KIAT KEMITRAAN INDONESIA AUSTRALIA UNTUK INFRASTRUKTUR

MINISTRY OF FINANCE REPUBLIC OF INDONESIA

Kementerian PPN/ Bappenas

Australian Government

POLICY PAPER

FUNDING AND FINANCING OF WATER PPPs

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28 October 2025

KIAT IS SUPPORTED BY THE AUSTRALIAN GOVERNMENT AND IMPLEMENTED BY DT GLOBAL

About this Policy Paper

This Policy Paper on *Funding and Financing of Water PPPs in Indonesia* has been prepared on behalf of Government of Indonesia's (GOI's) Ministry of Finance (MOF) in mapping a credible pathway to scale private sector participation and accelerate sustainable improvements in piped water service delivery.

The Paper is grounded in a rigorous diagnostic assessment of sectoral, institutional, and financing constraints and reflects analysis of PDAM performance data, lessons from operational PPPs, and review of applicable policies and regulations. The recommendations are evidence-based and draw on practical implementation experience from water PPP projects across Indonesia and comparable jurisdictions. The development of this Paper was informed by extensive stakeholder consultations, covering GOI, private sector and Development partners, culminating in three Focus Group Discussion (FGD) sessions convened in September 2025. Feedback from these deliberations has informed and shaped the direction, priorities, and design of the proposed transformation agenda structured around three strategic pillars.

The preparation of this Paper has been supported by the Australian Government through Kemitraan Indonesia Australia untuk Infrastruktur (KIAT), implemented by DT Global, as part of technical assistance provided to the Ministry of Finance. The views expressed in this Paper are those of the authors and do not necessarily reflect the views of the Government of Australia or KIAT. The Paper is intended to inform policy dialogue, strengthen programmatic design, and contribute to building a coherent enabling environment for mobilising public and private capital towards Indonesia's vision of universal access to safe, reliable, and affordable piped water.

Contents

List of exhibits

Acronyms

ADB	Asian Development Bank
APBD	*Anggaran Pendapatan dan Belanja Daerah* (Annual Regional Budget)
APBN	*Anggaran Pendapatan dan Belanja Negara* (National Annual Budget)
ASEAN	Association of Southeast Asian Nations
B2B	Business-to-Business arrangements
BAPPENAS	*Badan Perencanaan Pembangunan Nasional* (Ministry for National Development Planning)
BOT	Built Operate Transfer
BUMD	*Badan Usaha Milik Daerah* (or regionally owned enterprise)
DAK	*Dana Alokasi Khusus* (Special Allocation Funds)
DAU	*Dana Alokasi Umum* (General Allocation Funds)
DBFOT	Design Build Finance Operate and Transfer
DDUB	*Dana Daerah Untuk Urusan Bersama* (Local Funds for Joint Affairs)
DFAT	Department of Foreign Affairs and Trade Government of Australia
DGHS	Directorate General of Human Settlements (also referred as DG Cipta Karya or DGCK)
DGWR	Directorate General of Water Resources
DIPA	*Daftar Isian Pelaksanaan Anggaran* (Budget Implementation Lists)
EOFO	End-of-Facility Outcomes
FCR	Full Cost Recovery
GCA	Government Contracting Agency
GEDSI	Gender Equality, Disability and Social Inclusion
GOI	Government of Indonesia
GR	Government Regulation (*Peraturan Pemerintah or PP*)
HAMBK	*Hibah Air Minum Berbasis Kinerja* (Performance-based drinking water grants)
ICOR	Invested Capital to Output Ratio
IDR	Indonesian Rupiah
IFF	Infrastructure Funding and Financing
IIGF	Indonesia Infrastructure Guarantee Fund
INA	Indonesia Investment Authority
JICA	Japanese International Cooperation Agency
KIAT	*Kemitraan Indonesia Australia untuk Infrastruktur*
LG	Local Government
LVC	Land Value Capture
MDB	Multilateral Development Banks
MOF	Ministry of Finance
MOHA	Ministry of Home Affairs
MOU	Memorandum of Understanding
MPW	Ministry of Public Works
NEF	National Environment Fund

NK	*Nota Kesepahaman* (Memorandum of Understanding)
NRW	Non-Revenue Water
NSC	National Steering Committee
NUWSP	National Urban Water Supply Program
NWSIP	National Water Services Improvement Program (proposed in this paper)
O and M	Operations and Maintenance
OBA	Output Based Aid
ODA	Official Development Assistance
PAT	Profit After Tax
PBC	Performance Based Contract
PDAM	*Perusahaan Daerah Air Minum* (Regional drinking water company)
PBG	Performance Based Grants
PDF	Project Development Fund
Permen	Peraturan Menteri (Ministerial Regulation)
PG	Provincial Government
PIP	*Pusat Investasi Pemerintah* (Government Investment Centre)
PIU	Project Implementation Unit
PMDP	*Penyertaan Modal Daerah kepada Perusahaan Daerah* (Regional Government Capital Participation)
PMU	Project Management Unit
PPP	Public-Private Partnerships
PR	Presidential Regulation (*Peraturan Presiden / PerPres*)
PT IIF	PT Indonesia Infrastructure Finance
PSI	Public Strategic Investor
PT SMI	PT Sarana Multi Infrastruktur
RKPD	Regional Development Plan
ROE	Return on Equity
RPJMN	*Rencana Pembangunan Jangka Menengah Nasional* (National Medium Term Development Plan)
RPJPN	*Rencana Pembangunan Jangka Panjang Nasional* (National Long Term Development Plan)
SDG	Sustainable Development Goals
SILPA	*Sisa Lebih Perhitungan Anggaran* (Remaining Budget surplus)
SIPA	*Surat Izin Pengambilan dan Pemanfaatan Air* (water extraction permit)
SOE	State Owned Enterprise
SPAM	*Sistem Penyediaan Air Minum* (Drinking Water Supply System)
USD	US Dollar
VGF	Viability Gap Funding
WB	World Bank
WSS	Water and Sanitation Services

Executive summary

Strategic context and purpose of this paper

Indonesia's ambition to provide universal piped water access faces challenges. The ability to deliver universal access to safe, reliable piped water is central to Indonesia's long-term development vision. Under its medium-term development plan (RPJMN) 2020–2024, the Government of Indonesia (GOI) targeted 10 million new household connections and 30% coverage. By end-2023, only 3.8 million connections (38%) had been added, with reported household-level access at 22% in 2025.

GOI recognizes public–private partnerships (PPPs) as a strategic priority to accelerate access to piped water. As of date, there are six operational water PPP projects that have focused on developing upstream bulk water infrastructure and supplying bulk water to water utilities (PDAMs) owned by Local Governments (LGs) under committed offtake arrangements. The projects are structured with Viability Gap Funding (VGF) from GOI's Ministry of Finance (MOF) and with guarantees against offtake commitment from the Indonesia Infrastructure Guarantee Fund (IIGF). These operational PPP projects, including Umbulan, Semarang, and Lampung demonstrate the potential to mobilize private capital. However, actual water offtake by PDAMs in many of these projects has been low relative to contractual commitments, as PDAMs face service delivery challenges and are unable to add new connections as projected. This creates concerns around PDAM's fiscal affordability and bankability of water PPPs.

This Policy Paper responds to MOF's request to advise on a credible pathway to scaling up water PPPs. It synthesizes sector diagnostic analysis, findings from review of operational water PPPs and inputs from stakeholder consultations, to map constraints to water PPPs and to outline a transformation agenda which is structured on three pillars namely, (i) *A National Water Services Improvement Program (NWSIP)* as a coordinated GOI response; (ii) *Policy actions* to create requisite implementation enablers, and (iii) *PPP structures* to drive efficiency gains and improve service delivery in downstream distribution and customer interface components. This section summarises key findings and recommendations.

Constraints to water PPPs

Sectoral (or demand-side) constraints to water PPPs arise on account of four thematic factors:

- **Institutional:** PDAMs, vested with responsibility for downstream distribution and customer interface components of Indonesia's water value chain, are constrained by limited scale, financial capacity, and governance frameworks. Key challenges include: (i) *Sub-scale operations:* More than half of the PDAMs serve fewer than 20,000 connections. Average revenue per connection of PDAMs in this category is about 20% lower than that of PDAMs with 20,000–50,000 connections and 90% less than PDAMs with over 50,000 connections, highlighting importance of scale economies, (ii) *Narrow revenue base:* Fewer than one-third of PDAMs achieve full cost recovery. In 2023, PDAMs generated IDR 1.3 trillion in aggregate profit after tax (6% margin on IDR 21 trillion in revenues), translating into a return on equity (ROE) of just 3.3%, which is inadequate to attract and service private capital at scale. *(iii) Operational deficiencies:* Two-thirds of PDAMs cover less than half of their service areas, while average non-revenue water (NRW) exceeds 30%, well above the national target of 20%, and *(iv) Governance gaps:* Being owned by LGs, PDAMs face challenges in mobilizing capital. Weak reporting and limited disclosures further erode investor confidence and hinder creditworthiness.
- **Policy:** Policy and regulatory issues emanate under four aspects: *(i) Lack of regulatory clarity on PPPs in downstream distribution. MPW Regulation No. 19/2016* of GOI's Ministry of Public Works on implementation of water supply systems does not provide clear enablers for private participation in distribution and customer interface components of water value chain. *ii) Challenges in achieving cost recovery:* Although the *MOHA Regulation 21/2020* issued by GOI's Ministry of Home Affairs mandates full cost recovery (FCR) tariffs or compensatory subsidies, fewer than half of PDAMs achieve this, leading to inadequate surplus to service returnable capital (both debt and equity) sustainably. (iii) *Uncertainty in raw water allocation.* Allocation of water

resources for irrigation and flood control often gets prioritised over drinking water. The process for securing water rights for drinking water projects is protracted and creates uncertainty for water PPPs. (iv) *Groundwater over-exploitation*. Lax regulatory enforcement relating to groundwater disincentivizes water users from transitioning to sustainable and safer piped water connections.

- **PPP arrangements**: A whole-of-value-chain approach to PPP implementation is missing and reflects three limitations. (i) *Upstream focus*. PPPs have been confined to upstream component of the water value chain. This is sub-optimal given that the potential for efficiency gains is higher in downstream distribution, where NRW remains high, and service coverage is weak. (ii) *Proliferation of informal cooperation arrangements at the level of PDAMs*. Without a clear regulatory framework for PPPs in distribution, Business-to-Business (B2B) arrangements fill the void. These are unsolicited, prepared with limited rigour, and are often implemented without adequate oversight or linkage to performance outcomes. The opportunity to implement well-regulated, bankable and performance-focused PPP structures gets crowded out as a result, *(iii) Capacity gaps at the subnational level*. LGs and PDAMs lack technical, commercial, and legal expertise to structure and manage bankable PPPs.
- **Fiscal transfers.** GOI's fiscal framework inadequately incentivises performance and reforms in access to piped water as reflected in three features: *(i) Inadequate public financing*. Annual spending on water and sanitation services (WSS) from national and local budgets at approximately IDR 22 trillion annually falls short of the investment needs pegged at upwards of IDR 100 trillion, *(ii) High share of unconditional transfers and negligible use of performance-based instruments*. In 2023, 93% of fiscal transfers from the national budget (APBN) was through non-earmarked allocations while performance-based transfers (Hibah) were negligible at 0.1% of all transfers. *(iii) Multiplicity of instruments*. Government support for the water value chain is weakly synchronized. For instance, MOF's VGF flows to the PPP component of the value chain as per PPP agreements, while co-financing commitments of LGs for network expansion is often delayed resulting in deferment in service delivery.

Although financing (or supply-side) constraints are not a primary bottleneck to water PPPs at present, they, nonetheless limit scale-up of water PPPs. Risk capital flows remain weak due to a weak pipeline of bankable projects, with developers often preferring less-structured B2B deals despite higher risk. Long-term debt provision is concentrated in domestic financial institutions such as PT SMI and PT IIF. Participation of commercial banks is limited due to PDAM creditworthiness concerns, lack of risk-mitigation instruments, and regulatory limits on sub-national borrowing, though recent cases (Bogor, Surabaya) demonstrate that creditworthy PDAMs can access debt. PPP contracts frequently lack bankability features such as step-in rights, escrow mechanisms, and termination payment clarity, reducing lender confidence. Finally, alternative revenue streams such as land value capture, earmarked levies, and climate finance remain underutilized, leaving projects overly dependent on tariffs and fiscal transfers.

Transformation agenda

This Policy Paper proposes a three-pillar transformation agenda to unify interventions, strengthen sector governance, and build accountability for reforms and service delivery. Together, these pillars provide a coherent pathway for a coordinated national response to build a resilient, bankable and performance-oriented water sector.

Strategic pillar I – National program

Indonesia's water PPP initiatives have been pursued in a project-by-project manner, with fiscal tools such as VGF, Hibah, and IIGF guarantees deployed separately and without sufficient accountability for downstream reforms. The Policy Paper sets out a conceptual basis for a National Water Services Improvement Program (NWSIP), as a *unified, results-oriented platform* designed to integrate PPP and non-PPP interventions, to link fiscal incentives to performance, and to support institutional reform. Elements of NWSIP are summarized below.

- **Eligibility and selection.** LGs and PDAMs meeting defined governance, financial, and operational thresholds, and formally commit to sector reforms, could be supported under the program. This will ensure that GOI resources are channelled to credible, reform-minded entities.

- **Converged fiscal incentives linked to performance.** A harmonised package of DAK-Fisik, Hibah, Reform Grants, VGF, and PDF may be provided to participating PDAMs. Disbursement must be tied to measurable milestones such as tariff compliance, NRW reduction, audited disclosure, and coverage expansion. Fiscal incentives to reward LGs and PDAMs that demonstrate progress on reforms and service delivery, could be complemented with an option to exercise devolution intercept for any non-compliance with program commitments.
- **Capacity support and technical assistance.** In addition to financial incentives, project development and transaction advisory support, NWSIP should provide technical assistance support to PDAMs for implementing institutional strengthening and capacity building actions to meet their reform commitments under NWSIP.
- **Phased roll-out.** In the pilot phase, the program could be started by piloting 4–5 PPPs in carefully shortlisted PDAMs, followed by a scale-up phase incorporating lessons into regulation, fiscal systems, and program design.

Strategic pillar II – Policy actions

The programmatic thrust under NWSIP needs to be backed with targeted policy and institutional actions to create regulatory enablers, professionalise PDAMs, and expand financing and funding options. Key elements could include:

- **Regulatory clarity:** *Private participation in downstream distribution* and customer service components must be enabled through a joint regulation by MPW, MOF, and MOHA. This would help remove the regulatory ambiguity to private involvement in these areas. *Streamlining SIPA approvals* for raw water permits and clarifying groundwater regulations are other critical policy and regulatory priorities. *Enforcement of MOHA Regulation No. 21/2020 on full cost recovery* (FCR) tariffs could be made effective by linking compliance to GOI fiscal transfers.
- **Institutional strengthening:** This should include *phased upgradation of PDAMs to Perseroda status* (to enable induction external shareholders and raise capital), and a *consolidation of sub-scale PDAMs into larger, viable entities* will help strengthen PDAM capacity. The adoption of a National PDAM Digital Platform could facilitate systematic reporting and ease of access to PDAM-level operating and financial information.
- **Financing innovations and fiscal actions:** These include developing *alternative local revenue sources* to complement tariffs (e.g. visitor levies, land-value capture mechanisms), enabling *sub-national borrowing,* and *strengthening contracts* to reflect payment security mechanisms (e.g., escrow accounts with waterfall) and bankability enhancing provisions (e.g., step-in rights for lenders, covering debt due in termination payments).

Strategic pillar III – PPP project structures

This Policy Paper proposes *three PPP structures*, tailored to the financial health, and scale of PDAMs, and are focused on the unaddressed downstream distribution and customer services components of the water value chain.

- **Structure A – PDAM as a regional company with diversified shareholding:** This model, designed for large PDAMs with extensive customer bases but weak governance and financial structures, begins with conversion from a LG-owned Perumda to a Perseroda (regional company) structure that allows induction of external shareholders, including a Public Strategic Investor (PSI). National strategic financial institution such as Danantara or PT SMI could be possible PSI candidates and can bring enhanced governance and financial management capacity to PDAMs. A competitively selected private operator takes a capped minority equity stake and assumes management control under an Operations, Management and Development Agreement (OMDA). This structure embeds private-sector discipline within PDAMs while preserving majority public ownership and oversight.
- **Structure B – PPP–DBFOT model:** This model is appropriate for mid- to large-sized *PDAMs with moderate financial strength* and involves a competitively selected Operator setting up a *special purpose vehicle (SPV)* to design, build, finance, operate new water supply assets and transfer the assets at the end of concession term. Revenues are secured through escrowed user charges to mitigate payment risk. VGF and Hibah grants are deployed to improve bankability and incentivise service improvements. Equity participation by the PDAM or LG,

can potentially strengthen alignment of interests, and facilitate smoother asset transfer at end of concession term. Robust shareholder agreements can safeguard against conflicts of interest and enforce accountability.

- **Structure C – Performance-based contracts (PBCs):** Targeted at financially weaker PDAMs, PBCs focus on operational efficiency and service delivery rather than capital mobilisation. Infrastructure investment is publicly financed, while a private operator is contracted for design supervision, operations, and maintenance with payments linked to clearly defined performance targets (e.g., NRW reduction, billing efficiency, coverage expansion). Penalties for non-performance are built in, ensuring accountability. This model allows PDAMs to retain asset ownership while leveraging private-sector expertise to achieve rapid efficiency gains. PBCs also serve as a transitional model, building institutional capacity and readiness for complex PPP structures in the future.

Effective delivery of these models will require (i) *Regulatory clarity* on the permissibility of PPPs in downstream distribution and customer service functions, (ii) *Model contracts* with standardised risk-allocation frameworks, payment security provisions, and bankability features (e.g., escrow mechanisms, step-in rights, termination payments), (iii) *Converged fiscal support* (VGF, Hibah, guarantees) deployed under NWSIP to de-risk transactions, (iv) *Binding commitments* from LG–PDAMs to comply with tariff regulations, strengthen governance, and improve operational disclosure and (v) *Social accountability measures* embedded in project design, including equity goals, affordability benchmarks, and community engagement requirements.

The MPW, in coordination with MOF, MOHA, LKPP and BAPPENAS, could (i) translate these structures into model documentation, including template contracts, shareholder agreements, and risk-allocation frameworks, for national replication, (ii) pilot 4–5 transactions under the NWSIP to test bankability, refine risk allocation, and validate fiscal support modalities and, (iii) Issue official guidance clarifying roles, responsibilities, and fiscal support mechanisms, to provide a clear playbook for LGs, PDAMs, and investors.

Action roadmap

The Paper proposes a sequenced, phased approach is proposed to move from early demonstration projects to a nationally scaled, investment-ready water sector:

- **Short term (0–4 years):** Establish the National Steering Committee (NSC) and governance framework for the NWSIP, issue program guidelines with eligibility and fiscal support criteria, and launch the PDAM Digital Platform for systematic disclosure. Prepare and close 3–5 pilot PPPs in selected LG–PDAMs meeting readiness criteria. Clarify the regulatory basis for PPPs in distribution and streamline SIPA permitting to reduce delays.
- **Medium term (5–8 years):** Expand NWSIP to cover 20+ PDAMs, scale up capacity-building programs, and initiate consolidation of sub-scale PDAMs in at least one region. Pilot independent tariff review mechanisms and refine program design based on lessons from Phase 1. Achieve financial close on at least five large PPPs, with two reaching commercial operations.
- **Long term (8+ years):** Roll out the NWSIP nationally, embed governance and financial reforms as sector norms, and integrate bulk water production with downstream distribution PPPs ("source-to-tap" models). Institutionalise predictable fiscal transfers and diversified local revenue sources to sustain sector financing.

Way ahead

The proposed three-pillar transformation agenda, combining the NWSIP, targeted policy actions, and replicable PPP structures, provides a coherent pathway to mobilise private capital, strengthen governance, and accelerate water supply access. Immediate priorities for GOI include establishing the NSC, finalising NWSIP guidelines, engaging LGs and PDAMs to secure reform commitments, clarifying critical regulations and piloting PPPs in downstream distribution. Taken together, these steps will signal policy intent, build early momentum, and lay the foundation for sustained scale-up of water access. When implemented, this agenda will transform Indonesia's water sector into performance-driven, and investment-friendly ecosystem, delivering universal access to safe, reliable, and affordable piped water in line with GOI's 2045 vision.

