

Policy Brief

Enhancing Local Capacity to Accelerate Revitalization of Citarum River, Indonesia



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Photo taken during consultation with the community in Cibodas Village and Padamukti Village, Solokan Jeruk District, Bandung Regency, 4th October and 12th December 2021. Photographer: Taufan Akbar, Bayu Septiansyah.

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Executive Summary

Since 1989, countless efforts have been made and numerous funds have been spent to revitalize Citarum River. Each government regime has suggested different programs and has their own achievements. Nevertheless, Citarum River has remained polluted, compared with pre-existing conditions such as in upstream Cisanti, which is caused by, among others, governance failure. Citarum River governance is very complex in the context of varied technical and non-technical issues shaped by various local specific conditions, such as geographical, geological, topographical, physiographical, socio-economic and cultural backgrounds, government systems and political considerations, and the availability of resources and funds for river revitalization programs.

Our suggested recommendations are based on empirical findings in Bandung Regency and Cimahi City on how capacity for policy implementation at the Regency/City level has been constrained and at the same time supported by certain socio-institutional conditions. These findings are then generalized and conceptualized to help solve governance problems that hinder policy implementation in the Citarum River. These problems are: 1) Top-down coordination within the framework of regional autonomy; 2) The conflict of interest of the public versus the market in the midst of the duality of actor-roles; 3) A lack of comprehensive approach to river governance (IWRM) and superhero institutions with limited authority and minimal budget; and 4) Military quick wins and concerns about the sustainability of the program, which are related to the reduced work commitment of local officials and reduced community participation.

Three recommended governance perspectives for improving policy implementation are: 1) Thinking beyond the command-and-control concept and moving towards systematic change; 2) Facilitating and assisting the participation of non-state actors; 3) Bridging the gap between science and the state and society (science-state-society) through active frontline leadership.

The three governance perspectives to improve the implementation of this policy require six enabling factors, namely: 1) Awareness of shared problems; 2) Political and financial commitments; 3) Exercise of authorities based on laws and law enforcement; 4) Committed leaders and active front-liners; 5) Key actors/organizations that can act as boundary spanners; and 6) Strong community participation.

INTRODUCTION

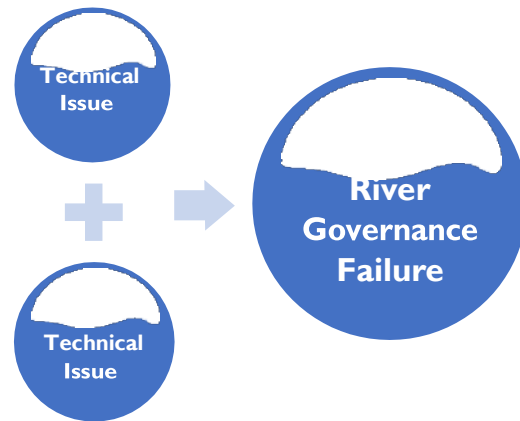
Countless efforts have been made and numerous funds have been spent to revitalize Citarum River. Each government regime suggests different programs and has their own achievements.

In 1989, a number of community groups launched “Prokasih” Program. Then in 2002, the Governor of West Java, Nuriana, launched “Citarum Bergetar” program. In 2003 there was “GN-RHL” (National Movement for Forest and Land Rehabilitation); followed by “Gerhan” (Forest and Land Rehabilitation Movement) in 2006; and later in 2008 there was “ICWRMIP” (Integrated Citarum Water Resources Management Investment Program) funded by ADB (Asian Development Bank). Furthermore, President Yudhoyono agreed to participate in the implementation by publishing a 2009-2014 road map called “Cita Citarum” using the Integrated Water Resources Management approach. In 2010, there was a “UCBFMP” (Upper Citarum Basin Flood Management Program) facilitated by JICA (Japan International Cooperation Agency) funding. In 2013, the Governor of West Java, Ahmad Heryawan, launched the “Citarum Bestari” program using a philosophical, normative and socio-cultural approach. This program succeeded in building public awareness on the environment through the “Ecovillage” program. In 2017, Kodam III/Siliwangi issued a working paper stating that the water in the Citarum River was no longer safe because it contained a lot of toxins and heavy metals. This working paper succeeded in making the national government move to make decisions. In 2018, the National Government of President Joko Widodo took over and introduced “Citarum Harum” program by issuing Presidential Regulation Number 15 of 2018 concerning Acceleration of Pollution and Damage Control in Citarum River Basin.

- 1989 → “Prokasih.”
- 2002 → “Citarum Bergetar.”
- 2003 → “GN-RHL”
- 2006 → “Gerhan”
- 2008 → “ICWRMIP”
- 2009 → “Cita Citarum”
- 2010 → “UCBFMP - JICA”
- 2013 → “Citarum Bestari”
- 2017 → Working Paper of Kodam III/Siliwangi
- 2018 → “Citarum Harum”

However,

Citarum River has remained polluted compared to upstream Cisanti which is caused by, among others, governance failure.¹



Citarum River governance is very complex in the context of varied technical and non-technical issues. In regards with the technical aspect, Citarum River which stretches for 297 km having its upstream at Situ Cisanti and drains into the North Coast of Java Island. A variety of technical problems is present caused by different factors, for example: geographical, geological, topographical, and biophysical conditions. Regarding the non-technical aspect, Citarum River which crosses 1453 villages in 13 regencies/cities, is faced with a variety of problems that stem from a diversity of place-based conditions, including the demographics of people with diverse social, economic and cultural backgrounds, different government systems and political considerations.

Thus far, Citarum River revitalization program has tended to only focus on technical aspects; hence,

¹ A governance failure refers to any failures of governance or ineffectiveness of governance processes.

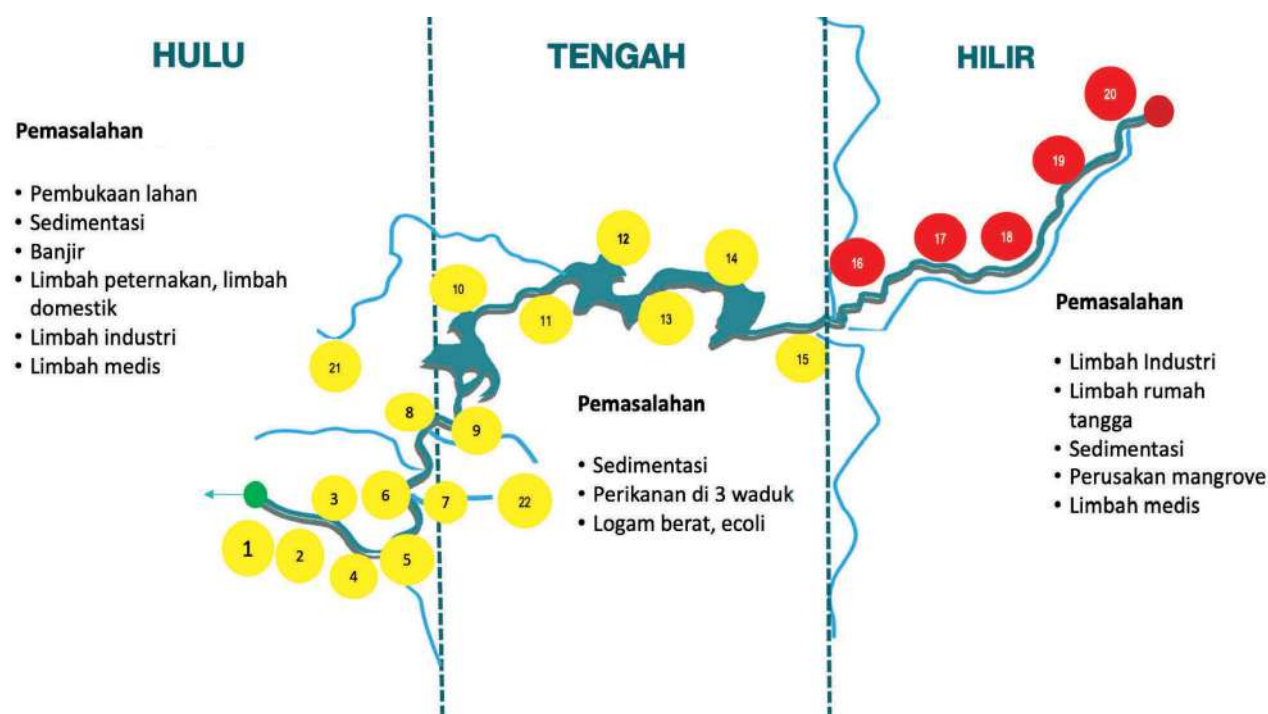
there was a lack of a deep understanding of non-technical aspects, although these can determine the success of the technical aspect. The problems of Citarum River from Downstream, Middle and Upstream are relatively similar, including, industrial waste, household waste, livestock waste, fishery waste/floating cages, mangrove destruction, land clearing, critical land, flooding, and sedimentation; and post COVID-19, it was compounded with medical waste. It can be seen that almost all problems are caused by human behavior that disposes waste, both solid and liquid, and destroys river ecosystems. Therefore,

