and allocate resources, and the relative autonomy of each jurisdiction. To overcome the classic coordination weaknesses, the government resorted to rigid military control. The Cimahi was a small and densely urbanised area, where the military played a powerful socio-political role – it experienced relative success in pollution control through military territorialism. The same approach proved unsatisfactory for the larger Bandung region, which has been gradually urbanising, but still comprised widely dispersed lower-income agricultural communities and characterised by more fragmented local politics. The geographical spread of pollution issues and the mountainous region posed significant challenges for exerting territorial control. Political fragmentation lessened the influence that the military might have over local powerholders. Moreover, military territorialism merely offers temporary technical relief, while its long-term application faces legal and resource quandaries.

The emergence of sporadic community-driven initiatives was notable, but participation was critically limited by the presence or absence of specific place-based conditions.

Conceptually, our study fills an important gap in the emerging research on urban river governance, which, to our knowledge, has not sufficiently engaged with the notion of place. Our findings highlight the ‘open-textured’ multi-level governance (Faludi, 2012) of a river across geographies where variability, rather than consistency, of approaches persists. Whilst the co-existence of multiple governance modalities is not novel per se, a nuanced examination of the place-based conditions is rare in river governance studies and offers a more robust explanation of governance variability and inconsistency across locations. Our place-based investigation reveals the unique assemblages of locations, material and social conditions, which embed specific meanings, norms and practices to river restoration within given sites and for those involved. We identify the following enabling configurations: place-based legitimacy of restoration and environmental objectives across jurisdictions; local leaderships (e.g., respected authoritative figures and trusted individuals capable of mobilising people and resources); issue-based networks and place connectors (e.g., environmental organisations, professional associations, academics); a sense of place attachment, reputation and stewardship of river and neighbourhoods. Future research on urbanising rivers, facing multifaceted pressures and increased governance complexities, could therefore employ a more robust and critical approach towards gathering place-based insights and in situ evidence of governance complementarity and inconsistency.

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NOTE

1. We distinguish ‘place’ from the notions of ‘scale’ and ‘level’. Following Gibson et al. (2000, p. 218) scale is defined as ‘the spatial, temporal, quantitative, or analytical dimensions used to measure and study any phenomenon’ in socio-ecological research. Levels are defined as the units or positions along a scale, which are often organised in hierarchy.

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