1. Introduction

1.1. Context

The Government of Indonesia (GOI) has faced persistent challenges in expanding piped water supply access in alignment with its national development goals. Under its National Medium-Term Development Plan (RPJMN) 2020–2024, the GOI had set ambitious targets[1]: (i) the addition of 10 million new household piped water connections and (ii) an increase in household-level piped water access to 30 percent by 2024. However, progress has fallen short. By the end of 2023[2], only 3.8 million new connections had been added representing just 38 per cent of the target. As of 2025[3], household-level piped water access remains at 22 per cent, well below the RPJMN target.

The GOI views public-private partnerships (PPPs) as a strategic tool to enhance piped water supply access and has implemented such arrangements in upstream components of the water value chain in recent years. Water supply is a devolved function[4] in Indonesia, with Local Governments (LGs) holding primary responsibility for service delivery within their jurisdictions. LGs delegate this mandate to wholly owned water utilities, known as Perusahaan Daerah Air Minum (PDAMs). Two forms of cooperation between PDAMs and private entities exist: (i) PPPs and (ii) business-to-business arrangements (B2Bs). PPPs are guided by national regulations, undergo a formal project preparation process, and benefit from government support mechanisms such as Viability Gap Funding (VGF) from the Ministry of Finance (MOF) and guarantee support from the Indonesia Infrastructure Guarantee Fund (IIGF). As of 2024, three water PPPs, *Umbulan, Semarang, and Lampung*, were operational, and eight[5] other projects were in various stages of preparation and implementation. In contrast, B2Bs are typically initiated at the PDAM level through unsolicited proposals. These do not follow the same rigorous preparation or procurement processes and vary widely in terms of scope, scale, and risk allocation.

Despite GOI support, operational and financial challenges at the LG and PDAM levels constrain the scale-up of water PPPs and impede improvements in piped water access and service delivery. In almost all operational water PPPs, actual water offtake by PDAMs is lower than the volumes committed in the project agreements. This shortfall is primarily due to PDAMs' limited capacity to expand distribution networks and enhance revenue collection. Three critical issues in aggregate performance of PDAMs reflect these limitations[6]: (i) fewer than one-third of PDAMs achieve full-cost recovery (FCR) through user charges, (ii) the average level of non-revenue water (NRW) exceeds 30 percent compared to the regulatory target of 20 percent, and (iii) nearly two-thirds of PDAMs report service coverage below 50 percent. These constraints undermine the sustainability and effectiveness of water PPPs, as limited cost recovery and service coverage often reflect gaps in affordability and weak social accountability mechanisms.

Addressing these systemic challenges at the LG and PDAM levels is critical for a sustainable scale-up of water PPPs. PDAMs often face a vicious cycle of underperformance—*limited investments in network expansion result in high NRW and poor service quality, which in turn constrain their ability to impose cost-reflective tariffs and generate sufficient cash flows needed to invest in capital expenditure*. These weaknesses lead to contractual non-compliance, particularly with respect to offtake payments to private developers under PPP arrangements. As a result, upstream infrastructure financed with substantial VGF support remains underutilized, while GOI gets exposed to fiscal liabilities when IIGF guarantees are invoked due to PDAM default. Strengthening the technical, financial, and institutional capacities of PDAMs and LGs is thus critical to realise the full potential of PPPs in the water sector.

[1] Source: Presidential Regulation 18 of 2020. Strategic Priority Projects. Appendix II. RPJMN 2020-2024.

[2] Rancangan Instruksi Presiden Tentang Percepatan Penyediaan Air Minum Dan Layanan Pengelolaan Air Limbah Domestik. Bappenas. 2023

[3] Press coverage. Statement by Minister for Infrastructure and Regional Development. International Conference on Infrastructure Jakarta. 2025 and BUMD Performance Book. Directorate of Drinking Water, MPW. 2024.

[4] LGs are responsible for services provided within their boundaries, while cross-boundary services come under the appropriate higher level of government, namely Provincial Governments (PGs) or GOI, as per GOI's decentralization law, i.e. *Law No. 23/2014 on Local Governments*.

[5] Pekanbaru, Jatiluhur – I, Jatiluhur II, Karian Serpong, Jatigede, Denpasar, Sinumbra & Lau Biang Lah Dah. Source: PPP Book. BAPPENAS. 2024.

[6] FCR, NRW and Service coverage figures as per BUMD Performance Book. Directorate of Drinking Water, Ministry of Public Works, GOI. 2023

This Policy Paper on water PPPs has been prepared in response to the above challenges. It aims to identify actionable measures to address the funding and financing constraints to implementation of water PPPs in Indonesia. The paper follows a diagnostic assessment of key enablers and barriers, and draws on extensive consultations with stakeholders across government, the private sector, and development partners.

1.2. Scope and methodology

The scope and methodology adopted in preparing this Policy Paper is described below.

1.2.1. Constraints and diagnostic analysis

The components of constraints and diagnostic analysis include:

- **Analysis of sectoral (demand-side) constraints.** This involved a structured identification of demand-side constraints from the perspective of the water value chain. The analysis draws upon (i) review of aggregate performance of PDAMs as reported in annual assessments done by GOI's Ministry of Public Works (MPW), (ii) analysis of PDAM-wise performance data for 2018-23, (ii) review of operational water PPPs in Semarang and Bandar Lampung, and (iii) review of relevant policies and regulations. Consultations with MOF, other stakeholders and KIAT informed this process. Sectoral constraints thus identified are mapped under four thematic areas - *Institutional aspects, Fiscal Transfers, PPP arrangements, and Policy* – to aid solutioning.
- **Analysis of financing (supply-side) constraints.** This involved a mapping of constraints in mobilizing private financing, both in the form of risk-tolerant equity and long-term, low-cost debt, for Indonesia's water PPPs, from the perspective of investors and lenders. This assessment is informed by secondary research on the landscape of infrastructure financing in Indonesia, regulatory aspects around mobilising capital at the level of sub-national governments, and consultations with commercial and development financial institutions, private developers, multilateral agencies, and KIAT.

1.2.2. Crystallising a Transformation agenda

The policy paper proposes a three-pillar transformation agenda to address constraints identified, accelerate scalable adoption of water PPPs and to lay the groundwork for sustainable, socially accountable, water supply access provision

- **Pillar I – National water program.** A strong case emerges from the constraints analysis for GOI support to water PPPs to transcend MOF's PPP instruments, [namely VGF, IIGF guarantees, and Project Development Fund (PDF)], to tackle sector-level challenges. Accordingly, a converged outcome national program is proposed. The national program proposes a blend of public and PPP interventions with two objectives: i) institutional reform and capacity enhancement of PDAMs and (ii) implementation of PPPs to drive performance improvement, and universal access to high-quality water services. Indicative design and contours of the program (covering program scope, core components, institutional roles, and financing modalities) are discussed under this Pillar.
- **Pillar II – Policy reforms.** Critical policy actions to support effective implementation are identified under two complementary streams namely, (i) *Regulatory measures* to create an enabling environment for water PPPs, and (ii) *Institutional reforms* to strengthen PDAMs as credible, bankable government contracting agencies (GCAs) and as professionally managed utilities. Interventions needed for implementation are organised in a phased *action roadmap* and identifies critical short, medium and long-term actions under each of the three strategic pillars. Potential areas of technical assistance are also identified.
- **Pillar III – Project structures.** This pillar proposes three cooperation structures focused on downstream distribution. These structures are designed to accommodate variations in PDAM scale (distinguishing between large and mid-sized PDAMs) and differences in their institutional and financial capacities. A distinctive feature of these structures is the proposed use of mixed shareholding structures, including provision for induction long-term strategic investors. This could help strengthen governance, professionalisation, and enhanced oversight, while mitigating political scepticism and build public accountability and capacity while implementing water PPPs.

The terms, *financing* and *funding* are used in this document with a specific connotation, as described below.

Financing refers to cash flow streams deployed to invest in creation of assets used for service delivery. These streams include (i) *returnable streams* (e.g., loans, bonds, and private financing through PPPs) and (ii) *non-returnable streams (e.g., VGF)*. Where *returnable streams* are deployed, stable, recurrent future revenue streams will be needed to *fund* the return and servicing of such financing (this includes *principal repayment and interest* in the case of debt and *return on equity* in case of equity investment)

Funding refers to *stable, recurrent future cash flow streams* needed to pay for service delivery. This should cover O&M obligations and servicing returns for investors that provide *returnable financing* to a project. These typically include revenues of GCAs (including from own sources like user charges and recurrent revenue grants or fiscal transfers). In other words, bankability and sustainability of PPP projects hinges on the availability of stable *funding* streams to service returnable *financing*.

The preparation of this Paper involved secondary research covering information and reports sourced from KIAT, MOF and other agencies, complemented with extensive stakeholder consultations. Meetings with GOI officials in key ministries of GOI including MOF, Ministry of Public Works (MPW), Ministry of Home Affairs (MOHA) and BAPPENAS informed the preparation of the Paper. Consultations also included public financial institutions, development partners, private developers and sector experts.

Findings and recommendations of this Paper were further deliberated in three Focus Group Discussion (FGD) meetings organized by KIAT on behalf of MOF on 16-17 September 2025. Over 80 officials attended the FGDs. Regulatory analysis is based on a limited review complemented with consultations with GOI stakeholders and legal experts. While due care has been taken to cross-reference and validate information reviewed, on a best-efforts basis, the report recognises the backdrop of multiplicity of datasets and data limitations. The proceedings of the FGD meetings are summarised in *Annexure I*.

1.3. Structure and organisation of this document

This Policy Paper is intended builds on a contextual analysis of the sector, examines constraints to implementation, and outlines thematic focus areas and proposed actions for scaling up funding and financing of water PPPs. Inputs from consultations including from the FGD meetings conducted in September 2025 are reflected in this Paper. The Paper is organized into eight chapters:

- **Chapter 1 – Introduction**. This chapter outlines the context, scope, and methodology adopted for preparing this Policy Paper.
- **Chapter 2 – Sector context**. This chapter reviews investment and service performance trends in Indonesia's water supply sector in relation to GOI's vision and targets. It describes the prevailing institutional and regulatory framework and provides an overview of financing sources and fiscal transfer trends for WSS infrastructure.
- **Chapter 3 – Sector-level constraints**. This chapter maps constraints to water PPPs along the water value chain and at different levels of government. Findings from a review of two water PPPs, namely Semarang and Lampung are discussed. The chapter concludes with a thematic grouping of these constraints for targeted solutioning.
- **Chapter 4 – Financing constraints**. This chapter examines barriers to mobilizing private finance, both equity and debt, from the perspective of investors and lenders. It reviews Indonesia's infrastructure financing landscape, analyses issues with subnational borrowing, and examines the need for alternative instruments to strengthen funding base for water PPPs.
- **Chapter 5 – Strategic pillar I: National program**. This chapter builds the case for a national program and discusses its contours covering scope, phasing, targets, components, governance arrangements, and financing modalities.

- **Chapter 6 – Strategic pillar II: Policy actions**. This chapter sets out the accompanying structural actions in terms of regulatory and institutional enablers, needed to facilitate PPP implementation at scale.
- **Chapter 7 – Strategic pillar III: PPP project structures**. This chapter proposes three project structures to address service delivery improvements in downstream distribution and customer interface components.
- **Chapter 8 – Stakeholder reflections, action roadmap and way ahead.** This chapter summarises feedback received from stakeholders during focus group discussions and consolidates the recommendations under the three strategic pillars into an action roadmap covering short-, medium-, and long-term actions across the three strategic pillars. Priority technical assistance actions needed to support implementation of this roadmap are also discussed in this chapter.

2. Sector context

2.1. Sector trends and imperatives

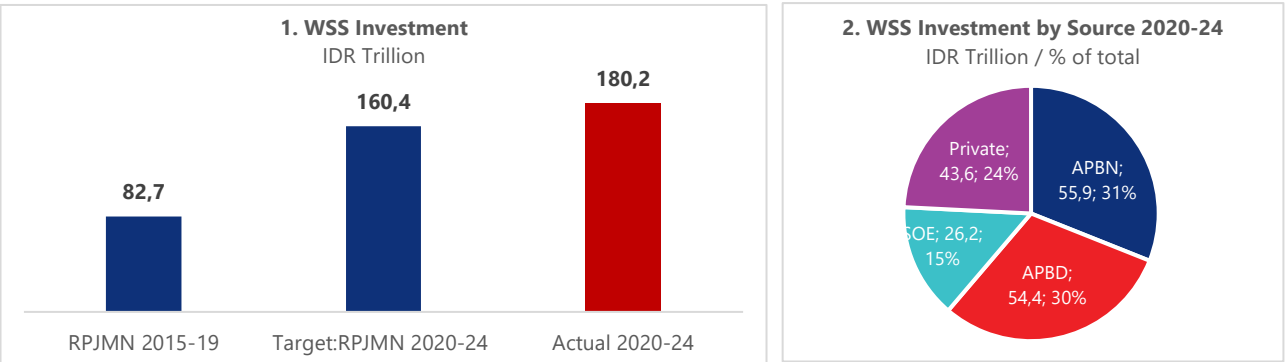
The GOI had set ambitious targets to enhance piped water supply access under its national development plans. Targets[7] outlined in GOI's RPJMN 2020–2024 include: (i) the addition of 10 million new household piped water connections, and (ii) increasing household-level piped water supply to 30 per cent by 2024. The roadmap for implementation of Sustainable Development Goals (SDGs) sets further targets[8] for piped and safe water supply at 50% and 45% respectively for 2030. Looking further ahead, GOI's National Long-Term Development Plan (RPJPN) 2025–2045 envisions universal (100 per cent) safe water supply by 2045.

Despite a significant increase in investment in water and sanitation services (WSS), progress on piped water supply access fell short of RPJMN targets. During the RPJMN 2020–2024 period, investment in WSS reached IDR 180 trillion[9] representing a 12.5 per cent increase over the plan target and more than double the investment of IDR 80 trillion recorded during 2015-19. Nevertheless, piped water access outcomes have been modest. By the end of 2023[10], only 3.8 million new connections had been added, accounting for just 38 per cent of the RPJMN target. Household-level piped water access at 22 per cent as of 2025[11] also falls short. The slow progress in piped access from a low 2019 baseline (piped supply had only a nine per cent[12] share of domestic water demand) underscores the need for sustained, and systemic efforts towards universal piped water access. Refer to *Exhibit 2.1*.

Indonesia's water security and supply access outcomes remain below regional benchmarks, highlighting opportunities for targeted improvement. National water productivity measured as economic output per cubic meter of water used at US 3.2, was lower than peer nations with comparable agricultural water use. In terms of access to water supply services, Indonesia's piped water coverage at 22 per cent, and NRW at 33 per cent fall short of regional benchmarks. The Asian Water Security Index[13] pegs Indonesia's score at 61, also lower relative to many of its regional peers. These indicators collectively highlight the need for accelerated and targeted reforms to enhance water resource management and service delivery outcomes. Refer to *Exhibit 2.2*.

Exhibit 2.1 Indonesia's WSS service delivery trends and investments

A. There has been an increase in WSS investments during the RPJMN 2020-24 period



Source: Infra dashboard. Report on Findings on current RPJMN 2020-2024. KIAT research.

[7] Presidential Regulation 18 of 2020. Strategic Priority Projects. Appendix II. RPJMN 2020-2024.

[8] Source: Indonesia's SDGs Roadmap Towards 2030. BAPPENAS. 2019. Definitions are as per Sustainable Development Goals formulated by the United Nations: *Piped supply* - Water delivered through pipes. *Safe supply* - supply located on premises, available when needed and free from faecal and priority chemical contamination (as per national or WHO standards)

[9] Source: Infra dashboard. Report on Findings on current RPJMN 2020-2024. KIAT.

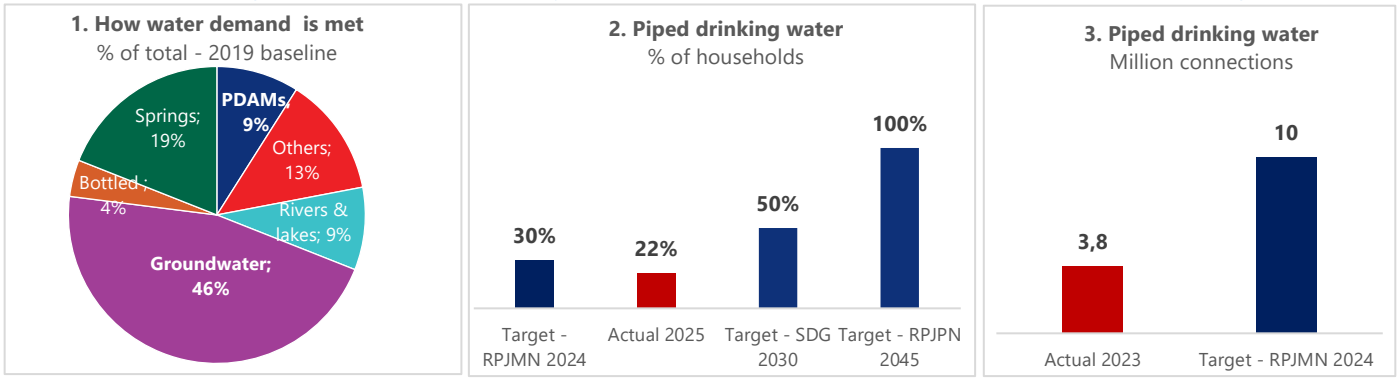
[10] Rancangan Instruksi Presiden Tentang Percepatan Penyediaan Air Minum Dan Layanan Pengelolaan Air Limbah Domestik. Bappenas. 2023

[11] Statement by Minister for Infrastructure and Regional Development. International Conference on Infrastructure Jakarta. 2025

[12] "Indonesia Vision 2045 – Towards Water Security". World Bank 2019.

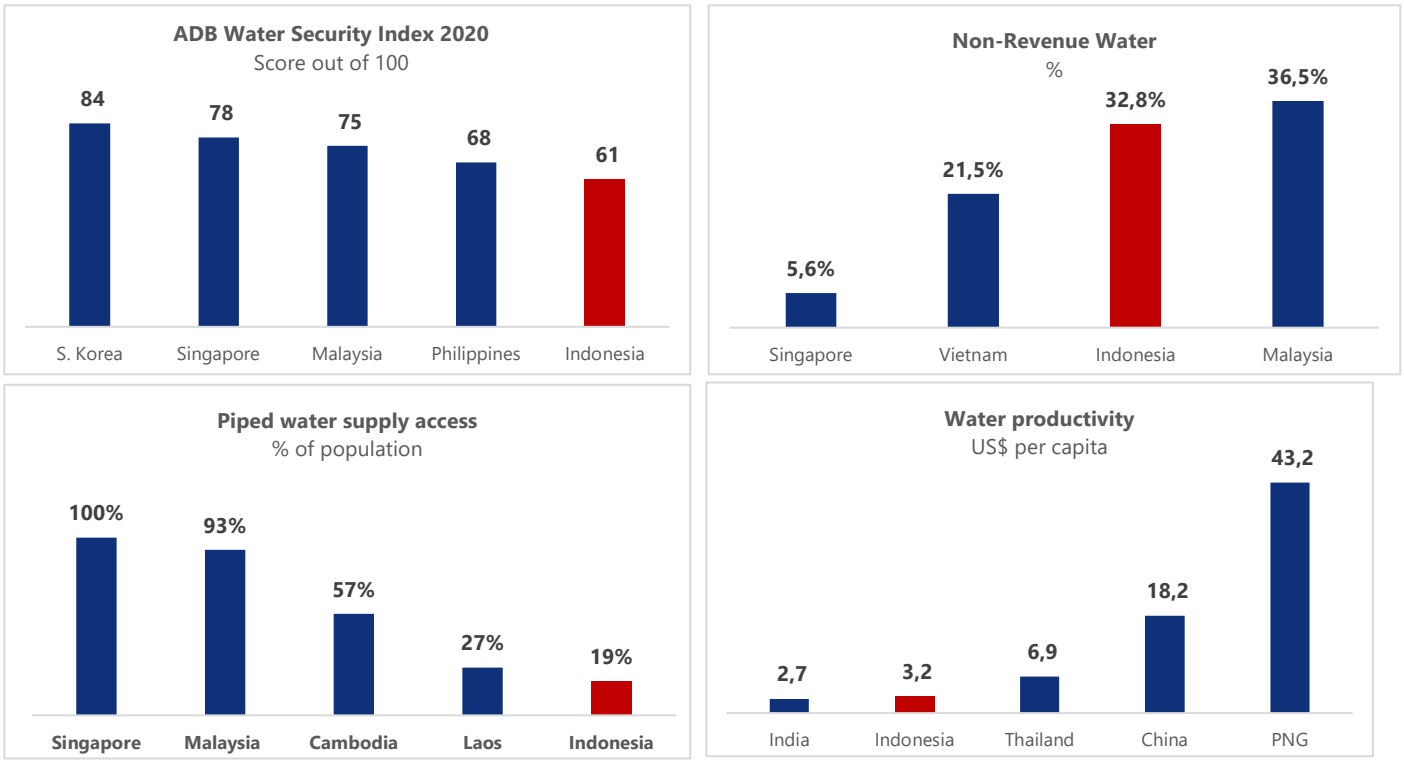
[13] Developed under the Asian Water Development Outlook 2020 by the Asian Development Bank

B. Progress from a low water supply access baseline has been slow and falls short relative to GoI targets



Source: WB 2021(a) - Indonesia Vision 2045 – Towards water security. Secondary research

Exhibit 2.2 Indonesia vis-à-vis peers on select water supply access indicators



Sources: KIAT research, WB 2021(a), ADB 2020 (a) - Asian Water Development Outlook 2020, Secondary research

With rising water demand, climate change vulnerabilities and pollution risks, improving access to safe reliable water supply is critical to Indonesia's economic growth and social well-being. A World Bank report[14] on Indonesia's water security highlights that inadequate water supply could reduce Indonesia's gross domestic product by 2.5 per cent by 2045. Currently, nearly half of Indonesia's GDP is generated in 'severe or high' stress river basins. Groundwater quality is also deteriorating, with over 93 percent of sampled groundwater exceeding acceptable pollutant thresholds.