Citarum River will always be polluted as long as human continues their behavior to throw waste into the river, despite efforts on waste management and river revitalisation.

This research aims to examine the failure of Citarum River governance by responding to the question “How can local capacity be enhanced to accelerate river revitalization?” What are the enabling factors that can strengthen and hinder

transboundary river governance? The questions were tested in two cases: Bandung Regency and Cimahi City, both of which are located in the upstream of Citarum River and are part of the Greater Bandung area. Bandung Regency is crossed by tributaries of Citarum River which is Citarik River. Meanwhile, Cimahi City is passed by Cibeureum River, Cilember River, Cimahi River, Cihaur River and Cibiuk River. In-depth interviews with 24 informants were conducted and two participatory workshops were held in November and December 2021 attended by 30 participants. Informants and workshop participants came from various backgrounds, including: government officials/staff, military personnel, community leaders, academics, communities, non-governmental organizations, media, professional associations at the level of West Java Province, Bandung Regency and Cimahi City. Secondary studies are also carried out by studying the laws, regulations, policies and related documents.

Citarum Harum Juara **STRATEGIC IMPLEMENTATION PLAN**
PRESIDENTIAL REGULATION NO. 15 YEAR 2018



Problem Identification

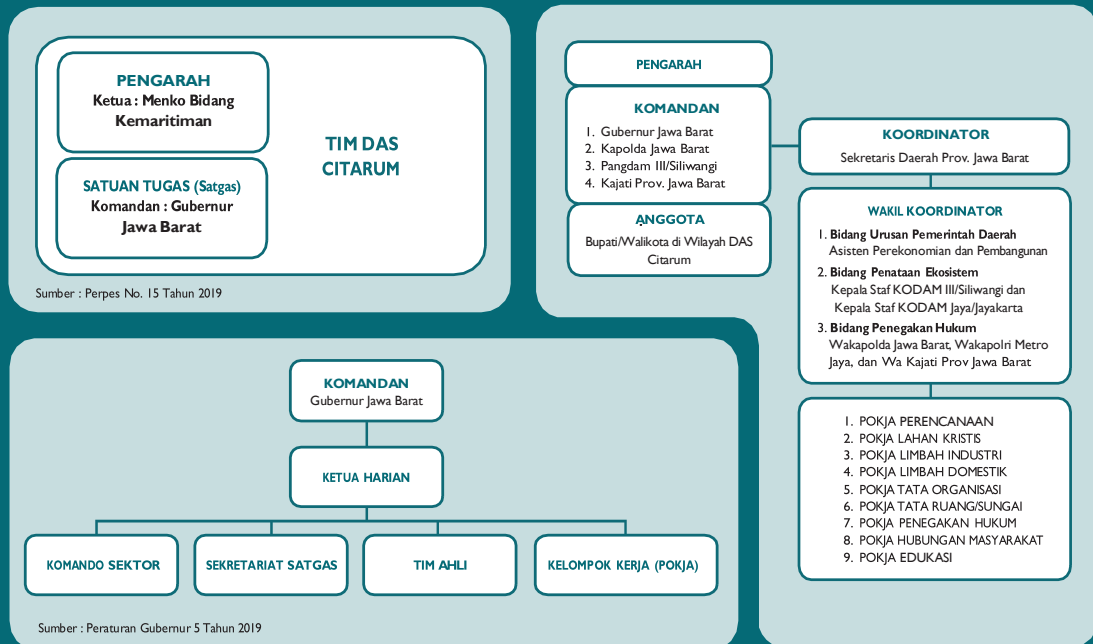
There are four problems identified.

First, a top-down coordination issue within a regional autonomy framework.

Presidential Regulation Number 15 of 2018 concerning Acceleration of Pollution and Damage Control for Citarum River Basin initiated Citarum Task Force with a top-down structure and work coordination, from higher authorities (read: government) to lower authorities. However, this model has been difficult to implement since the presidential and regional elections. Considering the heads of governments (presidents, governors, regents, mayors and their representatives) are directly elected by the people and are accountable to the House of Representatives according to their level, they tend to feel they have an autonomous position with respect to the authority above them.

Moreover, according to the law, those who are elected are required to fulfill the election promises they made during their campaign. As a result, higher authorities have little room to enforce top-down instructions on lower authorities. This causes the vertical (national, provincial, regency, city) and horizontal (inter-provincial, inter-regency, inter-city) government coordination system to run poorly. This top-down coordination also causes districts/cities to have less role and function despite the fact that they are the key stakeholders in implementing policies at the lowest level of government administration. As a result, the 13 regencies/cities in West Java require different targets and timeline in implementing and achieving “Citarum Harum” program.

FORMAL COORDINATION STRUCTURE AND PROCESSES



Secondly, there was a problematic relationship between public and market interests, especially concerning actors who hold dual roles.

The conflict of interest between the government (public) and the market (business) makes it difficult to enforce the law. Problems occur because some multilevel actors have strong influence on government decisions while being outside the formal structure. Such situation leads to another issue when these multilevel actors hold a position within the government structure concurrently. Business owners, for example, run as members of parliament or regional head through political parties or independently; or being appointed to be in the cabinet because of a debt of gratitude during the campaign period. One of the difficult cases regarding this issue was on May 24th, 2016, when Bandung State Administrative Court (PTUN) ordered Sumedang Regency Government to revoke the liquid waste disposal permit (IPLC) of PT Kahatex, PT Insan Sandang Internusa, and PT Five Star Textile Indonesia who were found to dispose their waste in Cikijing River, Sumedang Regency. This decision was later strengthened by Supreme Court decision on May 17th, 2017. However, the three companies continued to produce and dispose their liquid waste in Cikijing River - a tributary of Citarum River – and argued that they had to lay off 36,000 employees if they had to close the factory.²

Thirdly, a lack of comprehensive approach to river governance (IWRM) and superhero institutions with limited authority and minimal budget.