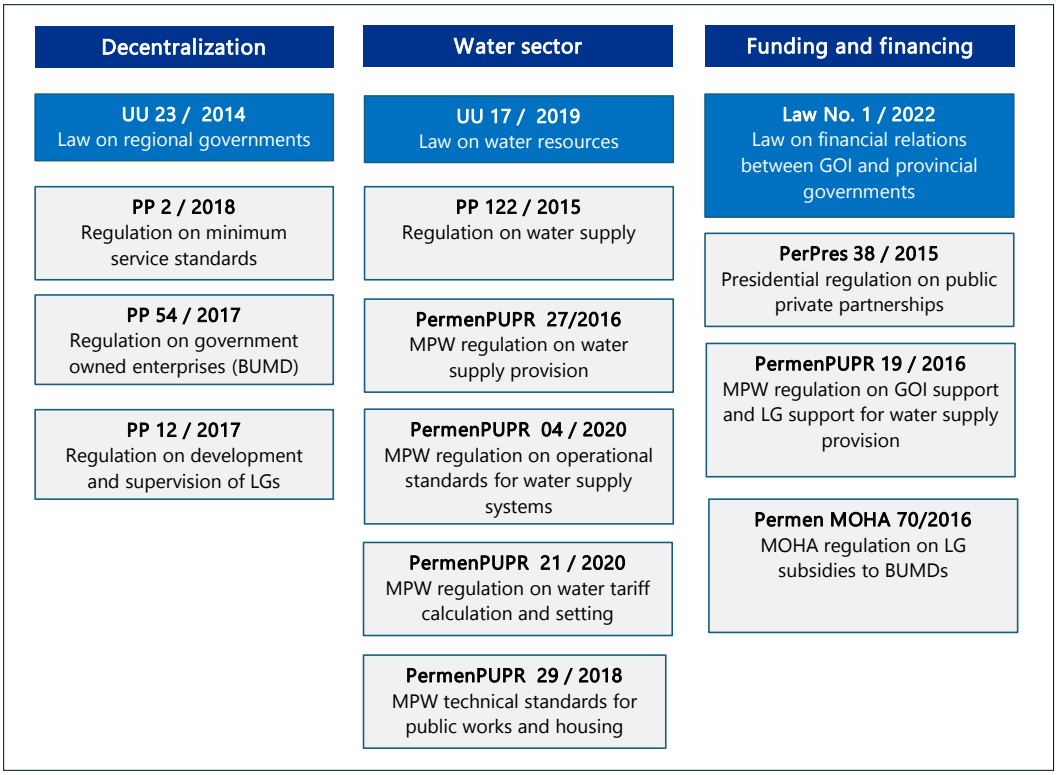
Considering these challenges, the status-quo of informal supply, inefficient use and weak water utilities is unsustainable. GOI's ambitious vision and targets must be underpinned with greater policy clarity, rigor & agility in project preparation & structuring, and stronger public funding & financing mechanisms to crowd-in private financing, to incentivize LGs-PDAMs level reforms and improved service delivery.

[14] "Indonesia Vision 2045 – Towards Water Security". World Bank 2019.

2.2. Regulatory landscape

Salient facets of the regulatory landscape for water supply are summarised in *Exhibit 2.3* and described below.

Exhibit 2.3 Indonesia regulatory framework on decentralization and water resources



Source: KIAT research. PerPres= Peraturan Presiden (Presidential regulation), PP= Peraturan Pemerintah (Government regulation), Permen= Peraturan Menteri (Ministerial regulation)

2.2.1. Decentralized delivery of water supply services

Indonesia's legislative framework for water supply upholds decentralized service delivery. *Law No. 23 of 2014 on Local Government* establishes the legal and institutional framework for the governance and administration of provincial governments (PGs) and LGs. In relation to public service delivery (including water supply, sanitation, health, and education), the law specifies that these responsibilities fall under the authority of LGs when the services are confined within their administrative boundaries, and under PGs or GOI jurisdiction when they cross those boundaries. Regulations issued by Ministry of Home Affairs (MOHA) under this Law include:

- ***Government Regulation (GR) no. 54 of 2017 on regionally owned enterprises (BUMD)*** provides the regulatory framework for the establishment, governance, and management of BUMD by PGs and LGs. The regulation classifies BUMDs into two legal forms: (i) *Perumda,* a public service entity wholly owned by a regional government (e.g., PDAMs), and (ii) *Perseroda,* a limited liability company that may include minority shareholding by private or public investors and is oriented toward profit-making. It outlines the procedures through regional regulations, governance structure, capital provision, and accountability mechanisms. The regulation also permits PGs and LGs to inject capital into BUMDs in the form of cash, assets, or other state-owned resources. BUMDs may also engage in partnerships, and external financing, including PPPs, in alignment with their mandate.
- ***MOHA Regulation No. 2/2018 on minimum standards*** identifies six core service sectors, including water supply that are subject to minimum standards defined under the regulation. The objective is to ensure a baseline level of equitable and accountable service delivery across all regions, regardless of fiscal capacity. LGs are required to integrate these standards into their regional development and budget plans (RKPD and APBD), and the GOI is mandated to monitor implementation and provide fiscal transfers and technical assistance where needed.

- ***MOHA Regulation no. 12 of 2017 on framework for supervision of regional governments*** lays down the objectives and mechanisms of supervision of regional governments including compliance with laws and regulations, performance improvement and accountability in public service delivery. Supervisory mechanisms include evaluation of local regulations, monitoring local policy implementation, Interventions in case of persistent non-compliance, and evaluation of BUMD governance through reports submitted by LGs.

2.2.2. Water as a Public Good – Law 17 / 2019

Law no. 17 of 2019 on water resources **provides the overarching legal framework for Water Resources and was enacted following the annulment of the previous *Law no. 7/2004* by the Constitutional Court.** The previous law was annulled to address concerns regarding private sector control over water resources. While the 2004 law promoted decentralization of water sector responsibilities, the new law reaffirms the state's authority over water resources, emphasizes equitable public access, and introduces stringent conditions for private participation. These provisions reflect a recognition of water as a public good. Notably, the 2019 law acknowledges drinking water as a legitimate use of water resources but excludes wastewater from the scope of resource conservation and protection.

- ***MOHA Regulation no. 122/2015 on drinking water supply systems*** provides the operating framework for drinking water services. Since the new Law did not include provisions for service delivery regulation, regulation 122/2015 remains in force as the regulatory instrument even though it predates the new Water Law. It covers the roles of different government levels and cooperation arrangements that LGs can adopt for water service provision, including NRW Performance-Based Contracts (NRW-PBCs), PPP and B2B arrangements in SPAM infrastructure and operations. A 2023 OECD paper notes[15] that the regulation offers limited operational guidance on performance monitoring, tariff setting and enforcement, or independent economic regulation.
- ***Allied technical and administrative regulations:*** Other regulations in place to govern technical standards and administrative aspects under the Ministry of Public Works (MPW) and MOHA include:
  - **MPW Regulation no. 27/2016:** Water provisions, technical standards of water supply and infrastructure.
  - **MPW Regulation no. 29/2018:** Technical standards for public works and buildings, including for WSS.
  - **MPW Regulation no. 4/2020:** Operational standards for water supply systems
  - **MOHA Regulation no. 21/2020:** Methods for calculating tariffs for water supply and wastewater.

2.2.3. Funding and Financing

The legal framework governing intergovernmental fiscal relations is covered under Law No. 1 of 2022 on Financial Relations between GOI and Regional Governments (UU HKPD). The enactment of Law reflects the Government's commitment to strengthening fiscal decentralization while enhancing the quality of public services at the regional level. The erstwhile 2004 Law focused on revenue-sharing and fiscal transfers but faced challenges related to fiscal disparities, inefficiencies in local spending, and limited fiscal accountability. In response, Law No. 1 of 2022 introduces a more performance-oriented and equitable fiscal transfer system, improves local revenue mobilization, and encourages harmonization of spending with national priorities. The Law promotes use of formula-based general allocation funds (DAU), incentivizes improvements in basic service delivery, and provides a legal basis for regional governments to access alternative financing, including through regional bonds and PPPs. It also redefines the division of expenditure responsibilities and strengthens fiscal discipline through enhanced monitoring and evaluation mechanisms, thereby aiming to create a more accountable, transparent, and outcome-driven intergovernmental fiscal system. In addition to Law No. 1 of 2022, the following regulations are also important in the context of funding and financing aspects in the water sector:

- ***Presidential Regulation (PR) no. 38/2015*** establishes the national policy framework for Public-Private Partnerships (PPP) in infrastructure development. It defines the sectors eligible for PPP, outlines project stages—from planning to procurement and implementation—and sets the roles of government institutions in project

[15] Water Financing and Disaster Risk Reduction in Indonesia. OECD Studies on Water. 2023

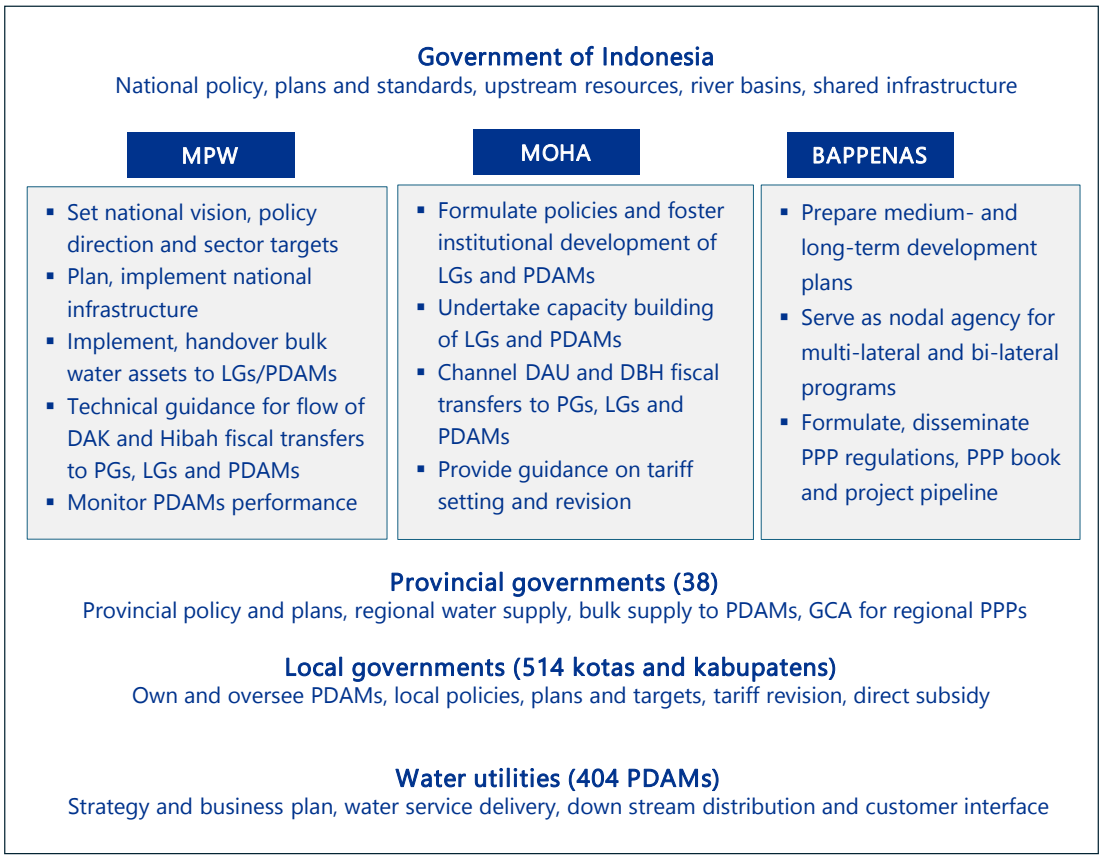
development and risk-sharing. It embeds principles of good governance, stakeholder engagement in project preparation and feasibility requirements (e.g., environmental and social impact assessments), and public interest protection, which are the foundations of social accountability. The regulation enables both central and regional governments to engage private partners for infrastructure delivery, including water supply, through long-term concession, BOT, or other cooperation models.

- ***MPW Regulation no 19 / 2016*** on Delegation of Authority for SPAM implementation sets out the mechanism for delegating implementation authority in the development of drinking water supply systems (SPAM) from MPW and covers delegation terms, implementation responsibilities, supervision mechanisms, and compliance reporting. The regulation facilitates accelerated project execution, particularly in central-regional collaborative water supply schemes, including those involving PPPs.
- ***MOHA Regulation no. 70 of 2016*** governs LG subsidies to BUMDs managing drinking water systems (SPAM). It mandates that when water tariffs are set below full cost recovery, LGs must explicitly allocate subsidies through the regional budget (APBD) to cover the financial gap. The regulation outlines procedures for subsidy calculation, approval, disbursement, performance reporting, fiscal accountability and alignment with public service mandates.

2.3. Institutional ecosystem

Indonesia's institutional ecosystem for water supply is summarised in *Exhibit 2.4* and described below.

Exhibit 2.4 Indonesia's institutional set-up for water supply is fragmented



Source: Watsan landscape report. KIAT. 2024

The **GOI** is responsible for strategic policymaking, regulatory oversight, financing, and implementation of major infrastructure. Its responsibilities span the full water value chain i.e., from upstream water resource management to downstream service delivery and are operationalized through the Ministry of Public Works (MPW), the Ministry of Home Affairs (MOHA), and the Ministry of National Development Planning (BAPPENAS). At the national level, GOI has articulated a series of medium- and long-term priorities and targets, which are reflected in Indonesia's National

Medium-Term Development Plan (RPJMN 2020–2024) and the forthcoming Long-Term Development Plan (RPJPN 2025–2045). These include targets around water resources development, treated water capacity, coverage expansion, NRW, utility performance, and private sector participation. These policy targets guide the design of policies, allocation of fiscal transfers, technical assistance programs, and structuring of PPPs by national ministries and implementing agencies. The Central Government's role is therefore not limited to just development of water resources and upstream water infrastructure but also enabling downstream service delivery improvements through policy coherence, institutional enablers, and financing support.

- The **Ministry of Public Works and Housing (MPW)** is responsible for planning, funding, and implementing nationally significant and cross-boundary water infrastructure, such as dams, reservoirs, bulk water transmission systems, and water treatment plants, particularly where such assets serve multiple jurisdictions. These assets are typically handed over to PGs or LGs for O&M. Through the Directorate General of Water Resources (DGWR), MPW is responsible for planning, developing, and managing national water resources, including dams, reservoirs, irrigation systems, raw water supply, and river basins. Simultaneously, under the Directorate General of Human Settlements[16] (DGHS), MPW oversees national policy, infrastructure development, and technical, including construction and handover of water treatment and distribution systems to PDAMs. MPW's responsibilities encompass setting national targets, developing policies and technical standards, and providing implementation guidance to PGs, LGs and PDAMs. The ministry channels fiscal transfers such as the Special Allocation Fund (DAK) and Hibah grants to PGs and LGs, provides capacity building for PDAMs, and supports the development of regional water supply systems that serve multiple jurisdictions. Under MPW Regulation No. 122/2015, MPW also exercises technical oversight and monitoring of PDAMs and provides normative guidance on performance standards, service delivery benchmarks, and infrastructure planning.
- The **Ministry of Home Affairs** (**MOHA)** plays a critical regulatory and administrative role with respect to regional governments. It is responsible for issuing regulations concerning the establishment, institutional governance, and oversight of LG-owned enterprises, including PDAMs. MOHA also sets policy directions on public service delivery standards, including aspects of water quality, consumer service and tariff setting. It provides guidance on corporate governance, service delivery responsibilities, and internal control mechanisms for PDAMs, aligned with broader decentralization laws and regional autonomy frameworks. MOHA also plays a regulatory role in setting water quality and public service standards, in coordination with the Ministry of Health and the MPW. MOHA manages the flow of General Allocation Funds (DAU) and Revenue Sharing Funds (DBH) from the national budget to LGs, which can be used to support investment and O&M needs in the water sector, although these transfers are typically non-earmarked. In addition, MOHA supports the capacity development of LGs through institutional strengthening programs. Given that PDAMs are legal entities under LGs, MOHA plays a critical role in their restructuring, consolidation, and oversight, especially in cases of financial distress or poor service delivery.
- **BAPPENAS** serves as GOI's principal planning and coordination agency. It is responsible for development of national long-term and medium-term development plans (RPJPN and RPJMN), which, among other things, sets the overarching targets for water supply access and infrastructure development. BAPPENAS serves as a bridge across various ministries including MPW and MOHA to facilitate inter-ministerial coherence and alignment of water supply programs with national development priorities. It acts as a nodal agency for programs with multi-lateral and bilateral institutions and donors in the water sector. BAPPENAS also coordinates preparation of project pipelines, including the annual PPP book which profiles PPP projects in operation and under development.
- The **Provincial Governments (PGs)** play an important intermediary role, particularly in inter-jurisdictional planning, coordination, and financing of cross-LG or regional water supply systems and infrastructure that serves multiple districts or cities within their jurisdiction. They are directly involved in implementation of regional water supply systems, implemented through provincially owned BUMDs to help optimise resource allocation and

[16] Also referred to as DG Cipta Karya or DGCK

achieve economies of scale in channelling bulk water supply to PDAMs. They could potentially serve as the GCA for regional water PPPs. PGs are also responsible for ensuring that water investments are integrated with broader provincial development strategies. While their mandate includes financing of regional water infrastructure as well, PGs often rely on GOI transfers and technical support for project execution. The role of PGs in the water value chain is therefore strategic and facilitative while also enabling inter-LG cooperation to expand and improve water service coverage.

- The **Local Governments (LGs)** are mandated to plan, fund, and manage basic water services, including piped water supply, within their jurisdictions under MOHA Law 23/2014 on Regional Governance. This responsibility is typically executed through wholly owned PDAMs. The LGs are accountable for setting service and access targets, approving PDAM business plans and tariffs, providing capital support, and facilitating land and permits for infrastructure development, and approve tariffs and subsidy. They coordinate with PGs and GOI to access fiscal transfers and to participate in regional water supply schemes. As the tier of government closest to water users and communities, the LGs have an important role in translating national policies into service outcomes and in driving improvements in access, service quality, and sustainability.
- The **PDAMs** set up and operating under LGs are the 'last mile' service delivery utilities and are responsible of delivery of piped water supply services in areas under their jurisdiction. They interface directly with water users (residential, commercial and industrial). The creation of PDAMs predates the law on decentralization and they were set up by LGs under *Law No. 5/1962 on Local Enterprises* as financially ring-fenced entities to create, operate infrastructure assets for water service provision, on their behalf. However, the legal framework neither provided clear functional autonomy nor mandated commercial viability and profitability in their charter. Even though Law No. 5/1962 has since been repealed and a new law no. 23/2014 has been enacted, implementing regulations under 5/1962 remain in effect. A follow-up Law No. 54/2017 on LG-owned enterprises issued subsequently defines such enterprises where their objectives include contribution to economic development, provision of services, and generation of revenue or profit, and good governance provisions for running these enterprises with commercial orientation. However, progress in translating this legislative intent into regulations and action on the ground has been slow.

  Nationally, PDAMs are monitored and benchmarked by the Directorate General for Human Settlements under MPW using a scoring framework developed by BPPSPAM, a unit under MPW which has since been disbanded. The scoring framework uses 18 parameters under four parameters namely, *Service delivery, Finance, Operations and Human Resources* to evaluate the performance of PDAMs and gives a score to all the PDAMs surveyed. Aggregate performance of PDAMs as reported in this assessment is sub-optimal and reflects weaknesses in both operational and financial terms. Details of these are dealt with in greater detail in *chapter 3*.

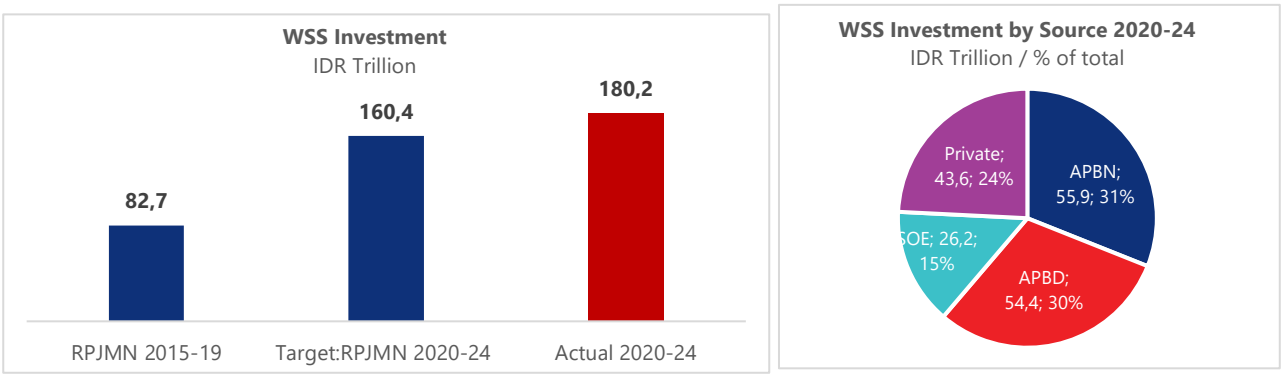
To sum up, Indonesia's WSS policy framework has been in a transitionary state in recent years and impedes effective project implementation and service delivery improvements. Three aspects of policy making need attention. *First, the Water Law and existing regulations need to be reviewed for alignment and coherence*. This is especially important given that several regulations including *MOHA Regulation 122 / 2015* that serves as the operating framework predates the Water Law. *Second, targets for water supply access need to be adopted and owned at all levels of government*. This needs to be enabled and reinforced through robust monitoring mechanisms to track and incentivise performance. Policy should also recognize the heterogeneity in water utilities and differentiated public finance need. For instance, utilities in dense urban areas with a sizable commercial water demand need to be treated differently from weaker utilities with low commercial demand with respect to setting cost recovery targets and proving public financing support. *Third, fiscal incentives and mechanisms need to be strengthened to drive regulatory enforcement, capacity creation, project preparation, and bridge viability gaps.* Public spending needs to be expanded necessary to crowd-in higher levels of private financing. There also seems to be a case to expand share of fiscal transfers that are linked to service delivery and results (such as the Hibah grants) to complement capital grants from APBN and APBD for asset creation.

The decentralized concurrent handling of Indonesia's WSS function makes institutional fragmentation somewhat inevitable and necessitates apex structures for better coordination and sharper accountability. From a financing and funding perspective, strengthening the following aspects are particularly vital: (i) *Prioritisation of drinking water in water resource development* (including expeditious allocation of SIPA permits) for drinking water, especially where water PPPs are being structured, (ii) *Investment assessment & prioritization, and project pipeline preparation* aligned to service delivery targets, (iii) *Outcome-oriented public financing and fiscal transfers architecture* that incentivizes service outcomes, utility performance, and enables crowding-in private financing at scale, (iv) *Regulatory reforms to allow private participation in the last mile of water distribution, (v)* A *well-staffed and funded Independent Regulatory function* to drive better enforcement of regulation and steer improved financial and operational performance of water utilities, and (vi) *Reforms to regulate and limit excessive groundwater abstraction*

2.4. Sources of financing

Indonesia invested *IDR 180 trillion* during 2020-24 on WSS infrastructure, with *76%* share from public sources and 24% from private sources. Refer *Exhibit 2.5.* WSS investments have been largely publicly financed through national budget (APBN) and provincial budget (APBD) allocations including financing from donors and multilateral agencies. Private financing came through PPP and B2B cooperation and contributed 24% of investment.

Exhibit 2.5 Indonesia's WSS investment trends and source of financing



Sources: KIAT Infra dashboard, RPJMN 2020-24

Although WSS investments during RPJMN 2020–2024 exceeded planned allocations, the target of achieving 30% piped water supply coverage was not met. This gap reflects both an underestimation of actual investment needs and inefficiencies in fund deployment. A BAPPENAS assessment[17] estimates that IDR 570 trillion (approximately IDR 80 trillion annually) is required through 2030 to meet national WSS targets—more than twice the average annual investment of IDR 36 trillion during 2020–2024. Further, a 2024 Infrastructure Dashboard exercise by KIAT projects WSS investment needs for RPJMN 2025–2029 at IDR 1,521 trillion, nearly eight times the previous period. At the same time, Indonesia's Incremental Capital-Output Ratio (ICOR) stands at 6.3[18], significantly above the ASEAN average of 3.7–4.4, underscoring the need not only for increased investment but also for greater efficiency in its deployment, to meet GOI's piped water supply targets for 2030 and beyond.

2.4.1. Public sources

Budgetary allocation under APBN

The flows from APBN are channelled under line ministries, fiscal transfers, and PPP instruments.

- **Direct allocation to Line Ministries:** These include direct national budget allocations which are managed primarily through the *Directorate General of Human Settlements (DGHS or Cipta Karya)* under MPW. APBN is used to develop physical infrastructure including bulk water supply systems, water treatment plants, and regional

[17] https://iuwashtangguh.or.id/wp-content/uploads/2023/06/USAID-IUWASH-Tangguh_Fact-Sheet_CSR_Communal-SPAM_EN_20230419.pdf
[18] Sources: Indonesia's economic plans. Market Intelligence report New Zealand Foreign Affairs and Trade. March 2025, Secondary research

water infrastructure (especially inter-district or cross-border projects). Direct outlays are typically used to finance (i) National Strategic Projects which include large-scale cross-regional projects, (ii) Central Implementation projects for areas where LGs are not ready or are slow to implement WSS projects, (iii) Piloting innovative projects and (iv) Capacity building and technical assistance. Some direct allocation is done through other ministries including Ministry of Health, Ministry of Environment and Forestry, and BAPPENAS, which is mostly in the form of operational budgets including capacity building, socialisation, advocacy, and assistance.

- **Fiscal Transfers to PGs and LGs**: These include decentralized budget flows channelled through the APBN to PGs and LGs under the following streams:
  - *Dana Alokasi Umum* or *General Allocation Fund (DAU)*: Untied transfers to be used at discretion of LGs.
  - *Dana Alokasi Khusus or Special Allocation Fund (DAK):* Earmarked for specific sectors including for WSS, allocated based on technical proposals approved by MPW in two parts: DAK-Fisik for physical infrastructure and DAK Non-Fisik for operational components and capacity building
  - *Village Fund (Dana Desa):* For community-level water and sanitation projects, especially in rural areas.
  - *Hibah grants* or performance-based grants for LGs to expand water supply services.
- **Non-ministerial allocations** cover allocations undertaken outside of line ministries or institutions, typically channelled through State Owned Enterprises (SOEs) and PDAMs for large-scale infrastructure projects and special initiatives in bulk water supply, sanitation, and national strategic projects. These allocations are often routed via specialized entities, government institutions, or fiscal mechanisms with distinct mandates. Some of the main streams of non-ministerial allocations include the following:
  - *Multilateral and bilateral loans and grants* channelled through the APBN using on-budget mechanisms, coordinated between MOF, MPW, and BAPPENAS. The *World Bank–assisted National Urban Water Supply Program (NUWSP)* is an example. This program provided investment support and technical assistance to PDAMs for expanding and improving service coverage in urban areas, complementing domestic fiscal flows. (also refer *Section 2.4.1.B* for more details)
  - *Concessional loans to PDAMs or LGs* through *Pusat Investasi Pemerintah* (PIP) or Government Investment Centre, managed independently under MOF.
  - *Grant support from MOF through Project Development Facility (PDF)*, *Viability Gap Fund (VGF)*, and capital for risk underwriting and credit guarantees channelled through IIGF to support PPP transactions.
  - *Special Infrastructure Funds (Dana Infrastruktur Khusus)* earmarked to finance high-priority infrastructure such as wastewater treatment plants and rural water supply schemes. These funds are structured to target projects with high social returns but limited commercial viability, thereby bridging financing gaps not covered under routine ministerial budgets.
- *Indonesia Water Fund (IWF),* a recent GOI initiative set up to mobilise and blend private investment for WSS infrastructure. The IWF seeks to leverage capital from SOEs and private financiers to accelerate sector investments, with initial deployments focusing on urban water utilities and piped water expansion.

External development financing

External development financing, comprising multilateral loans and grants, bilateral cooperation funds, and donor assistance is governed and managed under MOF and integrated into APBN for alignment with national priorities, budgetary transparency, and fiduciary accountability. The channelling of such funds typically follows an on-budget modality, with execution either through treasury or, in select cases, via special accounts, depending on the nature and requirements of the development partner.

BAPPENAS is responsible for identifying and prioritising externally financed programs in alignment with the national development agenda. The proposed projects are included initially in the Green Book (pipeline of priority projects seeking external loans), Yellow Book (pipeline of projects with grant support) and Blue Book (list of transaction-ready

projects eligible for signing of loan agreements). Following this, the MOF negotiates and concludes financing agreements with the respective development partners. The funds are formally reflected in the APBN through annual budget appropriations under relevant budget users.

For water supply, this is typically through MPW or MOHA depending on proposed activities and utilisation. These allocations are reflected in the Budget Implementation Lists (DIPA) of the respective ministries, enabling the commencement of project execution and disbursement. The MOF retains responsibility for financial management, including monitoring of disbursements, debt service obligations, and reporting to donors and oversight agencies. Project-specific management units (PMUs) or executing units, often housed within sectoral ministries or LGs are tasked with implementation, procurement, and results delivery.

In case of water supply, the design and execution arrangements determine the routing of funds to subnational entities. For example, in programs such as the World Bank's National Urban Water Supply Project (NUWSP), donor-financed expenditures are first routed to the relevant central ministry and then sub-allocated to LGs which then transfer these funds to PDAMs through either capital injection or on-lending.

External development financing – LOANS

Exhibit 2.6 provides a summary of select projects implemented with loans from multi-lateral and bilateral agencies. The World Bank and Kreditanstalt für Wiederaufbau (KfW) loans for water supply through the NUWSP and Regional SPAM programs respectively account for a sizable share of the same. In addition, the World Bank and the Asian Development Bank (ADB) have provided loans for water supply through a few cross-sectoral programs as well.

Exhibit 2.6 Select External Development Financing Programs - Loans (completed / ongoing) IDR billion

Institution	Program	Allocation for water IDR billion
World Bank	National Urban Water Supply Project (NUWSP)	1600
KFW	SPAM Wasusokas program	1500
ADB*	Emergency Assistance for Rehabilitation and Reconstruction (EARR) project	588
ADB*	Community Settlement Rehabilitation and Reconstruction Project (CSRRP)	179
World Bank*	Indonesia Tourism Development Project (ITDP)	106
World Bank*	Indonesia National Slum Upgrading Project (NSUP-CERC)	66
	TOTAL	**4,039**

*Source: Watsan landscape report. KIAT. 2024. *These are cross-sector loans*

A summary of the World Bank NUWSP and KFW regional SPAM programs is provided below:

- **NUWSP:** The World Bank's National Urban Water Supply Project (NUWSP), approved in 2018 with US$100 million in financing, aimed to expand access to safe piped water and strengthen the operational and financial performance of PDAMs. Although the project underwent two restructurings, in 2022 and 2024 to extend the closing date and reallocate disbursement categories, the total loan amount remained unchanged at US$100 million. Implemented by MPW through the DGHS, the project has supported over 200 PDAMs through technical assistance, investment planning, and capacity-building, with a focus on underperforming and medium-sized utilities. It introduced performance-based grants, promoted water safety plans, and leveraged output-based aid (OBA) to link funding with verified household connections. A World Bank review[19] has reported that the project was on course to meet or exceed its project development objectives and key results including improved water access to over 1.4 million households (or 6.7 million persons). 40 PDAMs had reported their performance and graduated to a higher next performance category. The project advanced creditworthiness assessments, enabling

[19] Source: Implementation Status and Results Report. World Bank. June 2023 and related secondary research.

select PDAMs to access blended financing and private investment, mobilizing US$135 million in non-public financing.

- **KFW SPAM Wasusokas program:** This regional water supply initiative was launched in 2021, targeting urban and peri-urban areas across Wonogiri, Sukoharjo, Solo, and Karanganyar in central Java. The commitment of approximately €85.7 million from KfW supported development of a regional piped drinking water system (SPAM) compliant with Indonesia's national regulation, improving safe water access and service resilience in the Wasusokas region. The program included an institutional strengthening component to support PT Tirta Utama Jawa Tengah (TUJT) and four PDAMs in building sustainable operational skills—delivering curricula, standard operating procedures (SOPs), and staff training frameworks so that local utilities can operate the system autonomously post-2025. Although the program encountered operational challenges due to twice failed WTP bidding, pipeline crossing issues, and low absorption of funds because of failed bidding early-on, progress on the project has improved since. The project originally set for completion in 2024[20] had some minor delays and is set for full operational readiness and completion in 2025.

External Development Financing – GRANTS

Grants are channelled in two forms:

- *Planning grants* are formally registered in the State Treasury (Kementerian Keuangan – Direktorat Jenderal Perbendaharaan) and disbursed through the national budget system, ensuring integration with government fiscal accounts. For example, technical assistance grants under the World Bank–supported *National Urban Water Supply Program (NUWSP)* are registered as Planning Grants, enabling them to be programmed within the APBN while maintaining donor oversight. Planning Grants remain the prevalent modality, particularly for large-scale, multi-year programs aligned with national priorities.
- *Direct grants* may be disbursed straight to the intended recipient without passing through the State Treasury. The administration and approval of such grants rests with authorised officials, namely, Pengguna Anggaran (PA) or Kuasa Pengguna Anggaran (KPA), allowing funds to be accessed and utilised directly by relevant ministries, agencies, local governments (LGs), or PDAMs. Direct Grants are less common overall but offer greater flexibility and faster deployment for targeted interventions. For example, the *KIAT HAMBK* program (discussed below) channelled direct on-grant support for water supply and sanitation initiatives, which could be flexibly used at the level of LGs and PDAMs for project preparation, capacity building or transaction support

Refer to Exhibit 2.7 for a listing of grant-financed programs. Salient aspects of select programs are summarised below:

- The Government of Australia, through **KIAT (Indonesia-Australia Infrastructure Partnership)** has provided grant-based support to advance inclusive, sustainable water service delivery. Its *Hibah Air Minum Berbasis Kinerja (HAMBK)* program offered output-based grants to LGs and PDAMs. Positive outcomes included the expansion of access for over 400,000 beneficiaries, improved PDAM incentive structures, strengthened pipeline readiness for PPPs, improved social accountable business practices and strong alignment with national priorities. These initiatives also helped enhance local co-investment and establish a model for replication under national urban water programs. Also refer to *Box 3.1 chapter 3* for additional details and results of the program
- The **Japanese International Cooperation Agency (JICA)** extended technical cooperation, supporting master planning, non-revenue water reduction, and the development of regional SPAM systems. JICA's grant-funded interventions have included utility strengthening, master planning, and technical capacity building, particularly in non-revenue water (NRW) reduction and regional SPAM design. In cities like Bandung and Medan, JICA's grant-supported programs helped PDAMs adopt improved water balance practices and leakage control strategies, leading to operational improvements and reductions in NRW.

[20] https://voi.id/en/economy/433368?utm

- **K-Water, under Korea's Official Development Assistance (ODA)** with support from the Korean Ministry of Environment is leading the development of a Net Zero Water Supply Project in Indonesia's new capital, Ibu Kota Nusantara (IKN). The fully grant-financed pilot system, scheduled for commissioning between 2024 and 2027, integrates solar-powered treatment, AI-based dosing, and automated control technologies, and is aimed at making the project Indonesia's first carbon-neutral water supply infrastructure. Positive outcomes include the demonstration of climate-smart infrastructure models, operationalized through Korean public-sector expertise. The project also aims to introduce advanced design and monitoring standards into Indonesia's water sector and fostered capacity building for local operators.

Exhibit 2.7 Select External Development Financing Programs – Grants (completed / ongoing) IDR billion

Institution	Project	Allocation for water (IDR billion)
World Bank	Program Penyediaan Air Minum dan Sanitasi Berbasis Masyarakat (PAMSIMAS III)	409
KIAT (funded by DFAT)	Performance-based Grants (PBG)[21]	236
JICA	Makassar UGD Leakage project	708
JICA	Solok water service strengthening project	623
JICA	Medan 24x7 safe water supply project	705
Ministry of Environment S. Korea	Denpasar smart water management project	66
KIAT (funded by DFAT)	Indonesia-Australia cross-sectoral Infrastructure facility	233
KIAT (funded by DFAT)	PBG BAPPENAS cross sector facility	54
UNICEF	WASH - UNICEF water sanitation and hygiene program	7
USAID	USAID WASH - BAPPENAS program	334
USAID	UWASSH program	891

Source: KIAT research

The experience from ongoing and completed programs with external development financing offers valuable lessons to improve water supply access in terms of piloting innovative service delivery models, strengthening utility performance, and enhancing project preparation and institutional capacity. There is an opportunity for GOI to leverage external development financing in the form of both loans and grants to accelerate realisation of its vision and targets for piped water supply access. Importantly, these programs must accord greater focus on management capacity improvements at the level of LGs and PDAMs and bring expertise to PDAMs in addressing their technical, managerial and governance challenges. This will call for close alignment of donor-funded initiatives with national targets, leveraging grants to de-risk PPPs, and embedding technical assistance into LG and PDAM systems improvement for sustained impact. A strategic programmatic approach including anchoring development partner contributions in a unified national program will be useful and is discussed further in *chapter 5*.

Budgetary allocations under APBD

Financing by LGs under APBD is undertaken through the following streams:

- **Direct support for capital expenditure:** While exact figures for WSS investment from budgetary outlay of LGs is not available, these are estimated at between 1-2% of capital expenditure. A 1.5% share translates to IDR 2.7 trillion annually during 2019 to 2022. LGs tend to push capital expenditure responsibility on to the PDAMs and often limit their support only to periodic equity infusion.
-

Exhibit 2.8 summarises trends in recent years.

[21] Hibah Air Minum Berbasis Kinerja (HAMBK) and Pembiayaan Berbasis Kinerja (PBK)

Exhibit 2.8 APBD - Capex - overall and WSS and PMD equity (IDR trillion)

Year	Subnational capex	WSS capex (assuming 1.5% share)	PMD equity
2019	219	3.3	12.3
2020	158	2.4	8.7
2021	167	2.5	9.5
2022	174	2.6	4.9
Average	**180**	**2.7**	**8.9**

Source: DG Fiscal balance, MOF., KIAT research

- **Infusion of equity:** LGs invest in PDAMs equity through the Penyertaan Modal Daerah (PMD) mechanism which can be either as cash funds or physical assets. Equity infusion averaged IDR 8.9 trillion during 2019-22 or 3.3 times the estimated capital expenditure during this period.
- **Matching grants to access MPW funds:** MPW's Dana Daerah untuk Urusan Bersama (DDUB) or regional funds for joint affairs is a matching funding from APBN for co-financing joint development of distribution networks of PDAMs. By 2023, approximately IDR 412 million had been channelled through the DDUB mechanism.
- **Funding from SILPA:** The remaining budget financing (SILPA) is the positive difference between the budget deficit and net financing and comprises unutilised funds from financing receipts in the budget. Use of SILPA is however challenging as it is earmarked for specific activities and requires political support and approval.