Currently, the Citarum River revitalization work program uses an Integrated Water Resources Management (IWRM) approach. Some best practices from other countries indicate that this approach is not as comprehensive as needed as it tends to focus on technical issues (see appendix no. 1). In Indonesia, based on the Regulation of the Minister of Public Works No. 26/PRT/M/2006, Balai Besar Sungai Besar (BBWS), as a government agency, was formed to manage water resources in the river basin including to plan, to implement the construction, and to maintain in the context of natural resource conservation, natural resource development, natural resource utilization and water damage control. Moreover, Presidential Regulation Number 15 of 2018 initiated the Citarum Taskforce which was assigned to accelerate the

implementation and sustainability of Citarum watershed control policies through preventive operations, pollution and damage control, and Citarum watershed restoration in a synergistic and sustainable manner by integrating programs and activities in each ministry/institutions and local governments including the optimization of personnel and operating equipment. However, the Citarum Taskforce is not authorized to carry out operations or to control the operating budget. Each government task force (national, provincial, and regency/city) is still in charge of implementation and budgeting. This scenario indicates that BBWS is assigned only to complete technical implementation; and the Citarum Taskforce is assigned for coordinating work programs with limited access to implement and control field operations.

Fourth, military quick wins and concerns about the sustainability of the program, which are related to the reduced work commitment of local officials and reduced community participation.

In an attempt to assist the implementation of field operations and to achieve the river revitalization target within seven years (2018-2025), Presidential Regulation No. 15 of 2018 involves TNI (Indonesian National Armed Forces) aiming to increase the effectiveness and engagement of the related community, local officials, and businessmen. It also involves POLRI (Indonesian National Police) and High Court to assist with the prevention, guidance and law enforcement for individuals who dispose the waste in Citarum River without considering the quality standards. In the short term, many quick wins have been achieved by the TNI, POLRI, and High Court, particularly in cleaning up solid waste from Citarum watershed and enforcing laws against communities and industries polluting the river. Regardless of the success, there are two concerns arising from the current situation. First, it is regarding the sustainability of the program once TNI, POLRI, and High Court are no longer directly involved in the Citarum watershed revitalization program. Second, it is regarding the possibility of a weakening commitment from regional officials; and low engagement of the community in the Citarum watershed revitalization program.

² Read CNN Indonesia article "Saat Kahatex 'Tantang' Bupati Sumedang Cabut Izin Limbah" click the link for the complete article: <https://www.cnnindonesia.com/>

Recommendation

The knowledge and understanding on river governance approach and other enabling factors to improve the Citarum policy implementation are still very limited.

Although it is generally agreed that a multi-stakeholder model at the watershed level is needed for river governance, it is still unclear how this multi-stakeholder collaboration is implemented in the field. The Citarum case and best practices from other countries indicate that the success of IWRM implementation varies widely. For this reason, it is necessary to consider a more comprehensive approach accommodating the specific needs across local contexts. In reference to Bandung Regency and Cimahi City cases, taking the multi-scale perspective, namely: catchment and sub-catchments is essential to really understand the problems in the field, to overcome obstacles, and to strengthen the enabling factors for the success of river revitalization program.

There are three recommended governance perspectives for improving policy implementation: 1) thinking beyond the command-and-control concept and moving towards systematic change; 2) facilitating and assisting the participation of non-state actors; 3) bridging the gap between Science and the state and society (science-state-society) through active frontline leadership in improving the implementation of the recommended policies. Further explanation and examples of possible actions taken are attached in appendix No.2.

The three governance perspectives to improve the implementation of this policy require **six enabling factors** namely: 1) Awareness of shared problems; 2) Political and financial commitment; 3) Exercise of authorities based on laws and law enforcement; 4) Committed leaders and active front-liners; 5) Key actors/organizations that can act as boundary spanners; and 6) Strong community participation. Further explanation is attached in appendix No. 3.

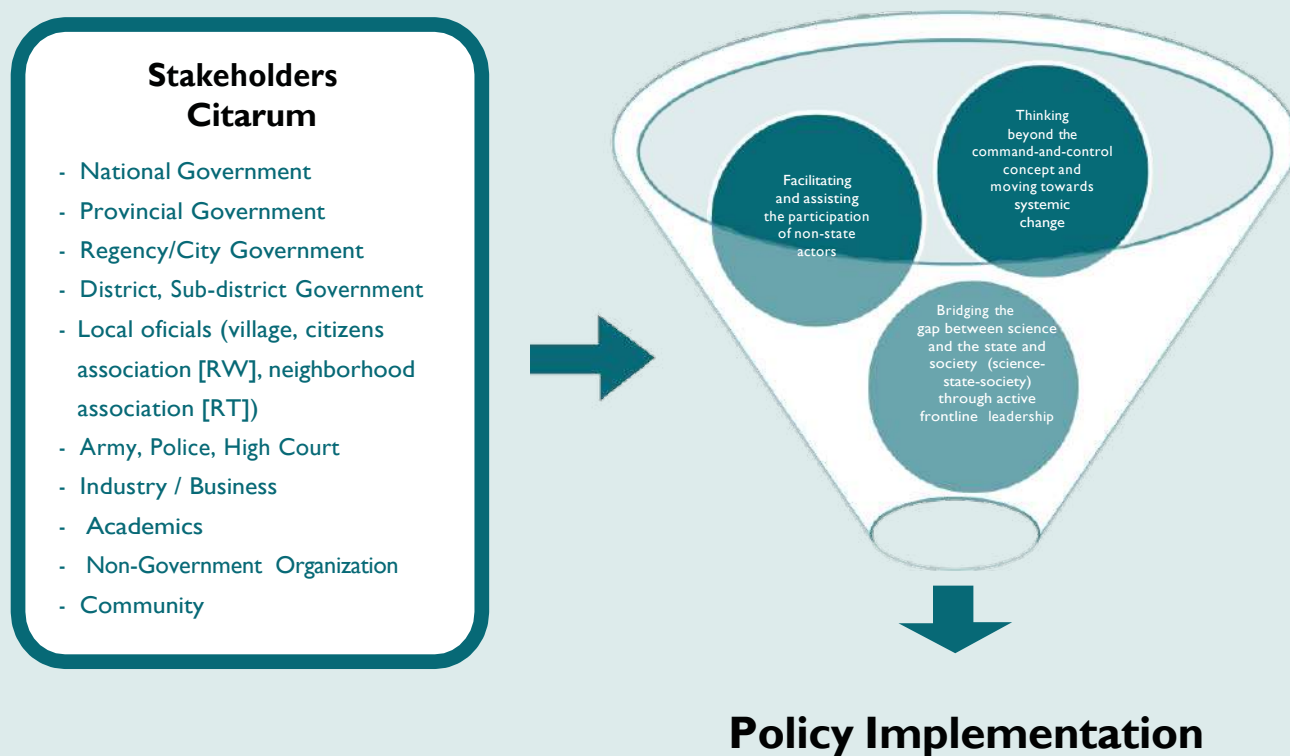


Table No.1. Issue, Recommendation, and Enabler Factors

No	Issue	Recommendation	Enabling Factors
1	Top-down coordination within a regional autonomy framework	<ul style="list-style-type: none"> Thinking beyond the command-and-control concept and moving towards systematic change 	<ul style="list-style-type: none"> Awareness of shared problems Political and financial commitment
2	The conflict of interest of the public versus the market in relation to a duality of actor-roles	<ul style="list-style-type: none"> Facilitating and assisting the participation of non-state actors 	<ul style="list-style-type: none"> Exercise of authorities based on laws and law enforcement Committed leaders and active front-liners
3	A lack of comprehensive approach to river governance (IWRM) and superhero institutions with limited authority and minimal budget	<ul style="list-style-type: none"> Bridging the gap between Science and the state and society (science-state-society) through active frontline leadership. 	<ul style="list-style-type: none"> Key actors/organizations that can act as boundary spanners Strong community participation

Military quick wins and concerns about the sustainability of the program, which are related to the reduced work commitment of local officials and reduced community participation

Figure 1. Three governance perspectives to guide the policy implementation in Citarum



No	Recommendation	Actions	Examples of Actors
1	Thinking beyond the command-and-control concept and moving towards systematic change	<p>Action 1.1: Comprehensive evaluation of target and budget realization for Citarum revitalization at regional and state levels. Specifically, evaluation is required to get a realistic picture of the local government capacity in implementing related policies (eg. providing waste service, domestic waste process, control over industrial waste). Budget allocations from the state, technical assistance, as well as political endorsement can be directed to help increasing the capacity at the regional level. Coordination with local government can be further strengthened, particularly by encouraging active participation in the Task Force from the Regent/Mayor, Administration Regional Secretary, and Regional Planning Board (Bappeda).</p> <p>Action 1.2: The government can consider amending the Presidential Regulation based on evaluation results (Action 1) and to strengthen policy and plan, not only focusing on pollution control, but also facilitating Citarum aspiration and sustainable development for a long-term period (50 years). Policy implementation executed by military sector has proven effective in the short-time in the context of accelerating pollution control; however, there has not been an explicit policy framework regarding the transition process, which requires a more active and sustainable involvement of the local governments in the attempt to achieve sustainable development targets in DAS Citarum. Public discussion forum regarding amendment of Presidential Regulation and sustainable Citarum agenda can be facilitated by Task Force (and facilitated by National Planning Board) to accommodate insights from many relevant sectors (Environment, Public Work, Industry, Health, Social, Village) and stakeholders in Citarum in order to synchronize long-term vision and mission.</p>	Citarum Task Force, Regent/Mayor, Administration Regional Secretary (Sekda), Regional Planning Board (Bappeda), State Government, and National Planning Board (Bappenas).
2	Facilitating and assisting the participation of non-state actors	<p>Action 2.1: Taskforce along with Regional Government and Local Governments can create a more comprehensive mapping to characterise communities living along Citarum River and around related sub-catchment area. An accurate mapping can be the basis for planning and developing strategies for designing community-based solutions that are context-specific. Budgeting from the state, regional, and village can also be prioritized based on the mapping result. The mapping needs to include not only basic data such as social-economic, cultural background and level of education; but also social issues, health indicator, gender relation, land ownership, access to public and social facilities, environmental awareness, and willingness to participate.</p> <p>Action 2.2: The government can encourage direct contribution from private sector, particularly industry stakeholders across the catchment and sub-catchments of Citarum. The task force can coordinate and collaborate with the industry to develop green economy vision in Citarum. The government through related sectors (industry, the Ministry of Maritime and Investment Affairs) can facilitate this process by providing technical assistance, knowledge sharing, and providing incentives to develop green and clean industry. At the same time, pollution control and law enforcement for industry violating the regulation need to be improved continuously. Clear law and firm enforcement are required to ensure that the environmental levies and some of the industrial taxes can only be invested back to environmental activities and sectors.</p>	Regional Government, Local Officials, Citarum Task Force, BBWS, and Department of Industry and Trade
3	Bridging the gap between science and the state and society (science-state-society) through active frontline leadership	Action 3.1: Front-liner leaders from all parties including, among others, military, society, government institution may be elected based on rational criteria, such as relevant knowledge, willingness to learn, relevant background, and collaboration track record to help finding solutions in the field as well as building trust and relationship between science-state-society.	Citarum Task Force, Community

Appendix I

Global experiences with Integrated Water Resources Management

Integration may be coordinated and promoted by river basin organisation or institution at the basin scale, such as the Citarum Taskforce and River Basin Authority (BBWS). Both the Taskforce and the Basin Authority are underpinned by formal structure and authority; they also have mandated role and function. However, their effectiveness in promoting implementation varies depending on context-specific problems. This shows that

the formation of the Citarum Taskforce and River Basin Authority alone is inadequate to accelerate the implementation of the river revitalisation policy.

Global experience shows that river basin committees in Brazil appear to be capable of creating avenues for stakeholder interactions although with limited implementation outcomes¹². In Peru, strong leadership in river basin councils was found as a critical factor for integrating knowledge¹³. Importantly, the level of hierarchisation of the broader governance systems determines the setup of the river basin councils, which can vary from highly formalised bureaucratic basin authority (e.g. Tennessee Valley Authority in the US), ad-hoc informal hierarchy (e.g. Mekong River commission), and a single political party-driven hierarchy (e.g. Chinese river leadership model)¹⁴. A single agency and top-down implementation of integrated water management in urban contexts appears to deliver good results in countries with more centralised governance structures, such as Singapore and Hong Kong¹⁵. In Australia, hybrid arrangements, including a blend of hierarchical, network, and market governance approaches, are considered important for developing more sustainable urban water¹⁶. These findings suggest that the institutional model is influenced by existing socio-political contexts and cannot be easily prescribed as a one-size-fits-all formal prescription.

Globally, there's been a great deal of emphasis on localising IWRM implementation through the establishment of formal structures and processes, which encompass basin-level authorities, policies, regulations, and legislation¹⁷. Yet, such new processes may be constrained by lack of stakeholder acceptance at the municipal level. Despite the good intent behind the formal approach, their poor legitimacy at the municipal level could become a critical obstacle for policy implementation. It is crucial that more insights into the varied socio-institutional conditions at the municipal level are developed for better river governance outcomes. The dearth of knowledge on the municipal level in the context of river governance is understandable given the long history of focusing on the bioregional scale¹⁸.

The knowledge gap is in understanding how different actors at the municipal level may play key roles in river governance.

In the case of Citarum, little consideration has been given to the implementation capacity at the municipal level in favour of a basin-scale management paradigm. Although the basin-wide programme in Citarum could set the right direction and vision,

our research has shown that municipal capacities may be enhanced by multi-actor interactions within existing formal and informal structures to solve the complex pollution issues using a place-based approach.

In reality, municipalities are often reduced as mere implementers of higher-level policy direction. Taking an IWRM approach does not guarantee municipal level actions and there is clear evidence that IWRM applications result in highly variable outcomes across different settings. The key lesson here is that policy implementation is shaped by specific socio-institutional conditions, which operate across governance levels. Therefore, it is as important to take a basin-scale view as it is to look closer at the municipal level conditions that may constrain or enable policy implementation.



Appendix 2

Governance Perspectives

Perspective I: Think beyond command-and-control towards systemic changes

In Citarum, a classic form of command-and-control approach to river management has been employed through the formal establishment of the river basin task force under the Presidential Regulation Number 15/2018 on acceleration of pollution and damage control in the Citarum basin. The river is recognised as having strategic national value. Furthermore, its revitalisation will require interagency and multi-stakeholder support. The regulation sets out the formation of the Citarum Basin Taskforce, which reports directly to the President himself. The team consists of 1) An advisory board, including ministerial level officials; and 2) Taskforce, co-led by the West Java Governor and regional military and police chiefs, and supported by an expert team. Under this new rule, resources and policy instruments (e.g. funding, technical assistance, knowledge, data and information systems, guidelines, specific physical facilities, material and equipment, professional support, land acquisition, spatial planning, and law enforcement) at multiple levels of governments and across several ministerial sectors were stipulated as accessible for and to be prioritised in support of the Taskforce. In general terms, the regulation explicitly refers to the allocation of national budget, local government budget, and other lawful funding sources for the program. Although the regulation clearly characterises the program as a joint multistakeholder, in practice, we found that a command-and-control approach prevails, especially given the special involvement of the military forces.