2.4.2. Private financing

Private financing accounted for ~IDR 43.6 trillion or ~24% of WSS investment during the RPJMN 2020-24 period. GoI's Government Regulation No 122 / 2015 regulates financing arrangements between PDAMs and private sector and encompasses bank loans, equity participation, trade credit and PPPs. Private sector involvement in water supply is provided for, in the regulation, subject to certain principles. Private investment in all parts of water supply system is permitted, if operations and management of water supply distribution remain under the purview of government enterprise. Cooperation arrangements or PPPs are recognized as mechanisms to translate this regulatory principle into practice. Two types of PPP have been in operation in water supply in Indonesia, namely (i) *PPPs* and (ii) *B2Bs*. A summary of the same is provided below. A more detailed discussion on

- **PPPs:** Over IDR 10 trillion worth of PPP water supply projects have been awarded at the end of RPJMN 2020-24 period, several of which are now operational. The BAPPENAS PPP Book 2025 reported *7 operational / awarded PPPs* involving a project outlay of ~IDR 10 trillion (with an estimated private financing of IDR 7 billion) and another *5 PPPs* with an outlay of ~IDR 19 trillion under various stages of preparation and tendering. PPPs are structured with support from Viability Gap Fund (VGF) managed under MOF (governed under MOF Reg no. *223/2012)* and guarantees from IIGF (governed under MOF regulation *8/2016)*. They have been largely used to implement bulk infrastructure (typically bulk intake, treatment, and transmission facilities) that feed into the network managed by PDAMs. In these projects, the Government Contracting Agency (GCA) is the PDAM to which bulk water is supplied by the Independent Business Entity (IBE) set up by the private developer selected to finance, construct, operate and maintain the project. In regional projects that serve to provide infrastructure and bulk water supply to multiple PDAMs, the GCA could be the provincial or national government.
- **B2Bs:** B2B projects are another form of business cooperation with private sector, done at the level of PDAMs and regulated at the level of PGs and LGs. These have traditionally focused on the distribution component of the water value chain managed at the level of PDAMs and LGs and have often followed from unsolicited proposals submitted by private sector contractors and developers. B2Bs are typically done without access to VGF and guarantee support from MOF and there is an implicit view that these arrangements do not need to adhere with

national PPP regulations. These are largely prepared, managed and overseen at the level of PGs and LGs. These collaborations have focused on a range of interventions including constructing Water Supply Systems (SPAM), pipeline development, Water Treatment Plant (WTP) construction, and reducing Non-Revenue Water (NRW).

Apart from PPPs, water utilities have access to the following lending and blended financing facilities:

- **Loans from commercial banks:** Utilities including PDAM Kabupaten Sleman, PDAM Kabupaten Wonosobo (mostly in central Java) have tapped loans (less than IDR 1 Bn) from LG-owned banks to finance household connections, with cash collateral as a guarantee. Once water utilities have built distribution and added household connections, user charges help service the loans. Sometimes these loans are also provided as a bridge finance to manage for delays in receipt of other grants. Earlier, the GOI had provided interest subsidies under Presidential Regulation 29/2009 to nudge PDAMs to tap loans. The regulation offered a 70% guarantee for loan defaults and subsidies on interest rate (effective rate ~ 5%). The scheme has expired after an extension till 2022.
- **Financing from development financial institutions:** PT Sarana Multi Infrastructure[22] (PT SMI) and PT Indonesia Infrastructure Finance[23] (PT IIF), provide debt financing. PT IFF's reported loan commitments in the water & waste utility sector was *IDR 1.6 trillion* of which the drawdown was *IDR 1.2 trillion*. PT IIF also provides blended financing for infrastructure projects. As of 2022, PT IIF financed nine water supply projects, including five bulk water projects, two water supply projects (SPAM), and 3 PPP projects (Umbulan, Lampung, and Pekanbaru). It offers long credit tenure (up to 15 years). Financing is typically provided to private partners to water supply projects. It also provides advisory services to water supply projects. PT SMI also undertakes regional financing As of December 2024, the total regional financing commitment of PT SMI was IDR 36.83 trillion, with an outstanding balance of IDR 21.61 trillion, and to the commitments to drinking water sector amounted to IDR 3.46 trillion.
- **SDG Indonesia One (SIO) Integrated financing platform:** SIO, operated by PT SMI, is an integrated infrastructure funding platform with focus on sustainable development goals (SDGs). SIO taps diverse sources, including private, philanthropic agencies, bilateral/multilateral financial institutions, banking, and insurance and has reported a commitment of USD 13 billion from these institutions. Although SIO is prioritised to finance green projects especially, renewable energy and energy efficiency, it funds WSS which has an 8% share of SIO's portfolio. SIO's support covers (i) *development facilities* (project development, including policy, framework and regulation support, capacity building, research, feasibility evaluation, technical assistance, and project documentation), (ii) *De-risking facilities*, which include loan funds for improving green and SDG sub-projects bankability through credit enhancement instruments and investment premium schemes; and (iii) *mobilising financing and equity capital* to strengthen the capital capacity of green projects.

[22] A Development Finance Institution set up by GOI with a mandate to finance infrastructure projects.
[23] PT IIF's ownership: PT SMI – 30%, ADB – 20%, IFC – 20%, KFW-DEG 15% and SMBC 15%

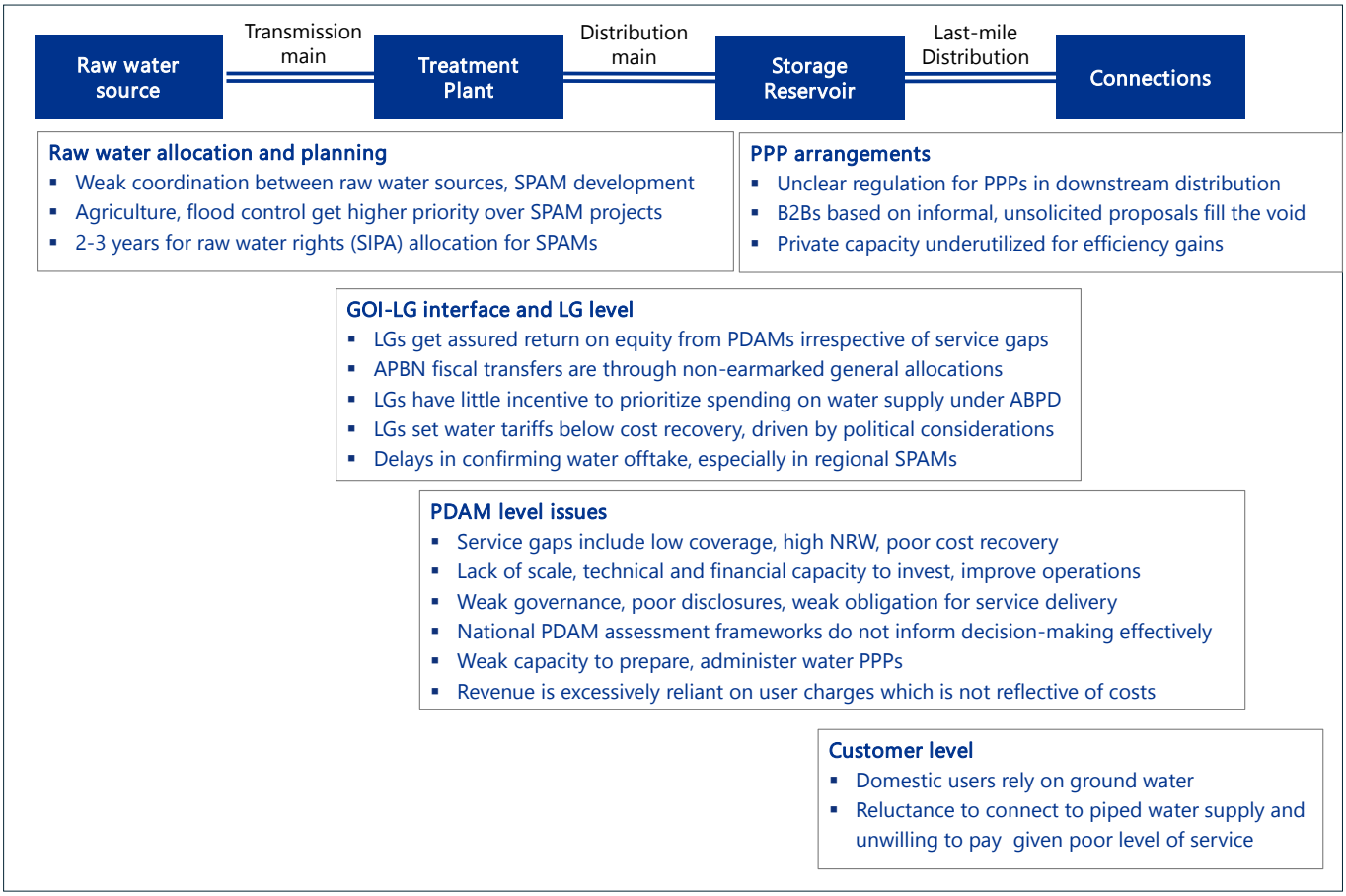
3. Sector-level constraints

The mapping of sector-level constraints to water PPPs is done in three steps. *First*, constraints are mapped along the water value chain and at different levels of government. *Second*, these constraints are corroborated through a review of two operational water PPPs namely, Semarang and Lampung. *Third*, constraints are organised into thematic categories to facilitate the formulation of targeted solutions.

3.1. Constraints along water value chain

Constraints to water PPPs are mapped along the water value chain. *Exhibit 3.1* provides a snapshot of the constraints which are described below.

Exhibit 3.1 Constraints to water PPPs – a water value chain view



3.1.1. Raw water allocation and SIPA rights

A recurring upstream constraint affecting both operational and prospective water PPPs is the long and uncertain process for securing raw water rights, formally known as *Surat Izin Pengambilan dan Pemanfaatan Air* (SIPA). For large-scale drinking water supply projects, SIPA-related challenges can have significant implications for project bankability and implementation timelines.

- **Lengthy and multi-layered approval process:** Obtaining SIPA involves sequential approvals from multiple tiers including national (MPW/DGWR), provincial, and often basin-level authorities, each with its own technical reviews, environmental safeguard compliance, and administrative checks. For projects where raw water sources are shared with irrigation, flood control, or hydropower schemes, the end-to-end process can take two to three years. In the context of PPPs, where financing agreements typically have strict deadlines for effectiveness, such delays risk jeopardizing financial close or necessitating costly extensions of bid validity.

- **Competing sectoral priorities in allocation:** Although Water Law No. 17/2019, PP No. 42/2008, and Ministerial Regulation No. 6/2020 stipulate that drinking water supply should receive priority in allocation, the application of this principle is inconsistent. In practice, basin authorities and LGs often prioritise allocations for agriculture, industry, and flood control ahead of drinking water needs, or issue phased allocations that ramp up gradually. These arrangements conflict with capacity requirements of PPP bulk supply components upon commissioning.
- **Fragmented planning between raw water and SPAM development:** SIPA approvals are contingent on raw water source availability, which is often linked to separate upstream infrastructure investments. Where raw water works are financed through MPW budgets and downstream SPAM infrastructure through LG or PDAM resources, lack of integrated planning and delivery schedules can delay SIPA issuance. The absence of synchronisation between upstream and downstream investments can affect water PPPs, even with construction readiness.
- **Weak enforcement of regulatory obligations for competing users:** SIPA holders must comply with environmental flow standards, water quality monitoring, and payment of abstraction fees. However, enforcement for industrial and commercial agricultural abstractors is often weak, allowing them to operate beyond permitted volumes. This undermines the volumetric reliability of water allocated to drinking water PPPs, especially in dry seasons, and can heighten operational risks.
- **Implications for PPP structuring and risk allocation:** From a contractual perspective, uncertainty in SIPA tenure or volumetric allocation complicates risk allocation. While private financiers generally require confirmed raw water rights for the entire term (often 20–25 years), SIPA allocations are sometimes granted for shorter periods (e.g., 5–10 years) with renewal contingencies. Unless renewal risk is addressed through government backstopping (e.g., contractual volume guarantees) or pre-agreed tariff adjustment mechanisms for reduced supply, lenders may discount projected revenues, increasing the cost of capital and constraining financing options.

3.1.2. GOI-LG interface and LG-level constraints

The institutional and fiscal relationship between GOI and LGs have an important role in determining the performance of PDAMs and, by extension, the viability of water PPPs. GOI influences LG actions primarily through policy direction, fiscal transfers, and, in the case of PPPs, through project preparation support and risk-sharing instruments. The GOI–LG interface is characterized by weak incentives, fiscal structures, and governance practices at LG level that collectively constrain investment in water supply and undermine PPP bankability.

Low public spending on piped water supply and structure of fiscal transfers

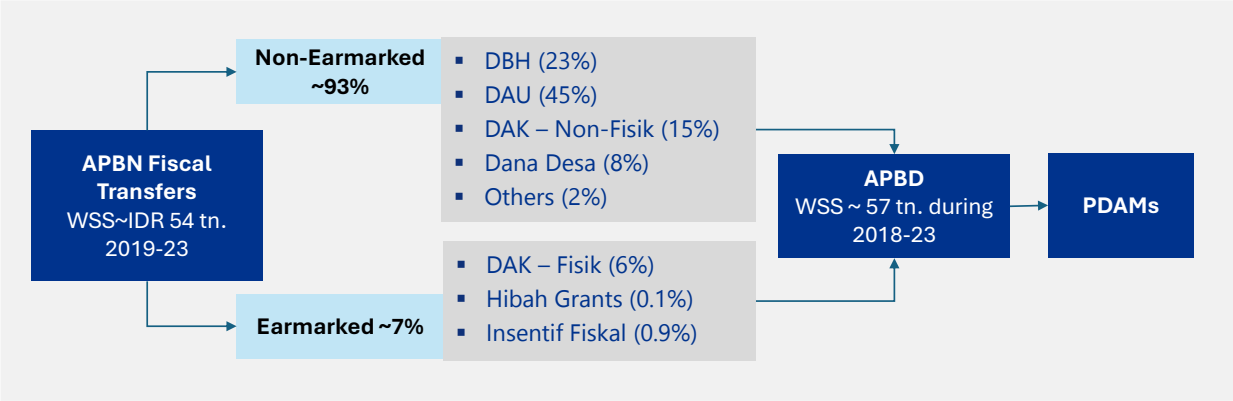
The share of public spending on WSS under APBN and APBD taken together (estimated at IDR 111 trillion during 2020-24) was less than 2% and translated to less than 0.15% of GDP. This is significantly below the investment levels required to realise GOI's medium and long-term piped water access targets as discussed in chapter 2. Within an already constrained fiscal envelope, the structure of fiscal transfers from APBN is skewed towards non-earmarked streams. Non-earmarked streams accounted for **93%** of APBN. Refer to *Exhibit 3.2*.

Earmarked allocations to water, primarily through DAK Fisik accounted for a mere 6% share of APBN transfers and often fragmented across small-scale projects, limiting economies of scale. Performance-linked Hibah grants and Insentif Fiskal (reform-linked grants) were even lower, represent less than 1% of APBN transfers. Even though these instruments have demonstrated potential to incentivize LG-level commitment and improve PDAM performance, they remain at pilot scale and are not yet scaled up under the core fiscal transfers framework. Refer *Box 3.1* for an overview of outcomes form use of Performance based Grants (PBG) under World Bank's National Urban Water Supply Program (NUWSP) and KIAT's PBG pilots.

Although this structure of fiscal transfers gives significant discretion to PGs and LGs, it does not enable prioritization of water supply investments. Politically visible sectors such as roads, often take precedence over water supply which delivers less immediate political visibility. The current fiscal transfers framework provides little incentive to LGs to allocate APBD resources to water supply, especially for co-financing obligations in PPP projects.

Even when LGs sign PPP agreements with offtake commitments, delays or shortfalls in APBD allocations for distribution network expansion are common, leading to underutilization of bulk water assets. Without strong earmarking or enforceable co-financing commitments, water investments compete with other sectors on an annual budget cycle, creating uncertainty for long-term infrastructure planning.

Exhibit 3.2 Fiscal transfers are predominantly non-earmarked



Source: Authors' analysis, DBH= Dana Bagi Hasil or Revenue Sharing Fund, DAU= Dana Alokasi Umum or General Allocation Fund, DAK= Dana Alokasi Khusus or Special Allocation Fund. The share of different instruments is for 2023 outlay.

Box 3.1 Performance-linked Grants pilot initiatives have shown promising results

KIAT Performance-based Grants (PBG) program

KIAT's Performance Based Grants (PBG) program launched in 2020 in partnership with the World Bank's NUWSP is a next-generation design of GOI's ongoing Water Hibah program to demonstrate how performance-linked fiscal transfers could improve PDAM performance and create enabling conditions for private capital mobilization. The premise was to shift from **input-based financing** (e.g., connections) to **results-based incentives** aligned with service outcomes.

Key components of PBG included (i) LG investment in PDAMs, (ii) Technical assistance, and (iii) Incentive grants to LGs upon achievement of select performance metrics. The pilot program was implemented in 17 PDAMs between 2020-24 and sought to disburse up to AUD 15 million in grant funds to participating LGs around. Business planning and NRW reduction was supported in all locations, while other components focused on fewer locations (Operating Ratio - 15, Quality – 16, Supply continuity – 14, Energy Efficiency – 9, Billing-Collection Efficiency - 3). Additionally, PDAMs committed to improving gender equality, disability and social inclusion (GEDSI) outcomes in their organisations through a Letter of Commitment to join the program.

The program led to promising outcomes and results: (1) Amount of LG equity (PMPD) transferred for PBG over the program period was IDR 181 billion and compared favourably with commitment of IDR 152 (119%) with commitments exceeded in 12 of 17 locations. (2) By program completion, external testing was implemented in all locations. NRW indicator, exceeded expectations in 11 of 17 locations, with water saving of 10.8 million cu.m., which was 144% of target. (3) Despite a pre-COVID baseline, Operating Ratio improved in 11 of 15 locations, with one PDAM upgraded from "Kurang Sehat" to "Sehat" status. (4) Continuity of Supply improved significantly in 8 out of 14 PDAMs via installation of pressure sensors. (5) Established the Forum for the Integration of GEDSI (FERSIA) in Water Utilities in Indonesia, as an affiliated body of PERPAMSI. PDAMs in 9 of 16 locations reported 100% compliance with water quality at program completion. PDAMs also increased the proportion of women employees and the number of women in management, created more job opportunities for people with disabilities, upgraded buildings and office spaces to be more inclusive, and incorporated GEDSI into business plans.

Key lessons from the program include (i) Criticality of national leadership alignment (MOF, MPW, MOHA, and BAPPENAS) and strong engagement at LG/PDAM level, (ii) Preparatory planning by LGs and PDAMs around program

objectives and baseline, (iii) Awareness raising and capacity development in smaller PDAMs, (iv) Technical improvement support and capacity for baseline assessment and verification, (iv) Dissemination of technical guidelines early-on, and (v) impactful selection and focus on 5 parameters - *Business Planning, Operating Ratio, Non-Revenue Water, Continuity of Supply and Water Quality*.

World Bank National Urban Water Supply Program (NUWSP)

NUWSP, anchored by a USD 100 million World Bank loan, was designed to strengthen urban water service delivery through a mix of public and private financing. It focused on eligible PDAMs with institutional capacity and reform willingness, aiming to catalyse broader sectoral investments. The blended financing model combined public financing (central and local), private investment, commercial debt and performance-linked grants and donor support (e.g., KIAT PBG). PDAMs received support for transaction advisory, access to concessional or blended finance and incentives to meet service benchmarks.

The program has led to promising outcomes. (1) As of December 2023, USD 150 million was mobilized in non-public financing (private equity, loans, PPP contributions) with 17 PDAMs securing private or blended financing for water investments. The World Bank's USD 100 million catalysed over USD 600 million in total investments, indicating strong leveraging effects when public finance is structured smartly. PDAMs under NUWSP developed financial models, revenue forecasts, and capital improvement plans, enhancing bankability. Some PDAMs used NUWSP funds to co-finance PPPs or downstream distribution upgrades.

These two programs demonstrate that well-designed national programs with credible financing structures and clear incentives can attract commercial lenders and private developers to the water sector, validate the approach of matching grants and concessional loans to de-risk local investments and offer a model to integrate fiscal, policy, and institutional reform under a single investment platform.

Dividend maximisation over service reinvestment

LGs often require PDAMs to remit dividends on their equity holdings regardless of the utility's service performance, network expansion needs, or investment backlog. This practice reduces PDAMs' retained earnings available for reinvestment in capital works, rehabilitation, or efficiency improvements. In the absence of a performance-linked dividend policy, the incentive for LGs to allow reinvestment over dividend extraction remains low. This creates a structural disincentive for PDAMs to prioritize long-term improvements over short-term dividends to their owners.

Inability to shift to cost-reflective user charges and lack of independent regulatory framework

A foundational constraint to viability of water PPPs is the weak enforcement of the tariff and subsidy regulatory framework. The legal basis for cost recovery in water tariffs is set out under MOHA Regulation No. 71 of 2016, as amended by MOHA Regulation No. 21 of 2020. These regulations require PDAM tariffs to reflect *full cost recovery (FCR)*, incorporating operational expenditures, depreciation, debt service, and a reasonable sustainability margin. In situations where tariff adjustments are politically or socially infeasible, the framework explicitly provides for direct subsidies from LG budget (APBD) to bridge the gap between actual costs and recoverable tariffs.

In practice, adherence to this framework is inconsistent and often weak. Tariff-setting authority lies with LGs, and decisions are often guided by political considerations rather than cost recovery principles. PDAM tariffs are often set below FCR levels, particularly to avoid public backlash associated with tariff increases. However, they frequently fail to budget for or disburse the corresponding subsidies mandated under the regulation. The absence of these compensatory payments shifts financial shortfall entirely onto PDAMs, constraining their ability to meet O&M costs, invest in network expansion, service debt obligations and honour offtake commitments in PPP contracts.

There is no institutionalised enforcement mechanism to ensure LG compliance with MOHA Regulation No. 21/2020, nor any penalty for deviation. This lack of enforceability transforms the regulation into a largely aspirational policy rather than a binding financial discipline. For PPP developers and financiers, this gap translates into material project risks in terms of revenue uncertainty, payment default risk, and increased reliance on sovereign risk mitigation.

The LG's are vested with planning, supervision, financing, regulatory oversight and service delivery roles for the water sector, with each of these roles potentially in conflict with the other. A separation of roles, including greater private sector role in service delivery (specifically in downstream distribution), and an independent regulator for tariff fixation could enable the LG to perform its role more effectively.

3.1.3. PDAM-level issues[24]

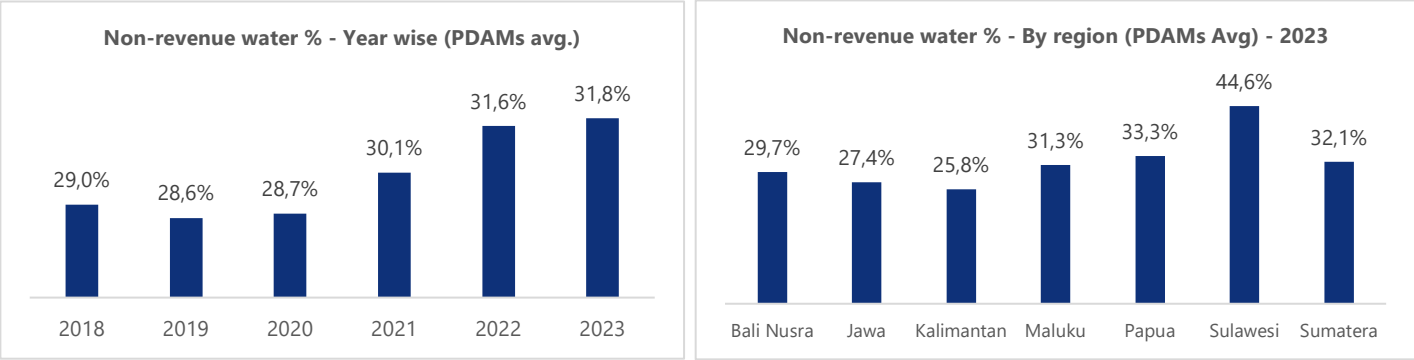
PDAMs are the principal delivery vehicle for piped water supply in Indonesia and, act as the GCA in water PPPs. Their revenue and operating surplus form the core funding base for servicing returnable capital (equity and debt) and meeting O&M obligations. The strength of this funding base is a decisive factor in the ability to attract private financing and structure sustainable PPPs. However, performance gaps in operating efficiency, financial health, managerial capacity, and network coverage severely constrain PDAMs' readiness for PPP participation.

Service gaps and low operational efficiency

The following metrics for PDAMs in aggregate point to the poor service levels and low operational efficiencies.

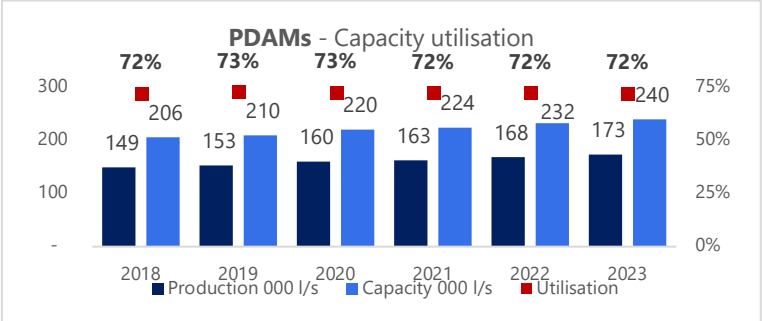
- **Service coverage:** The service coverage in 252 PDAMs (or nearly two-thirds of all PDAMs) is less than 50% of their service area. Of these 97 PDAMS (40% share) cover less than 20% of the population.
- **Non-Revenue Water (NRW):** NRW increased to 33.9% in 2023, equivalent to an estimated IDR 9.7 trillion in annual revenue loss. It is estimated that an additional 1.3-1.5 million customers could be serviced with a reduction in NRW to 25% alone. Refer *Exhibit 3.3*.
- **Capacity utilisation:** Reported water production and installed capacity both grew at a CAGR of 3.1% during 2018-23. The stagnant capacity utilisation at 72% reflects that there are bottlenecks in downstream distribution, limiting the ability to connect new customers despite available production capacity.

Exhibit 3.3 NRW - year wise and by region 2023



Source: Performance Book – BUMD Drinking water 2023. Directorate of Drinking Water, MPW, PDAM dashboard 2018-23. KIAT Research

Exhibit 3.4 Aggregate PDAM water capacity utilization trend 2018-23



Source: PDAM dashboard 2018-23. KIAT Research

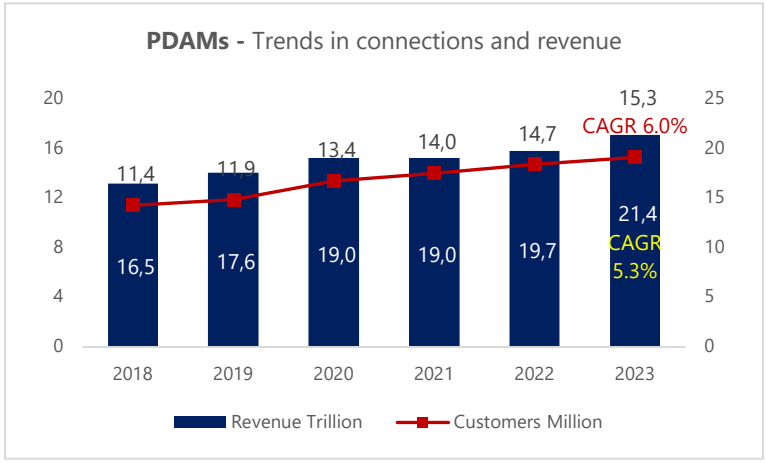
[24] The analysis in this section is based on (1) aggregate financial and operational dashboard for 2018-23 for 392 PDAMs shared by KIAT and (2) findings reported in Performance Book – BUMD Drinking water 2023. Directorate of Drinking Water, MPW.

Narrow revenue base, declining revenue realisation and stagnant user charges

Customer base grew faster than revenues for PDAMs during 2018-23 and translated to a lower revenue realization per customer in this period. PDAMs increased their customer base from 11.4 million connections in 2018 to 15.2 million connections in 2023, translating to a 6% CAGR during this period. Revenue grew from IDR 16.5 trillion to IDR 21.4 trillion or a CAGR of 5.3% CAGR during this period. Refer *Exhibit 3.5.*

Revenue realization (Revenue per customer) declined from IDR 1.4 million in 2018 to IDR 1.3 million per customer during 2018-23 and even more in real terms. In 2023, PDAMs reported cumulative profit after tax of IDR 1.2 trillion and a Return on Equity of 3.33%, which reflects their limited funding base. While there are opportunities to do PPPs with some larger, healthier, profitable PDAMs, the funding base of IDR 1.2 trillion in aggregate is too narrow and small, to service the estimated annual lower-bound investment need of IDR 80 trillion. This is a binding constraint to sustainably scale up private financing in aggregate.

Exhibit 3.5 Aggregate **PDAM** performance – Trends in connections and revenue 2018-23



Source: PDAM dashboard 2018-23. KIAT Research '

Average tariff aggregated at PDAM level was IDR 5269 / cu.m and grew at a 2% CAGR between 2018-23. This trend reflects the challenges in increasing tariffs which have remained largely flat in the last 6 years. Only six PDAMs namely, Buton Tengah, Merauke, Kendari, Dumai, Balikpapan and Banjar reported average tariffs higher than IDR 10,000 per cu.m with another 10 PDAMs reporting over IDR 9000 per cu.m. A slow increase in tariffs, NRW levels greater than 30% and poor service coverage taken together come in the way of achieving the regulatory requirement of full cost recovery.

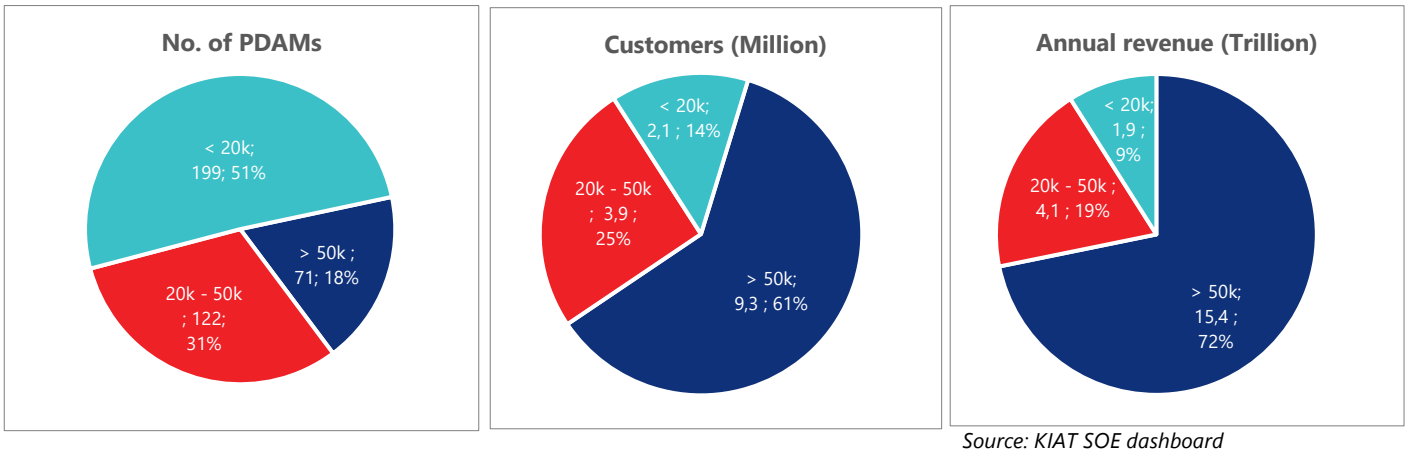
Sub-scale operations, weak technical and managerial capacity

Only a small subset of PDAMs have the scale and creditworthiness to credibly enter into PPPs. A categorisation of PDAMs by connections into three clusters namely *Large* (> 50,000 connections), *Mid-sized* (20,000 – 50,000 connections) and *Small* < 20k customers reveals that:

- **Large PDAMs** with >50k customers, had **18%** of all PDAMs but accounted for **61%** of customers and **72%** of all revenue. Perumda Jaya Jakarta is the largest with **6%** of customers and **15%** of revenue.
- **Mid-sized PDAMs** with 20k-50k customers, had **31%** of PDAMs, **25%** of customers, **19%** of revenue
- **Small PDAMs** with <20k customers, had **51%** of PDAMs but only **14%** of customers and **9%** of revenue

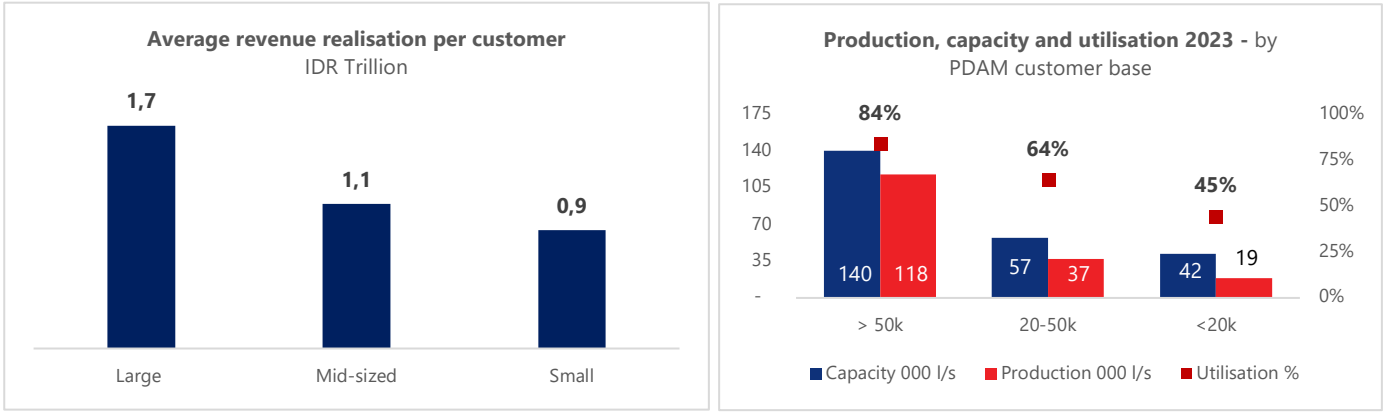
Refer to *Exhibit 3.6.* Importantly, revenue realisation and water capacity utilisation levels are positively correlated with PDAM size. Average revenue per customer in cluster A Large PDAMs at IDR 1.7 million is **~60%** higher than cluster B Mid-sized PDAMs (at IDR 1.1 million) and **~90%** higher than cluster C Small PDAMs (IDR 0.9 million). Similarly capacity utilization varies widely by PDAM customer base with cluster A PDAMs reporting vastly higher capacity utilization of 84% relative to 64% and 45% by PDAMs in cluster B and cluster C respectively. Refer to *Exhibit 3.7.*

Exhibit 3.6 PDAM clusters - by number of connections 2023



Source: KIAT SOE dashboard

Exhibit 3.7 PDAM clusters – Average revenue realisation and water capacity utilisation 2023



Source: KIAT SOE dashboard

A significant proportion of PDAMs, particularly the smaller and mid-sized ones, lack technical depth and managerial capacity needed to prepare and administer water PPPs. These capacity gaps manifest in several ways:

- **Strategic and business planning deficiencies:** Many PDAMs do not operate with a robust, regularly updated business plan that integrates asset condition assessments, demand forecasts, tariff trajectories, and capital investment programs. Long-term planning often gives way to incremental expansions rather than systemic efficiency improvements, thus leading to suboptimal investment prioritization.
- **Weak operational management and asset maintenance:** Operational decisions are often reactive, focusing on crisis response (e.g., repairs) rather than preventive maintenance. Asset maintenance budgets are frequently the first to be cut when revenue falls short, accelerating infrastructure degradation and increasing lifecycle costs.
- **Underdeveloped project development and contract management skills:** Few PDAMs have in-house expertise in PPP project structuring, bankability assessments, or financial modelling. Understanding of risk allocation principles, performance-based payment mechanisms, and long-term contract administration is limited, creating a reliance on central government transaction advisory support.
- **Human resource and institutional gaps:** Staff skillsets are skewed toward engineering and operations, with limited representation from finance, commercial, and legal disciplines. Recruitment practices are not consistently merit-based, limiting inflow of technically competent and commercially oriented managers. Additionally, limited sex-disaggregated data reduce the opportunity for promoting qualified women in staffing and leadership roles.
- **Limited Exposure to modern utility practices:** Adoption of modern performance management tools, customer relationship management systems, and energy efficiency measures is sub-optimal and confined to larger PDAMs.

Weak governance, sub-optimal legal form and ineffective performance assessment

Most PDAMs are structured as Perusahaan Umum Daerah (Perumda) under Law No. 23/2014 on Regional Government. While this form preserves 100% LG ownership, it also imposes several constraints that reduce operational autonomy and responsiveness:

- **Rigid governance rules**: Perumda boards and directors are appointed by LG heads, often based on political considerations rather than merit, with frequent leadership turnover following local elections.
- **Dividend extraction**: LGs can mandate dividend payouts from operating surpluses, even when reinvestment in infrastructure would be more prudent.
- **Limited capital raising flexibility**: As non-corporatized BUMDs, Perumdas have restricted ability to bring in equity partners, issue shares, or tap capital markets directly. Borrowing capacity is subject to LG debt ceilings, further constraining investment headroom.
- **Weak Commercial Orientation:** The legal mandate prioritizes service delivery over profitability, which, in the absence of cost-reflective tariffs or direct subsidies, often results in underfunded operations.

These governance and structural constraints are compounded by the limitations of the national PDAM performance assessment framework, which is used by MPW to classify utilities as *Healthy*, *Less Healthy*, or *Sick*. The Performance Book – BUMD Drinking water 2023 published by the Directorate of Drinking Water, MPW profiled 393 of the 401 PDAMs in operation in Indonesia. Applying a scoring framework with eighteen indicators under four dimensions (Finance, Service delivery, Operations and Human Resources), the assessment classified PDAMs under three categories namely, *Healthy, Less Healthy and Sick*. In 2023, of the 393 PDAMs profiled, *257 (66%)* were classified *Healthy*, *88 (22%)* as *Less Healthy* and *48 (12%)* as *Sick*. *Box 3.1* identifies some areas for improvement in this framework for assessment of PDAMs.

Box 3.1 Scoring framework used for monitoring performance of PDAMs – Areas for improvement

- *First*, the framework suffers from a *'one-size fits all'* deficiency. As observed in the previous section, the PDAMs are very diverse in terms of scale and a range of operating and financing parameters. Grouping them into tiers based on size of serviced area or population serviced by them, and by region, would provide more value for decision makers.
- *Second*, there performance book provides only aggregate scores and health classification. A granular reporting of the performance on operational and financial indicators is missing. For example, while the overall number of PDAMs meeting full cost recovery (FCR) is provided, there is limited analysis around the extent of gap (how many PDAMs are meeting O&M cost recovery, what is the tariff gap for FCR etc.) and how the gap is being bridged (such as borrowings, cut in O&M expenditure, cut in network expansion).
- *Third*, though the dimensions and parameters used in the framework are useful and appropriate, the weightages and scoring used need to be reviewed. Given that 58% PDAMs reporting non-compliance to FCR, 52% reporting higher than 30% NRW, and 65% reporting less than 50% service coverage, classifying 65% of PDAMs has 'Healthy' is misleading and could potentially inhibit sound decision-making in relation to targets set by GOI.
- *Fourth*, the performance assessment measurements are not getting adequately linked to the design and application of effective incentive mechanisms to drive improvements in performance. For instance, KIAT's work on performance-based grants referred earlier identifies five parameters namely Business Planning, Operating Ratio, Non-Revenue Water, Continuity of Supply and Water Quality, need can be benchmarked to design and provide incentive grants to PDAMs.