While the West Java governor takes the chief commanding role in the Taskforce, the deputy positions were co-assigned to military and police forces. The involvement of military and police forces is an unprecedented aspect of the Citarum Harum program, signalling a high degree of political push by the national government to drive local implementation within the short timeframe of the program. The military force has been mobilised by the national government under the extraordinary 'crisis' circumstance that precipitated in 2017 with the global headline-making stories of Citarum's pollution. At the start, about 1,700 military

personnel were mobilised to perform physical upkeep and exercise legal force on industrial polluters. The Citarum river has been divided into 22 sectors, which are aligned with the military sub-sectors. Each sector is led by a commissioned military officer.

The military forces follow a strict hierarchy and territorial order, which has resulted in some clear wins in terms of mitigation of pollution in the first year of the Citarum Harum programme.

A metaphor of 'tahu bulat' (a popular local street snack which is cooked as soon as the order is made) to describe the military works which are fast response and quick implementation of order (Interview, 22 November 2021)

However, maintaining such a large military force for the duration of the programme (seven years) has been admitted as problematic by some insiders (personal communications, 2021), both from resource and legal standpoints. From a resource perspective, the military, whilst receiving a large proportion of the national government funding to undertake the clean-up, admitted that this remains inadequate in proportion to the magnitude of the pollution problem that they've been tasked to solve. Our interviewees note that some key personnel have been pulled back since their initial deployment in 2019 and whilst the military remains committed to the program implementation,

outcomes appear to vary from one military sector to another depending on the leadership figures that oversee the operation.

From a legal standpoint, the Presidential Regulation that legitimises military operation is about to expire in 2025 and our interview reveals that there have been little considerations given to thinking about what's beyond this timeframe. The implication is that there is a real danger of backsliding to business as usual as the governments and public turn their attention away from the pollution issues towards other pressing matters, such as the

impacts of the pandemic. Indeed, it has been noted that since the COVID-19 pandemic, the Citarum programme has seen budgets being slashed dramatically.

The establishment of the Citarum Task Force is based on the key principle of enacting a basin-wide multi stakeholder coordination. Yet, in practice, implementation depends heavily on the top-down deployment of resources. It largely sidelines (if not ignores) the municipalities, in favour of a more control-and-command militaristic approach.

Municipalities are considered as stakeholders and members of the Taskforce but with limited roles and unclear authorities.

There is a broad agreement that municipalities are viewed as implementers of targets set by the Taskforce. Whilst this might have been effective in the context of an authoritarian political system, the underlying conditions of the Indonesian political systems means that the national and provincial governments do not have any clear political nor legal avenues to enforce implementation at the municipal level.

According to Law Number 23/2014, municipalities are administratively required to support strategic national programs, however they are also politically autonomous entities within their given jurisdictions. At the same time, the law stipulates that the national government is required to empower and facilitate municipalities in implementing state policies. Therefore,

it is crucial that municipal actors are taken more seriously in the implementation as strategic partners rather than mere target implementers in the administrative sense.

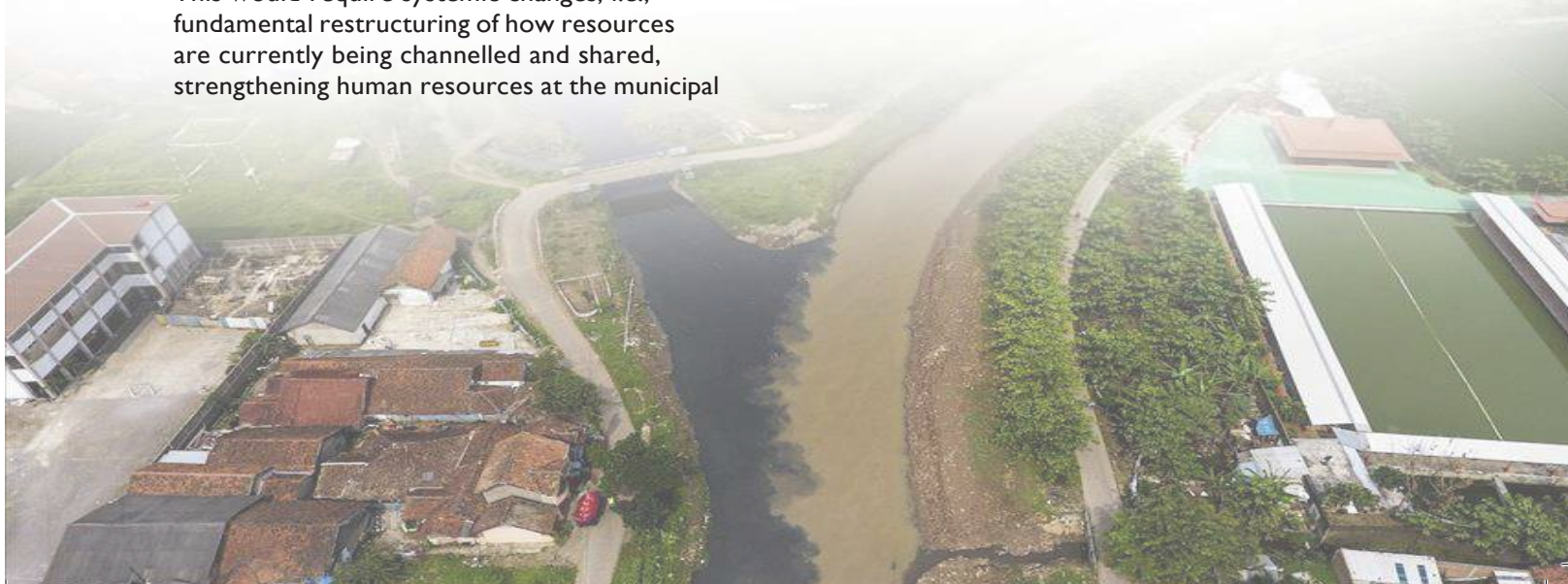
This would require systemic changes, i.e., fundamental restructuring of how resources are currently being channelled and shared, strengthening human resources at the municipal

level, and mainstreaming of environmental issues across various government levels and sectors (e.g. environmental protection, water management, solid waste, wastewater, industrial pollution, etc.).

In summary, on-ground military deployment has created a shadow governance system and operational team that have significant overlaps with the municipal jurisdictions.

Whilst from a pragmatic point of view this has helped achieve water quality targets, from a governance perspective we found that this has created a pervasive sense of rivalry and tension amongst them. Importantly, whilst the military forces may be adept at implementing technical solutions, such as river dredging, waste clean-up, or issuing sanctions on polluters, the planning and development control still rests squarely with the bureaucracy in the formal sense. In the informal sense, it has been rightly argued by those in favour of the command-and-control approach that the development context in Indonesia has been shaped by a deep network of strong political and military elites, which have enduringly shaped ownership of lands and (polluting) industrial activities in the Bandung metropolitan region. In this sense, the military’s involvement provides a tool for the state to ‘crackdown’ on the hard pollution case. Yet, it cannot fill the vacuum that is left by many underfunded municipalities and undo the governance gridlocks that prevent environmental agenda from being prioritised across levels and sectors.