3.1.4. Customer-level constraints

Reluctance to connect and unwillingness to pay

Experience in operational PPPs such as Lampung reveal that potential customers are often reluctant to connect to PDAM networks due to poor perceptions of service quality and value[25]. Where supply is intermittent, pressure is low, or water quality is inconsistent, sometimes including water pollution or contamination events, households see little justification for paying PDAM tariffs. These challenges disproportionately impact women, who are typically responsible for managing household water needs, as well as persons with disabilities, older persons, and those living in informal settlements, who may face greater physical or financial barriers in accessing alternative water sources. High upfront connection costs further exclude low-income and vulnerable households, particularly female-headed households and those without land tenure, in the absence of targeted and pro-poor connection subsidies or flexible payment schemes.[26]

Furthermore, distrust in billing and metering practices, whether due to perceived inaccuracies, lack of transparency, or the absence of accessible customer service, erodes customer confidence. This is exacerbated where complaints-handling systems are not designed to be inclusive or user-friendly, particularly for those with limited literacy, digital access, or disabilities, who may find it difficult to engage with service providers or lodge complaints effectively.

There is a heavy dependence on groundwater. In many urban and peri-urban areas, households, commercial users, and even small industries rely on shallow and deep wells for their daily water needs. Self-extracted groundwater is perceived as "free" aside from the cost of pumping, making it financially more attractive than paying PDAM tariffs, even when tariffs are relatively low.

Weak enforcement of groundwater regulation compounds this challenge. Although groundwater abstraction is governed by licensing under the SIPA framework, domestic use is largely exempt from permit requirements. This creates a loophole where household-level abstraction remains unregulated and untaxed, perpetuating over-reliance. Even where permits are required, as in the case of commercial, and industrial abstraction, enforcement is often lax. Many users operate without valid permits, and monitoring systems for abstraction volumes are minimal.

For PPP projects, high household reliance on groundwater undermines demand ramp-up for piped water services. Even where bulk water infrastructure is in place, slow household conversion rates can leave distribution systems underutilized and offtake volumes below contracted levels—triggering payment risks for PDAMs undertake-or-pay arrangements. To improve uptake and ensure equitable access, demand generation strategies must go beyond infrastructure to include social accountability measures. They should address affordability, trust, and accessibility concerns, and explicitly include women, people with disabilities, low-income households, and those living in underserved or informal areas.

Weak enforcement of groundwater regulation

The regulatory framework for groundwater in Indonesia, as set out under Law No. 17/2019 on Water Resources and its implementing regulations, gives priority to drinking water in allocation. However, practical application in the SIPA permitting process does not systematically operationalize this priority for PDAMs or PPP developers:

- **Permit delays:** Securing raw water abstraction rights under SIPA can take 2–3 years, creating significant delays in PPP project preparation and financial close.
- **Competing claims:** Industrial and agricultural users often obtain SIPA permits ahead of drinking water projects due to stronger lobbying and faster permitting responses.

[25] As confirmed from review of operational PPPs and views of officials from participating PDAMs in Focus Group discussions and consultations.
[26] Supported through KIAT Gender Equality and Social Inclusion activity, PDAM Tegal, Bandung, Banyuwangi, and Palangka Raya, for instance, issued Director Decree on reduced installation and tariffs for households with people living with disabilities.

- **Lack of synchronisation**: PDAM or PPP project SIPA applications are not consistently fast-tracked, even when the project has been approved under national or regional priority infrastructure programs.
- **Institutional fragmentation**: Responsibilities for water resource management are split across ministries and provincial agencies, leading to procedural complexity and inconsistent enforcement.
- **Implications:** Without reforms to **groundwater abstraction rules** and **service quality improvements**, large-scale PPP investments risk falling short of their demand projections, threatening their financial viability.

3.1.5. Issues with PPP arrangements

Two types of cooperation arrangements with private sector are in place in Indonesia, namely (i) *PPPs* and (ii) *B2Bs*. Key characteristics of these forms are detailed below.

PPPs

PPPs are implemented under GOI regulations and have focused on the upstream component. Over IDR 10 trillion worth of water PPPs have been awarded at the end the RPJMN 2020-24 period, several of which are now operational. The BAPPENAS PPP Book 2025 reported *7 operational and awarded PPPs* involving a project outlay of ~IDR 10 trillion (with an estimated private financing of IDR 7 billion) and another *5 PPPs* with an outlay of ~IDR 19 trillion under various stages of preparation and tendering. *Exhibit 3.8* provides additional details.

PPPs are structured with support from Viability Gap Funding (VGF) managed under MOF and guarantees from IIGF. As of 2022, ~ IDR 1.4 trillion of the allotted IDR 2.2 trillion has been disbursed to PPPs. Concessional loans have also been made available through PT IIF and other facilities. They have been largely used to implement upstream infrastructure (typically water intake, transmission, treatment, distribution main facilities) that feed into the downstream distribution network managed by PDAMs. In these projects, the Government Contracting Agency (GCA) is the PDAM to which bulk water is supplied by the Independent Business Entity (IBE) set up by the private developer selected to finance, construct, operate and maintain the project. In regional projects that serve to provide infrastructure and bulk water supply to multiple PDAMs, GCA could be the PG or CG.

Exhibit 3.8 KBPU PPPs – operational and under preparation (as of 2024)

No.	Project	Project cost IDR Billion	Private finance* IDR Billion
Operational and under construction			
1	West Semarang – *Operational*	1,280	841
2	Bandar Lampung – *Operational*	800	431
3	Umbulan – *Operational*	2,193	1,169
4	Pekanbaru – *Operational*	552	442
5	Dumay – *Operational*	522	417
6	Jatiluhur – I - *Construction*	1,787	1,429
7	Karian Serpong – *Awaiting financial closure*	2,666	2,133
	Sub-total	**9,799**	**6,862**

*Source: BAPPENAS PPP Book 2025. Secondary research. Dumai featured in PPP book but has not received MOF's VGF support or guarantee from IIGF. *Private financing assumed at 80% of net project cost after VGF in awarded/operational projects and at 70% in projects under preparation.*

Business-to-Business arrangements (B2Bs)

B2Bs are done at the level of PDAMs and regulated at the level of PGs and LGs. These have traditionally focused on the distribution component of the water value chain managed at the level of PDAMs and LGs. They have often followed from unsolicited proposals submitted by private sector contractors and developers, and are typically done without access to VGF and guarantee support from MOF. There is an implicit view that these arrangements do not need to adhere with national PPP regulations. These are largely prepared, managed and overseen by PGs and LGs.

A 2020 World Bank assessment profiled over 71 B2Bs arrangements in the water sector, covering full concessions, Build-Operate-Transfer (BOT) and Operations and Maintenance (O&M) projects, with private entities, property developers, banks, and contractors. Refer *Exhibit* 3.9. 24 of the 50 PDAMs supported under World Bank's NUWSP reported having B2B cooperation arrangements in place. Significant B2B cooperation arrangements include (i) PAM Jaya and PT. MOYA Indonesia with IDR 8.9 trillion in bank syndication loans, (ii) PDAM Kota Semarang with ~ IDR 1 trillion investment, followed by (iii) PDAM Kabupaten Gresik, (iv) PDAM Kota Palembang, (v) PDAM Kota Medan, and (vi) PDAM Kabupaten Tangerang. These collaborations have focused on a range of interventions including constructing Water Supply Systems (SPAM), pipeline development, Water Treatment Plant (WTP) construction, and reducing Non-Revenue Water (NRW).

Exhibit 3.9 B2B PPPs – number and type of contracts 2020

No	Type of B2B	Contracts Nos. (% of total)	Water supply L/sec. (% of Total)
1	Full Concession (water treatment plant — WTP — up to end-users)	10	14,620
2	BOT (WTP + transmission & main distribution)	20	9,530
3	RUOT (Refurbish Upgrade Operate Transfer)	14	14,220
4	O&M for intake and WTP	2	3,040
5	BOO/BOT for housing and industrial estate	25	6,495
	TOTAL	**71**	**47,905**

Source: Infrastructure Sector Assessment. World Bank 2020.

Key issues and constraints around forms of cooperation in water supply are summarised below:

- **Regulatory ambiguity around PPPs in downstream distribution:** PPPs have focused largely on bulk supply and do not address downstream inefficiencies and service delivery issues at the customer end. The regulatory framework for water supply, as set out under *MPW Regulation No. 19/2016* conceptually divides service delivery into four functional units: (i) *Unit Air Baku* – raw water intake; (ii) *Unit Produksi* – water treatment and production; (iii) *Unit Distribusi* – water distribution to households; and (iv) *Unit Pelayanan* – customer interface, including metering, billing, and complaints. Among these four areas, there are currently no explicit enabling provisions for private sector involvement in the distribution and customer service functions. This creates legal ambiguity that undermines project bankability and deters private investment in these downstream segments.

  The *Law No. 17/2019 on Water Resources* and *MPW Regulation No. 19/2016* sets broad principles for sector governance, and the *Government Regulation (GR) No. 122/2015 on Drinking Water Supply Systems (Sistem Penyediaan Air Minum, SPAM)* is the principal technical regulation governing the structuring of water infrastructure projects. PP 122/2015 lays down requirements for planning, development, and operation of SPAM, including provisions on cooperation between government and business entities. In practice, however, the regulation has been interpreted narrowly, with greater emphasis on upstream and production-related facilities.

  Several PDAMs and LGs have experimented with performance-based service contracts (PBSCs) and B2Bs to engage private partners in select downstream functions. These contracts are typically framed around operational support, efficiency improvements, or revenue enhancement, covering *Unit Distribusi* and *Unit Pelayanan*. However, because they are structured outside the formal PPP framework, they operate in a legal grey zone. As a result, such models remain constrained by legal and regulatory uncertainty, limiting their replicability, scalability, and attractiveness to long-term private investment.

- **PPPs in upstream component:** Even in case of upstream PPPs there are constraints. *First*, PPPs are subject to national regulations that require rigor in project preparation and are subject to approvals at multiple stages which tend to make development and award to PPPs time-consuming relative to projects implemented on EPC mode. For being developed as a PPP, a project must be included in BAPPENAS PPP book and go through a range of approvals for access to VGF and Guarantees. Greater rigor of preparatory effort is necessary to ensure judicious

risk assessment, allocation and structuring for bankability. *Second*, they often require investment actions at the end of PDAMs to meet offtake commitments in terms of network expansion and addition of connections and this calls for extensive coordination across different levels of government, namely GOI, PG and LG(s). This adds layers of complexity in decision-making, project preparation and approvals. Lately, the MPW has sought to structure PPPs (for e.g., in Jakarta and Jatilahur projects) to cover source-to-tap financing, with an end-to-end scope from water intake to metered household connections including local distribution network management with only the billing, collection and customer engagement responsibilities being handled by the PDAM as the GCA. However, PPP modalities for the distribution component are not yet clearly in place.

- **B2Bs:** Although perceived as easier to implement relative to PPPs, B2Bs are sub-optimal options and crowd out well-structured outcome-focused PPP structures. Barring exceptions, they do not tackle downstream inefficiencies and service delivery issues at customer end. *First,* B2B projects suffer from lack of harmonized regulation/contracting and inadequate rigor in project preparation. Often there is weak integration with upstream components of water value chain beyond the PDAM jurisdiction. *Second,* they are often structured based on unsolicited proposals which constraints price discovery and transparency aspects. *Third,* without MOF's oversight, support through VGF and guarantee support, project viability and bankability are often compromised. *Fourth,* lack of policy and regulatory clarity (discussed further in the following section) constrain structuring of small water PPPs in distribution and customer interface that can potentially facilitate service delivery improvements (continuity and quality of supply etc.) and efficiency gains (lower NRW, energy efficiency etc)

3.2. Findings from operational PPPs

This section reviews two operational PPPs, namely *West Semarang water supply PPP* and *Bandar Lampung Water Supply PPP*, undertaken to corroborate constraints to water PPPs from a project perspective. The selection of these water PPPs for this review was done in consultation with MOF. They both are designated *National Strategic Projects* and have been implemented with GOI support. They also have an operational track record for a few years after commissioning making them apt choices for this review.

3.2.1. Semarang water supply PPP

Project background and scope

The West Semarang Water Supply System is structured as a 25-year BOT concession (~2 years construction and 23 years operation). Although early preparatory work started in 2012, the project was tendered in 2018 and awarded to a consortium of *PT Aetra Air Jakarta (Moya Group) and PT Medco Infrastruktur Indonesia*, which formed the special purpose company *PT Air Semarang Barat (PT ASB)*. The PPP agreement was signed in October 2018, after financial close, construction began in 2019. The city's water utility, *PDAM Tirta Moedal Semarang*, is the Government Contracting Agency (GCA) and off-taker, purchasing treated bulk water from the private partner.

The project scope involved intake and raw water transmission (2.2 km), a WTP of 1,000 L/s capacity, and clear water transmission mains to the city, and four distribution reservoirs. The scope of the PPP project covered design, financing, construction, operations and maintenance of this system and to move and treat raw water from Jatibarang Dam to service demand in west Semarang. The PPP contract is structured as a Design, Build, Finance, Operate and Transfer (DBFOT) where the private partner must transfer the assets to the city/PDAM after the 25-year concession period (around 2044).

During the term, the private SPV, PT ASB is responsible for operations and maintenance of the intake, WTP, and reservoirs, delivering bulk water to PDAM's network. The system serves three western districts of Semarang (Tugu, Ngaliyan, and Semarang Barat) and is intended to connect 70,000 households or 420,000 people (or ~30% of the city's population) to piped water supply access. The project aims to curb unsustainable groundwater use by facilitating a shift to use of surface water and mitigate further land subsidence in Semarang.

Project financing and structuring

The cost of the project is estimated at IDR 1.3 trillion, with IDR 458 billion is from private investment. Private financing comprised private debt and equity contributions, supported by substantial government grants, including Ministry of Public Works and Housing (MPW) contributions, local government (LG) support, and MOF Viability Gap Funding (VGF).

The GoI provided substantial in-kind support with MPW financing and the construction of raw water intake (capacity 1,050 L/s, IDR 90 billion) and the primary distribution network (transmission/distribution mains, IDR 221 billion). The Semarang LG contributed IDR 100 billion from its budget, and PDAM Tirta Moedal invested approximately IDR 322 billion (for tertiary distribution and house connections). Under the hybrid financing structure, the private partner's scope was focused on bulk water production and key distribution, while public grant funds were used for completing the distribution network, a model that intended to keep the bulk water tariff low. Cost-sharing arrangement for the project was Private: ~IDR 417 billion, GOI - IDR 329 billion, and LG - IDR 124 billion[27]. A government guarantee for PDAM's offtake obligations was provided through Indonesia Infrastructure Guarantee Fund (IIGF) to enhance bankability.

Without public support, bulk tariffs would have been IDR 8,587/m^3 and end-user tariffs IDR 13,158/m^3, well above willingness-to-pay thresholds. Government subsidies enabled affordable rates (bulk: IDR 3,646/m^3; retail: IDR 5,481/m^3 at COD). The structuring included a take-or-pay offtake commitment backed by IIGF guarantee which helped mitigate revenue risk. The private consortium's financing structure combined equity and debt. In addition, PT SMI (a MoF infrastructure financing arm) managed PDF support to GCA for project preparation and transaction advisory while the MPW provided technical and strategic guidance to the PDAM.

Implementation status and challenges

Construction of the project got over in 2020 and commercial operations were commenced in 2021 as planned. By August 2023, the MPW announced the project construction was fully completed (as of April 2023), with the system capable of serving 70,000 house connections (350,000 people) at 1,000 L/s capacity[28]. In January 2024, President Jokowi formally inaugurated the Semarang Barat SPAM, as a *pilot project* for piped water PPPs in Indonesia and noting that over 60% of the distribution network and connections were in place at launch. By that time, tens of thousands of households had already been connected, indicating strong initial uptake.

The project is reported to have been successful in delivering on its objectives: it reduces groundwater extraction, provides high-quality treated water and improves service continuity in West Semarang. Given its success, the Semarang city government is exploring replicating a similar PPP for East Semarang. Key success factors cited include strong political support from the mayor and central government, careful risk allocation, and blending of public and private resources to ensure the private partner's confidence despite changes in local leadership. The Semarang West Water Supply PPP was completed on schedule, with bulk water delivery to PDAM Tirta Moedal starting in 2021, making it one of Indonesia's smoother PPP implementations. Stable and supportive political leadership at the LG level was a critical factor.

Despite this, the project faced connectivity challenges. The new water supply was ready in 2021 but the construction of the main distribution network, financed with MPW's budgetary outlay was delayed by two years, owing to COVID-19 budget efficiency measures introduced during 2020-2022. Due to contractual obligation, PDAM decided to switch the water distribution network so the new water supply could be utilised in other parts of the city. Non-revenue water rose from 33% in 2020 to 46% in 2023, eroding tariff gains and reflecting leakage and integration issues with older network segments. While PDAM Tirta Moedal was rated "Healthy" in the 2023 BUMD assessment, its Perumda structure leaves tariffs and dividends subject to LG control, limiting reinvestment capacity.

[27] Source: detik.com
[28] Source: kfmap.asia

Offtake volumes too fell short of projections early-on due to slower-than-expected household and commercial connections, as many users continued relying on cheaper groundwater and harboured concerns over service quality, water pressure, and billing transparency. High connection fees also deterred some low-income households. The project highlights that even with timely creation of bulk infrastructure, realisation of financial and service targets depends on accelerating connections, managing demand, and reducing NRW.

3.2.2. Bandar Lampung water supply PPP

Project background and scope

The Bandar Lampung Water Supply PPP is a 25-year BOT concession with PDAM Way Rilau as the GCA and bulk water off-taker. The project was among the earlier city-level drinking water PPPs attempted, with preparation having been started earlier than Semarang. The concession was awarded in February 2018 to PT Adhya Tirta Lampung, a consortium of Bangun Cipta Contractor and Bangun Tjipta Sarana. Financial close was achieved in August 2018, but completion was delayed owing to Covid-19 pandemic, delays in permitting and approvals, and allied issues. COD was eventually reached in August 2024 instead of 2020 as planned.

The Bandar Lampung PPP aims to expand piped water coverage in eight city districts and reduce dependency on groundwater. The PPP project draws raw water from Way Sekampung River (augmented by a new Way Sekampung Dam upstream) to provide clean water to the city. The scope of PPP operator covers design financing, construction, and operation of a raw water intake (825 L/s capacity), WTP with 750 L/s capacity (in two stages of 2×250 L/s modules initially), a main reservoir (10,000 m^3) at Tegineneng, and pumping stations, transmission pipelines (~25 km) to deliver bulk water to the city's distribution networks.

The project also includes some primary distribution mains in the city (sizes 400–1000 mm over ~13 km, plus secondary distribution pipes ~58 km) to route water to service areas. The service area focuses on 8 districts in Bandar Lampung – Rajabasa, Labuhan Ratu, Way Halim, Kedaton, Tanjung Senang, Sukarame, Sukabumi, and Kedamaian – which previously had low coverage (~20–30%) and reliance on groundwater. The project intended to double piped water coverage from ~30% to ~60% with an incremental 60,000 connections (or 300,000 people). The system was engineered to run continuously with treated water meeting high quality standards.

Project financing and structuring

The financing breakdown included: IDR 485 billion (~35% of project cost) by the private partner (PT ATL) and ~65% from GoI including MOF VGF ~ IDR 259 billion, MPW Capital grant from APBN~ IDR 300 billion and LG ~ IDR 281 billion (of which LG APBD ~ IDR 150 billion and ~ IDR 131 billion from PDAM). About IDR 559 billion was from GOI and IDR 281 billion from LG and PDAM. This blended financing approach was essential to make the project bankable with affordable tariffs. Like in Semarang, the project required significant government support from MOF, MPW and LG. Standalone bulk tariff and tariff estimated at IDR 8,315/m^3 and IDR 12,473/m^3 respectively were reduced with subsidy provision to IDR 4,931/m^3 (bulk) and IDR 7,500/m^3 (retail) respectively at COD.

The structuring also featured a take-or-pay agreement backed by an IIGF guarantee. The private partner raised debt and equity for its share (with an assumed 70:30 debt-equity ratio). The MOF supported project development (e.g. funding feasibility studies/transaction advisors) through PT SMI. The IIGF provided a guarantee for this project, covering the risk of PDAM default on payments and certain political risks.

Given PDAM Way Rilau's pre-project tariffs were low and only a fraction of households was connected, the project's viability hinged on subsidizing capital costs and improving PDAM's revenue base. As of 2024, water from the new system is reportedly being supplied to consumers at reasonable prices comparable to or slightly above standard PDAM rates, ensuring 24/7 piped water is cheaper than alternative sources (residents reportedly paid ~IDR 200,000/month for trucked or bottled water). In practice, local regulations require that if full cost recovery tariffs are not achieved, the LG must provide subsidies to PDAM. Bandar Lampung's city government will need to monitor

PDAM's finances and possibly subsidize initial operations, since the PDAM must pay the private SPV for a minimum water volume even as it gradually connects customers. By 2023 the PDAM had to revise its projections and strategies to increase household connections and revenue, highlighting the tariff/repayment challenge.