“The Australian Yarra river revitalization master plan was written for 50 years. Up till now, the master plan is still used as a reference.”
(Interview, 11 November 2021)

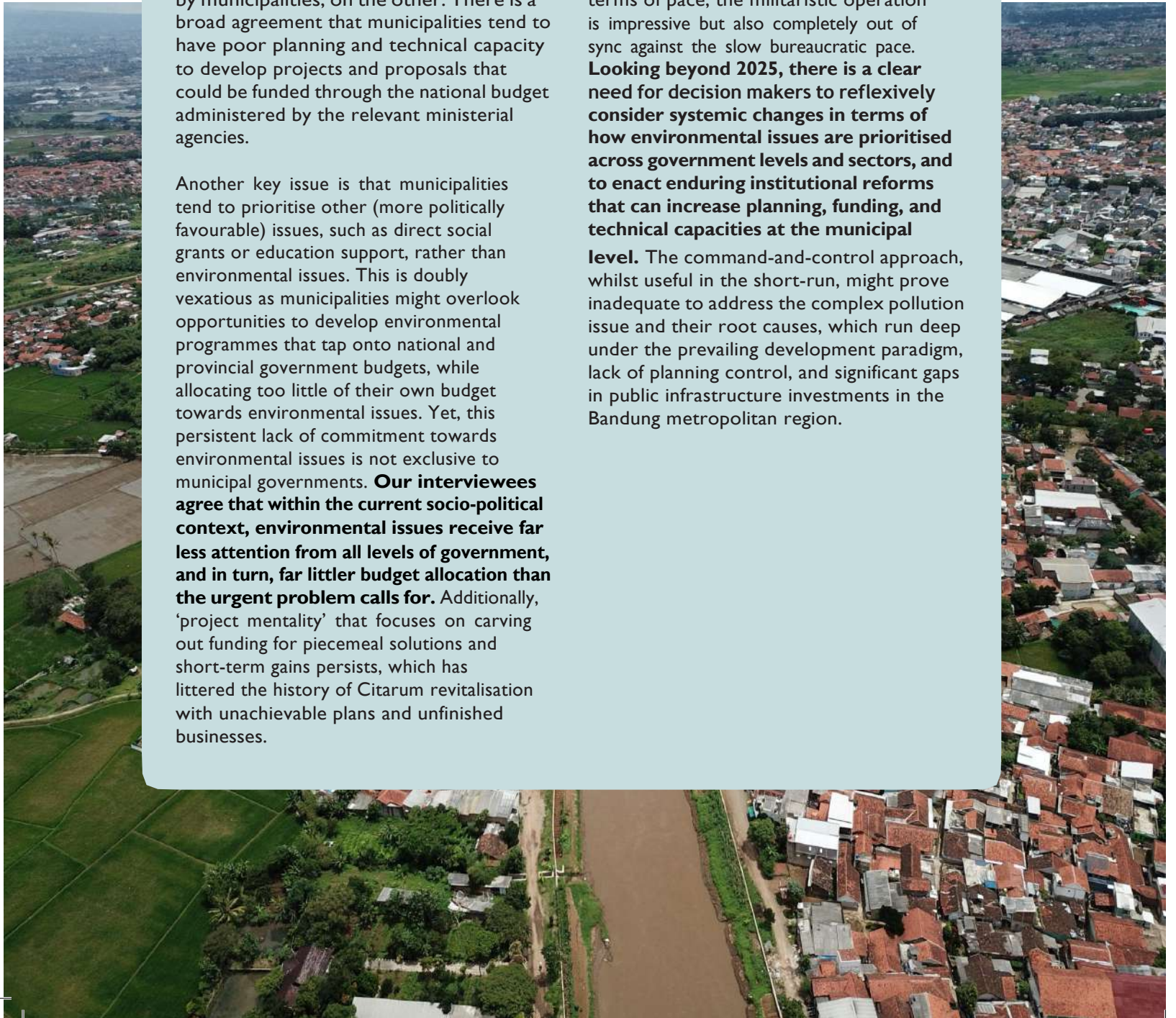


Box I – Systemic changes beyond 2025

The current dominant command-and-control approach, which sees resources being directed largely through the military forces, has an important consequence of constraining technical and fiscal support from the national governments to municipalities. Our research reveals a pervasive tension between municipal and higher-level governments in terms of what level of support is available to municipalities, on one hand, and the perceived lack of contribution and capacity to deliver targets by municipalities, on the other. There is a broad agreement that municipalities tend to have poor planning and technical capacity to develop projects and proposals that could be funded through the national budget administered by the relevant ministerial agencies.

Another key issue is that municipalities tend to prioritise other (more politically favourable) issues, such as direct social grants or education support, rather than environmental issues. This is doubly vexatious as municipalities might overlook opportunities to develop environmental programmes that tap onto national and provincial government budgets, while allocating too little of their own budget towards environmental issues. Yet, this persistent lack of commitment towards environmental issues is not exclusive to municipal governments. **Our interviewees agree that within the current socio-political context, environmental issues receive far less attention from all levels of government, and in turn, far littler budget allocation than the urgent problem calls for.** Additionally, 'project mentality' that focuses on carving out funding for piecemeal solutions and short-term gains persists, which has littered the history of Citarum revitalisation with unachievable plans and unfinished businesses.

Furthermore, there is a looming question of how existing government agencies across other sectors, and specifically at the municipal level, ought to carry out their responsibilities under the ambiguous context of military involvement. Whilst the military plays a strong coordination role within its own regiments and has demonstrated territorial capacities to mobilise community members, they are less effective in coordinating across government agencies. Some interviewees note that in terms of pace, the militaristic operation is impressive but also completely out of sync against the slow bureaucratic pace. **Looking beyond 2025, there is a clear need for decision makers to reflexively consider systemic changes in terms of how environmental issues are prioritised across government levels and sectors, and to enact enduring institutional reforms that can increase planning, funding, and technical capacities at the municipal level.** The command-and-control approach, whilst useful in the short-run, might prove inadequate to address the complex pollution issue and their root causes, which run deep under the prevailing development paradigm, lack of planning control, and significant gaps in public infrastructure investments in the Bandung metropolitan region.



Perspective II: Facilitate and nurture participation by non-state actors

Awareness of problems is a crucial driver for participation by non-state actors. In this regard, our research indicates that, qualitatively speaking, there is a sense that public awareness about pollution and waste problems is on the rise because of the intensive publicity and socialisation of the Citarum Harum programme in the first year. But this has waned considerably over time. Furthermore, we find that it is not possible nor useful to generalise the level of awareness and participation across the large population of the Citarum catchment. We invariably found evidence that ‘community’ in its broadest sense consists of diverse groups of people, who have different experiences, knowledge, views, awareness, and willingness to participate.

There are clear examples of environmentally conscious and participatory groups of people, on one hand, but also evidences of those who care very little about changing their behaviours (waste dumping) even after socialisation or with provision of infrastructures (e.g. incinerators, waste collection), on the other.

Strategies to nurture and facilitate participation would differ widely between these different groups. It is therefore crucial to better characterise *who the community is within a given local context* to better understand their varying baseline needs, motivation, expectation, and willingness to participate.

For the environmentally conscious groups, many have autonomously organised themselves into various movements and activities that contribute to lessening environmental degradation in the Citarum.

Their activities range from door-to-door education campaigns at the neighbourhood scale to change behaviours, to development of small-scale infrastructures and innovative programmes (e.g. zero waste movements, black flies technology, etc.), to undertaking their own monitoring of pollution

in the river through river patrols. In the latter case, they have even taken it into their own hands to give direct warning to polluters or report polluters to police/military forces, or even raising legal cases against industrial polluters. This autonomy appears important to provide check and balance on the implementation of policy and the use of state funds. From another angle, partnerships with the state could also expand their activities. To date, the Taskforce has consulted various communities and non-government environmental organisations in the Citarum, however, there’s limited evidence of long-term partnerships being formed. Worryingly, there is a consistent negative sentiment against working with non-government environmental organisations being expressed by many government officials and vice versa. In this regard, the taskforce can promote joint work across groups to develop principles of collaboration more explicitly and systematically.

On the other end of the awareness spectrum, the pollution issue, particularly the sources of solid waste and domestic wastewater, has consistently been blamed on the so-called environmentally unconscious ‘community’.

For example, the military has enforced behavioural change by what they term as ‘shock therapy’ in the forms of small fines and even physical punishment (e.g. push ups, sweeping the pedestrian, collecting rubbish, washing the litter bin, ect.) to embarrass those who were caught littering or dumping their waste into the river. It is claimed that effective monitoring and enforcement involves social sanctions, e.g. making a public announcement of the sanction in front of others or through social media. More subtly, the military also employs “territorial development” including establishing territories, military bases, deploying soldiers, and daily reporting within target territories. In this way they can closely monitor behaviours within their assigned territories. The military also has relatively strong enforcement power given their respected position within Indonesian society.

Industrial polluters are also often blamed for the Citarum pollution

In this regard, the military employed a ‘hard’ crackdown measure, which involved physical blockage of the discharge pipes from factories and publicizing this to set examples that deter others.

An industry association representative highlights that across the private sector there is an understanding that their activities are environmentally polluting but, when it comes to the bottom line, there is little incentive for them to consider transitioning to cleaner productions.

Our informants also note that given the current lack of enforcement as well as bribery practices, industrial polluters can ‘buy’ their way out with a fraction of the cost of installing a wastewater system. Some smaller industrial facilities are simply too small to be able to afford a wastewater system (and would be forced to close their businesses) or do not have the land to incorporate one. With the military crackdown this has resulted in reduction of industrial pollution momentarily but there is anecdotal evidence that some have found ways to get around this (e.g. discharging their pollution during heavy rains). Again, it is crucial to carefully characterise the types of industries active in the Citarum—as they are not a homogenous group. Furthermore, whilst law enforcement is critical, it is equally important to look more broadly at this issue in terms of planning restrictions, rezoning of industrial areas, as well as development of a cleaner economy as a strategic national agenda.

In between the two extremes of environmentally aware and unaware groups, we found examples of semi-autonomous community organisations in the forms of informal associations and voluntary community organisers (e.g. Citarik Resik, Badega Desa, Karang Taruna).

There is clear appetite across some communities to be part of state-initiated environmental interventions that deliver neighbourhood-scale solid waste and wastewater solutions.

These neighbourhood level associations are typically state-initiated in the sense that they are community based while few of them receive technical or funding support from governments at the village level or municipal level. Neighbourhood participation often revolves around waste programmes and simple technologies such as development of household organic waste treatments (e.g. biopori, black flies and maggots), waste banks for inorganic waste, and monitoring

of pollution within a given neighbourhood. Participation is typically on a voluntary basis, which makes retention of community facilitators and infrastructure managers difficult and scaling to other neighbourhoods challenging. Notably, state-initiated neighbourhood programmes have not yet solved the problems of maintenance post-construction of waste or wastewater facilities. This has led to infrastructures being abandoned due to disrepair.

Village governments have been identified as informants as a key enabler to drive neighbourhood initiatives through allocation of village funds or grant/ lent land (*tanah hibah/ pinjaman*) for infrastructure sites. Consistent and transparent financial and non-financial support from the government over the life of the infrastructure construction, operation and maintenance would be key to unlock these neighbourhood level initiatives and potentially scale it up across the many villages and sub-districts that dot the river and its catchment. Voluntary model of neighbourhood participation, whilst important, is inadequate to drive long-term operation and maintenance. Many of the communities we spoke with express willingness to participate as they can see the economic, health and environmental benefits for themselves, yet consistently worry about lack of formal and long-term support from the governments. To date, there’s no rules specifying how village funds should be allocated towards Citarum programmes or environmental issues.

For neighbourhood initiatives, gender inclusivity in terms of women’s leaderships and facilitators must not be underestimated. Within the prevailing cultural context, women are often disempowered from decision making roles. Yet, as one bureaucrat rightly notes, within the traditional household roles,

women play a dominant role in handling waste-related issues at the point of use, which can influence infrastructure design, operation, and maintenance.

Some forms of solid waste are also women specific (e.g. feminine hygiene, baby nappies, etc.), which can inform design of solutions. Some informants note that women have been more involved in solid waste programs, but their involvement in wastewater programs tends to be overlooked given the technical emphasis in this program.

Box 2 – Opportunities for neighbourhood environmental governance

We visited one neighbourhood in Bandung Regency, where some waste initiatives (e.g. routine collection of waste from households, waste sorting, and waste storage) have been driven by community members. The operation has been funded through household retribution on an informal donation basis. Many households in the area typically fall under a low socio-economic bracket so they may not have the financial means to contribute. According to some interviewees, village funds have often been utilised to fund more ‘sexy’ infrastructure projects, such as roads. In the context of environmental programmes, village funds could be utilised for funding solid waste infrastructure (e.g. adding waste conversion system), including proper wages for operators and managers of the facilities. Some respondents suggest that there should be a transparent process of socialising the budgeting through a participatory process and having clarity in terms of the amount of funds that will be allocated to the projects, which can increase trust and cooperation between the community and the village governments.

Given the right tool, resources, and principles of governance, neighbourhood level participation and leadership can be further fostered across Citarum. State interventions cannot focus solely on delivery of technical solutions. Based on some estimates by our interviewees, a large proportion of Citarum’s fund is allocated to physical infrastructure, whilst the budget for social innovation is piecemeal and far from adequate. Clear resource allocation must be given towards developing a support network involving municipal officials, village governments, and community members in a neighbourhood team. The team can consist of a municipal facilitator and a community co-facilitator, who build capacity and support a larger group of neighbourhood cadres. Their role may include infrastructure build, but not limited to this. Rather, their key assignments would be to provoke, educate, identify, and leverage the potential within the community to be involved pre, during and post-construction. A key requirement for this arrangement is the need for resource allocation and facilitation by village and municipal governments.

Perspective III: Bridge the state-society-science gap through diverse front-line leaderships

Whilst we found that there is no one single accepted front-line leadership figure in our case studies, the military forces are viewed as having the most effective leadership in the Citarum policy implementation. There's a broad agreement that the military leadership is highly effective in terms of implementing on-ground technical solutions, including sanctioning industrial polluters, setting up incinerators along the riverbanks, cleaning up and dredging the river. This is viewed in a complete contrast and, perhaps as a remedy, to the prevailing slow bureaucracy that is bogged down by ambiguous formal structures and arrangements.

Clear vision and strong commitment shown by the leadership figure in the first two-year of the Citarum Harum appears to be the main driver.

In the numerous examples provided of military leaderships in the early days, it was noted that they were capable of disrupting existing customs (e.g. resisting disengagement or negative sentiments against some NGOs and, instead, forming partnerships with them in program implementation); they were knowledgeable in terms of technical matters or were passionate about environmental issues even though this was not their expertise; they orchestrated systems of collaboration and trust building to bring perspectives from NGOs, media partners, universities, and experts to solve problems.

These leaders show a quality of being at the front-line of problem solving, which many interviewees consider as important in driving implementation.

The military leadership exemplifies this through their steady and reliable presence along the river in day-to-day operation and maintenance.

A pitfall to this emphasis on leadership is that implementation tends to flag when there was a change of leadership at the top level. Indeed, there are indications that programme commitments across the Citarum are uneven from one area to another across the 23 military sectors due to

differences in leadership qualities and styles, as well as influenced by local problems and contexts. Some sectors may underperform when they have inadequate local leadership, little knowledge and little interest over the problems, or limited understanding of local conditions. Since there was a change in top leadership, by and large, our interviewees note that this coincided with the declining of the early enthusiasm and resource mobilisation towards Citarum. Due to the weight given to the so-called charismatic military leaders at the top level, there's also potentially less room for other non-military leadership roles to emerge. Another layer of complexity is added when a lower ranked military commander must enforce regulations against pollution coming from another area that is being overseen by higher ranked officers, which would lead to inaction.

Too much weight being placed on top-level leadership roles within the context of policy implementation. This opens a small window for ordinary people to become more active.

(Interview, 22 November 2021)

Whilst top-level leadership appears to be a necessary condition, there's room to explore and nurture other forms of leadership in Citarum, particularly looking at the grassroots level, across government levels, and other non-state actors.

For instance, religious leaders are culturally important but they're yet to be closely involved in advocating for environmental issues. Women and youth leaderships remain untapped although they may hold the potential to promote the Citarum programme and foster contributions across thousands of neighbourhoods along the Citarum and its catchment. Leadership and bridging roles by municipal bureaucrats are also largely missing. Many government officials interviewed agree that municipal bureaucrats lack the resources, networks, know-hows, and motivation to be able to effectively undertake their day-to-day operational roles, let alone to play leadership or bridging roles.

This is compounded by the lack of prioritisation of the environmental agenda by incumbent mayors or regents. Whilst relevant municipal agencies have

been involved in the Citarum Harum coordination, they typically have limited to no decision-making power in terms of budget spending and program implementation, and their roles are often replaced within a short timeframe. In this regard, the Citarum Taskforce has recently requested each municipality's Regional Secretary (*Sekretaris Daerah*), who works closely with the elected mayors/regents to determine policy direction and typically holds their office for up to five-year, to take a more direct role in coordinating actions.

The subtle but important role of intermediaries in bridging relationships across multiple stakeholders is worth emphasising more here. There are many influential leaders and intermediaries repeatedly acknowledged as highly capable in engendering a sense of openness and collaboration that brought state and non-state actors together, including academics, community members, non-government organisations, media and industries. We also found several examples of non-military individuals from within the Taskforce, ministerial agencies, professional associations, and academics, who actively play the role of intermediaries. The term '*pentahelix*' describing the links between government, academics, business, community, and media, has been popularised in Citarum to promote collaboration.

In Cimahi City, the *pentahelix* collaboration appears to be more well established compared to Bandung Regency.

One reason for this is the historically strong ties between academics, military, and industries in Cimahi City, which present opportunities beyond pollution control towards facilitating industrial transformation involving greener and cleaner production systems. This is because almost 60% of Cimahi city has been used as a military base since colonial times. This may be achieved by promoting expertise sharing across industries and academia, and bridging policies across national and municipal levels to prioritise and realise greener production.

Leaders who can reach out to many communities have been described as using “Informal chat over coffee (*Filosofi Kopi dan ngaso bersama*)” where the community is invited to express their complaints and problems experienced in their sector, regularly. (Interview, 22 November 2021)

As one of our interviewees suggested, Cimahi City may be proposed as a demonstration site for more sustainable and greener industries, which is well aligned with the national government's agenda in the green economy.

Intermediaries work and bridge relationships between different levels of governments (municipal, provincial, ministry), between technical agencies (to break down siloed approach), and between different groups of stakeholders (government, military, academics, industries and communities).

Intermediaries build trust across their networks through informal and formal mechanisms. They also share knowledge and information that can facilitate meaningful collaboration and effective implementation strategies.

Knowledge sector intermediaries, such as members of the academia or research institutes, tend to be perceived as neutral and trusted advisors. They can play a bigger role in strengthening the interface between state-society-and-science by providing expertise and training to industries, municipalities, military staff, and community organisations to enhance capacity in implementing solutions. Finally, the role of media partners in shaping public perceptions of government's policy is also important to consider to further bridge the gap between programme ambition and public participation.

Appendix 3

Enabling factors

E1) Awareness

Awareness is rooted in subjective experience and underpins willingness and motivations to participate in river governance processes. It can encompass a range of cognitive and emotional drivers, e.g. consciousness of problems, mental models or worldviews, belief systems, concerns and dissatisfaction over existing solutions, meanings attached to rivers, a sense of identity, narratives and perceptions of crisis. Awareness can operate at an individual level but also at group level. A widespread awareness of a common issue is a key enabler for local implementation.

E2) Political and financial commitments

Political and financial commitments can drive local implementation by providing a stable and shared sense of direction and resources to undertake actions at the municipal level. Their characteristics vary from one political system to another. They may involve articulation of political discourse/vision, endorsement from political leaders, translation of political ambition into measurable targets, exercise of political control over the performance of lower-level governments, provision of financial incentives, clear allocation of government funding, cost-sharing agreements between government levels, innovative fundraising from other sectors and outside of governments, grassroots movements, and city government-initiated political actions.

E3) Authorities

Authorities in the formal sense are associated with enforceable decisions taken by the governments at all levels. Authorities can stem from administrative, political, and institutional mandates. The exercise of authorities varies from one political system to another. In authoritarian political systems, authorisation is enacted in a hierarchical manner to municipal governments, whereas in more democratic systems, tasks or responsibilities are devolved and municipal governments are more autonomous. Municipal governments can have the formal authorities to set water-related regulations, develop infrastructure and services. They may also have authorities to issue warnings, impose sanctions, or even take criminal actions against polluters. Authorities can be embedded in laws, policies, and regulations that provide legitimacy to decisions and actions implemented to address river governance challenges at the municipal level. These formal instruments also play enabling roles as they provide clear legal basis to control and enforce action at the municipal level. Some groups of influential actors may hold more authoritative role than others.

E4) Leaders and front-liners

Leaders and front-liners can provide strategic mobilisation of resources and various on-ground supports to drive local implementation at the municipal level. Leadership may be characterised by strategic skills to mobilise resources and steer actions. Front-liners may be distinguished by their more on-ground and operational roles (e.g. smaller scale direct interventions and onsite activities), which may go beyond a broad interpretation of leadership by strategic means. However, there may be overlap between the two, in the sense that strategic leaders may also take on operational roles. Leaders and front-liners can come from local governments, political parties, river basin authorities, technical agencies, non-government organisations, and community members. Leadership may take a more hierarchical form in the more authoritarian political system, whereas it may take on a more fluid and collaborative form in more democratic contexts, where the ability to influence actions may lie on trusted personas, informal relationships, and a balance of power between various government and non-government entities.

E5) Boundary spanners

Boundary spanners are characterised as actors or organisations who work at the interface of multiple disciplines, groups, and stakeholders and build useful networks. They appear as trusted individuals who convey important messages between levels and groups, bridge the formal and informal efforts, open communication channels, share information, close knowledge gap, and enhance collaboration. They can also play the role of integrating diverse expertise and mediating the science-policy-society interface. They build alliances and foster dialogues by employing various approaches, including through interdisciplinary team structures, creating a shared physical space to work together, organise public events, host community forums, prepare information for different audiences, facilitate participatory meetings/workshops, etc.

E6) Community participation

Community participation is broadly characterised as the active involvement of community members, including through public consultation, direct interventions and service improvements, self-organised movements, providing lay expertise and indigenous knowledge, and driving political actions. Members of communities may include the public in a general sense, citizens or residents of a particular local area (e.g. municipalities, towns, riverbanks), local groups/associations, community-based organisations, marginalised groups, and indigenous communities. While community participation is important, who they are and how best they could be represented must be determined on a case-by-case basis, not prescribed from the outset. The level of participation is also likely determined by the prevailing political system.

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