Implementation status and challenges

As per press reports, despite being set for completion by late 2022, construction extended well into 2023. Raw water intake, transmission pipeline, and WTP were reported as physically complete by 2020 for some components, but full system integration and distribution networks took much longer. The project became operational and started delivering water in May 2024 and was formally inaugurated in August 2024. Although the system could serve 60,000 connections, only 13,105 house connections were active at that point. An additional ~4,500 connections were slated to be added shortly using DAK grants and a presidential instruction program to help utilize the capacity. Slow uptake is due to delays in laying distribution pipelines and in convincing households to switch from shallow wells to PDAM service. By mid-2024, PDAM Way Rilau reported 11,820 new customers but still below the target of 60,000.

Underutilisation of contracted volumes strained PDAM revenues and triggered reliance on IIGF guarantees. High non-revenue water from leakage and metering issues further reduced returns. Institutionally, PDAM Way Rilau, a Perumda, is constrained by politically set tariffs and limited budgetary support and was rated "Sick" in the 2023 BUMD assessment. The project shows that without aligned network expansion, demand uptake, and NRW control, even well-subsidised bulk water PPPs risk underperformance. Its sustainability depends on accelerating connections, reducing losses, and strengthening PDAM finances.

3.2.3. Corroborating sector constraints through operational PPP experience

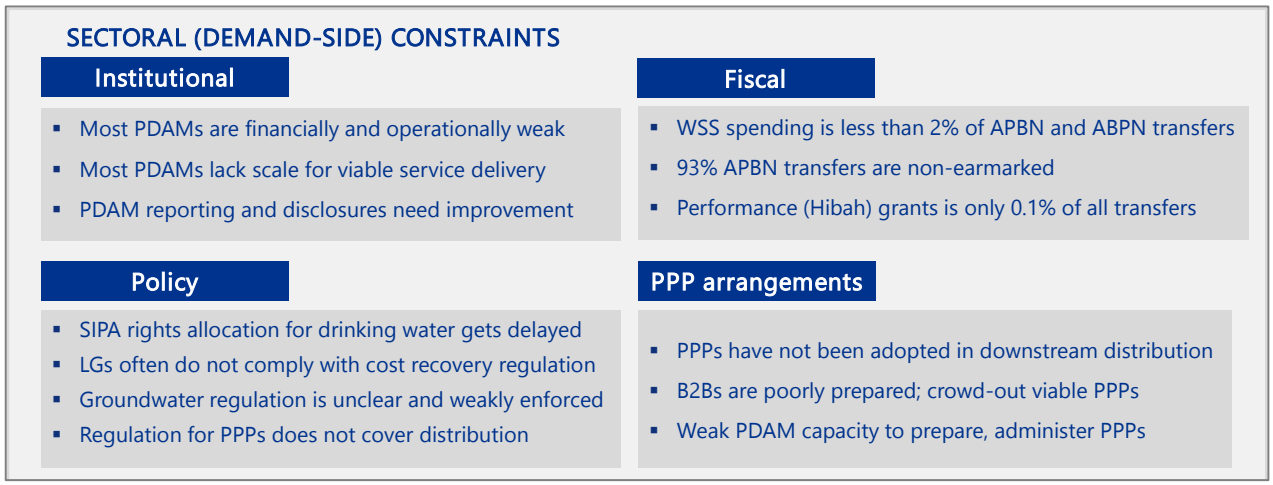
The systemic constraints identified in the value chain analysis in the previous section are reflected in the operational experiences of the Semarang West and Bandar Lampung KBPU projects. Although both projects were structured with substantial GOI support and contractual safeguards, their operational experience reveal how sectoral limitations manifest in PPP contexts. Critical issues in this regard are summarised below.

- **LG co-financing and distribution readiness:** When operating with non-earmarked fiscal transfers, LGs often lack financial and institutional capacity to deliver complementary infrastructure in tandem with PPP bulk assets. Both projects faced challenges in synchronising last-mile distribution infrastructure with bulk infrastructure.
- **Customer uptake and service perceptions:** Both projects have experienced slower-than-forecast household connections. Households were reluctant to connect, citing high upfront connection fees, low confidence in service reliability, and continued access to lower-cost groundwater. Even in Semarang, where connection growth was stronger, uptake was below projections, possibly due to intermittent supply perceptions in certain service pockets. These outcomes confirm that willingness-to-pay is not only a function of tariff affordability, but also of perceived service quality, transparency, and trust in the utility.
- **PDAM financial sustainability and tariff framework compliance:** PDAM-level financial profiles of both GCAs corroborate the constraints around tariff policy enforcement and operational cost recovery. Both PDAM Tirta Moedal and PDAM Way Rilau continued to operate below FCR levels and without commensurate subsidies. Rising NRW from 33% to 46% in Semarang and persistent 34–50% levels in Lampung constrain revenue potential, even as production efficiency remained weak (53% in Semarang, 44% in Lampung). The absence of enforceable mechanisms to compel LG compliance with tariff and subsidy policy left both PDAMs structurally underfunded, and heightening payment risk under offtake arrangements.
- **Institutional and governance weaknesses:** Both GCAs operate under the Perumda corporate form, which, while providing some degree of autonomy, remains heavily influenced by LG decision-making in tariff setting, dividend extraction, and investment planning. The gap between reported assessment scores and on-the-ground operational capacity in both Semarang and Lampung illustrates the shortcomings of the prevalent design and implementation of the BUMD assessment framework.

3.3. Thematic view of solutioning

The constraints identified and mapped in *section 3.1* are grouped under four logical thematic areas to facilitate solutioning as shown in *Exhibit 3.10* and described below.

Exhibit 3.10 Constraints to water PPPs – from a water value chain view to a thematic solutioning view



P= Policy Actions, I=Institutional actions at PDAM level, PPP=Issues with PPP arrangements, F=Issues relating to Fiscal Transfers

3.3.1. Institutional issues at PDAM level

PDAMs are caught in a vicious cycle – Low capex → poor operating capacity → weak financial health – and have limited incentive to change status quo.

1. PDAMs – typically the Government Contract Authorities (GCAs) in water PPPs – have a narrow revenue base reflecting underlying governance, management and institutional capacity limitations. and weak incentives for service delivery.
2. Most PDAMs are sub-scale and fragmented to build requisite capacity for high quality service delivery. With 51% of PDAMs having less than 20k connections, there is a case to consolidate PDAMs to improve economies of scale, and managerial efficiency.
3. Most PDAMs are structured as Perumda and this constrains their governance capacity, ability to mobilise external capital and creates limitations in disclosures and reporting
4. PDAM-level disclosures including the BUMD assessment framework offer scope for improvement: Although PDAMs are consistent and timely in filing financial statements and completing audits, there is limited publicly available information on their operating and financial performance, and this constrains an understanding of their credit capacity among investors and lenders.

3.3.2. Regulatory gaps

Critical policy gaps include the following:

1. Delays in securing SIPA rights for water PPPs and lack of synchronised planning across Water Resources and SPAM development presents an important barrier to wholesome solutions for improved service delivery.
2. Non-enforcement of tariff, direct subsidy regulation constrains PDAMs from achieving FCR. Together with lack of independent regulation they present foundational constraints for water PPPs. This situation severely undermines PDAM's ability to meet its cost commitments in full, creates a serious risk for PPP developers and reduces bankability and attractiveness of PPP projects.

3. Regulatory ambiguity on PPPs in downstream distribution and customer interface curtails realization of potential service improvements and efficiency gains. Water *Law No. 17 of 2019* allows PPPs in principle but does not clearly delineate the permissible scope of private involvement in customer-facing functions. Unlike upstream PPPs for bulk infrastructure, downstream distribution PPPs face ambiguity. As a result, efficiency gains from private participation in distribution and customer interface remain untapped.
4. Ineffective groundwater regulation suppresses demand and viable provision of affordable high quality water access. Water Law No. 17 of 2019, along with Government Regulation No. 43 of 2008 and Ministerial Regulation No. 26/2016 mandates regulation of groundwater extraction through permits, environmental safeguards, and usage fees. However, enforcement of this regulation remains weak. Many industries, large users extract groundwater without permits, fail to pay mandated abstraction fees, or ignore extraction limits.

3.3.3. Issues in PPP arrangements

The lack of adoption of PPPs in downstream distribution is a missed opportunity to realise efficiency gains and improve service levels.

1. PPPs have tackled upstream and midstream components of water value chain without comprehensively addressing weaknesses in distribution infrastructure, finances and service delivery at PDAM level. This is a sub-optimal choice as value-for-money and efficiency gains in the water value chain are high at the distribution component in view of the high NRW levels.
2. B2B structures have filled the void in the distribution component but these are sub-optimal, often reliant on unsolicited proposals and inadequately linked to performance outcomes. A whole-of-value chain perspective through complementary PPP arrangements covering integrated source-to-tap PPPs and stand-alone PPPs for distribution is missing and needs to be put in place.

3.3.4. Gaps in fiscal transfers

Fiscal support for water supply under APBD and APBN is inadequate to realise GOI's vision and targets for the sector. They are largely non-earmarked providing LGs little incentive to spend more on water supply. The share of earmarked spending and performance linked spending is not adequate incentive to change status quo.

1. Public spending is inadequate to realise GOI's water supply targets, with spending on WSS translating to less than 0.15% of GDP and less than 2% of APBD + APBN transfers taken together
2. Non-Earmarked devolution (e.g., DAU and DBH) dominate APBN fiscal transfers with 93% share and lead to spending on water getting deprioritized.
3. Earmarked and Performance-linked Fiscal transfers are miniscule. Only 6% of APBN transfers are via DAK Fisik, while a mere 0.1% and 0.9% share is devolved through Hibah and Insentif Fiskal grants, respectively. Of late, promising models from KIAT-PBG and NUWSP offer replicable blueprints to reform transfers towards and incentivize private participation but have remained in pilot stages.

4. Financing constraints

This chapter examines these supply-side constraints with a specific focus on water PPPs. While some constraints are sector-agnostic—affecting transport, energy, and other infrastructure—others are specific to governance, financing, and risk characteristics of water supply projects. The analysis builds on Indonesia's infrastructure financing landscape, drawing on insights from secondary research and stakeholder consultations including Developers and Lenders.

4.1. Infrastructure financing landscape in Indonesia

As on date, only a handful of water PPPs such as the West Semarang and Bandar Lampung bulk water supply projects, have secured financing, compared to significantly larger value and volume of projects in Transport and Energy sectors. This disparity reflects both demand-side constraints (such as PDAM creditworthiness) discussed earlier in chapter 3 and the supply-side constraints examined in this chapter.

Private sector developers have highlighted that the structure of Indonesia's financial markets, coupled with specific regulatory and contractual features of subnational PPPs, can make water projects more challenging to finance than other infrastructure types. In particular, the small scale of many PDAM service areas, the reliance on sub-sovereign offtake arrangements, and the absence of well-tested payment security mechanisms create risk perceptions that deter both lenders and equity investors. These market realities inform the analysis which is organised under four aspects:

1. **Access to long-term finance**
2. **Risk mitigation and payment security architecture.**
3. **Climate finance and environmental, social, and governance (ESG) integration.**
4. **Lack of alternative funding instruments to diversify from user charges.**

4.2. Access to long-term finance

4.2.1. Constraints in access to commercial debt

Several market related factors constrain the availability of long-term debt for water supply.

- **Limited long-term lending by Banks:** The Indonesian banking sector remains the dominant source of infrastructure debt finance. State-owned banks namely, Bank Mandiri, Bank Rakyat Indonesia (BRI), and Bank Negara Indonesia (BNI) account for approximately half of banking assets and play a leading role in financing infrastructure.[29] However, their funding base is primarily short-term deposits, with over 85 percent of Indonesian bank deposits are in products of less than one year's maturity. To avoid asset-liability mismatch challenges, Indonesia's banks favour short-medium term loans with maturities below 5–7 years except for top-tier corporate borrowers and find it hard to manage asset-liability mismatch of long-term lending.
- **Risk perceptions around water projects and counterparties:** Infrastructure projects requiring 15+ year tenure loans, with longer moratorium and structured repayment do not match with banks' largely short-term deposit funding profiles. While some large state-owned banks have financed infrastructure PPPs, they often limit tenure or require GOI guarantees to reduce risk. Private banks are even less inclined to lend long-term in sectors like water with modest returns and political risks. As a result, there is a dearth of purely commercial long-tenure loans for water projects. For greenfield PPPs, particularly those involving subnational offtakers such as PDAMs, banks often require tenure that match the construction period plus only a few years of operation, leading to significant refinancing risk. This mismatch between asset life and debt tenure is particularly problematic for water PPPs, where the commercial break-even period can be longer due to modest initial demand ramp-up and regulated tariff structures.

29

- **Investment restrictions of Pension Funds and Insurance companies:** Non-bank financial institutions, including pension funds, and insurance companies, are a potential alternative, but they too traditionally invest in less-risky, high-liquidity instruments, such as time deposits, government bonds, and stocks. They are not yet significant participants due to regulatory investment restrictions, and low risk tolerance. As a result, the potential to refinance bank loans through long-dated bonds, common in more developed PPP markets, remains untapped.
- **High dependence on state-backed Institutions and MDBs:** The gap is partly filled by state-backed financiers such as PT SMI and PT IIF which offer loans up to 10 years for local infrastructure, but such facilities remain limited in size. Multilateral lenders such as World Bank, and ADB provide long-term loans to the public sector, but these often come with their own conditions or require government guarantees when on-lent to PGs, LGs and PDAMs. The net effect is that without support from agencies like PT SMI, private project developers will often need to resort to balance sheet financing to tap debt and are unlikely to secure project recourse financing for water PPPs without a strong GOI guarantee and support.
- **Lack of depth in Capital markets:** Indonesia's bond market largely caters to sovereign issuances and few corporate bonds. Bond issuances by LGs and PDAMs are non-existent. Capital markets remain underdeveloped for infrastructure debt. While "Komodo bonds" (offshore IDR-denominated bonds) have been issued by select Indonesian corporates, there domestic project bond market remains shallow.

  Indonesia has made progress on green and sustainability bonds, since launching its **Green Bond & Sukuk Framework in 2018**, issuing multiple sovereign green sukuk (including retail), sustainability bonds, and updating its **Sustainable Government Securities Framework in April 2025** to cover a broader set of green and social categories. Proceeds have financed renewable energy, clean transport, water, and climate adaptation projects, though a significant share has gone to refinancing existing projects. However, the market remains small at less than 2% of the overall bond market, and faces challenges in scaling up, standardizing impact reporting, and mobilizing subnational participation.

  Consultations with developers reveal that absence of take-out financing facilities or secondary debt markets forces them to either rely on corporate balance sheet lending or seek offshore financing, both of which limit competition among lenders and can raise financing costs. Without competitive long-term hedging in place, forex loans are risky and infeasible. The corporate bond market too sees little participation by infrastructure project companies, especially unlisted PPP project SPVs with no track record. Institutional investors (insurance, pension funds) tend to prefer higher-rated government or SOE bonds over project-specific debt and face regulatory investment limits. Thus, tapping capital markets via project bonds or infrastructure sukuk remains an unproven avenue for water PPPs, aside from a few pilot transactions and requires very extensive credit enhancements. There is growing investor appetite for safe assets – evidenced by oversubscription of Indonesia's sovereign green sukuk and PT SMI – suggesting that with right structuring (e.g. guarantees, pooling of projects, or sovereign support), domestic investors could be drawn in to finance water infrastructure. However, doing so requires overcoming the current credibility gap and achieving an investment-grade profile for such issuances.

4.2.2. Restricted debt access by subnational governments

Public sector spending on infrastructure has shifted over time to subnational governments (SNGs) including PGs and LGs. Yet SNG borrowing, even by creditworthy LGs, remains negligible. GOI's decentralization laws in early 2000s transferred bulk of responsibility for local infrastructure provision to SNGs. SNGs accounted for 43% of public expenditure during 2015-18 compared to 23% pre-decentralization. A 2017 WB assessment[30] found that many SNGs to be creditworthy and having an estimated unused borrowing capacity ~USD 10 billion. Untapped borrowing in 30 largest cities was estimated at ~USD 3.8 billion. And yet, SNG debt (> 1 year maturity) was ~ 0.03% of GDP or 10 percent of subnational capex between 2018-21. Nearly 90% of public investment by SNGs is financed from GOI transfers. During 2020-21, less than 10% of SNGs had borrowings from financial institutions and from GOI.

[30] Subnational Debt Financing in Indonesia. World Bank. 2023

Indonesia's legal framework imposes restrictions on borrowing by sub-national governments. Since fiscal reforms in the early 2000s, LGs have been allowed to borrow, but only with prior approval of MOF and within strict limits. ***Law No. 17/2003*** on State Finance and ***Law No. 33/2004*** on fiscal balance (now updated by ***Law No. 1/2022***) introduced debt ceilings. ***Law No. 1/2022*** on Financial Relations between GOI and Regional Governments (Hubungan Keuangan antara Pemerintah Pusat dan Pemerintah Daerah, or HKPD Law) and its implementing regulations provide a framework for local borrowing. SNGs are legally permitted to take on debt from four sources, (namely GOI, Banks, Non-bank financial institutions, and public, through bonds) with no explicit limit on loan tenure, but the use of proceeds of debt instruments by SNGs is restricted by loan tenure category. Loans to SNGs / LGs can either be short-term (< 12 months), medium-term (> 1 year), or long-term (longer than period in office of the head of LG). Short-term loans can only be used to cover cash flow shortfalls, while long-term debt can only be used to finance infrastructure or public service facilities.

Borrowings remain subject to MOF approval, debt service coverage ratio limits, and restrictions on foreign currency debt. The MoF limits subnational borrowing to the lowest value of four 'binding' norms (i) Cumulative Loan principal (outstanding plus new) may not exceed 75% of SNG's budget in the previous year, (ii) Debt service coverage ratio (DSCR) of at least 2.5 must be maintained, (iii) Allowable deficit of the SNG as determined by MOF[31] each year and (iv) Total debt service should not exceed 15% of the sum of the general-purpose grant (DAU) and revenue sharing transfer (DBH), to ensure there is enough funding in case of the need to apply the intercept rule. Although these restrictions are imposed for fiscal prudence, some restrictions disincentivize SNGs from borrowings. Many regional governments and PDAMs lack the credit ratings and financial performance needed to qualify for debt financing. This effectively narrows the pool of bankable subnational PPPs unless supported by sovereign guarantees or central government payment mechanisms.

Further Law No. 33/2004 (retained in Law 1/2022) forbids PGs and LGs from guaranteeing third-party debt, including obligations of their regional water companies (PDAMs). In the context of the water sector, an LG cannot guarantee (or backstop payments under a water PPP contract) of a PDAM and this is a barrier to bankability of small local distribution PPPs. The law does allow LGs to pledge their revenues for debt service and permits intercept mechanisms on intergovernmental transfers if a LG loan from GoI goes unpaid. However, local assets cannot be used as collateral for loans (per Law No. 1/2004 on State Treasury) – public property, including infrastructure assets, are prohibited from being mortgaged or pledged to secure financing. This constraint limits lenders' security options, as they can rely only on projected cash flows or central government assurances rather than tangible collateral.

Although regulations allow LG to issue municipal bonds as a potential new source for long-term financing, these remain largely untapped. The government has established a framework for municipal bonds via MoF Regulation No. 111/2012, enabling creditworthy regions to issue local bonds. High-fiscal-capacity provinces or cities (Jakarta, West Java, Central Java, etc.) could tap domestic capital markets for infrastructure funding, including water projects in theory. However, no water-sector municipal bonds have been realized to date. The need for local council (DPRD) approval and complex reviews have stalled attempts by several regions (including Jakarta, West Java, Central Java, and Banyuwangi) to float bonds. Even fiscally strong LGs have struggled to navigate these procedures.

Overall, sub-national borrowing remains tightly regulated and is possibly driven by the need to maintain fiscal prudence. Nevertheless, an unintended consequence is that even creditworthy PDAMs-LGs refrain from tapping debt. The solution is not in diluting regulations but in incentivising and making it easier for the better-off LGs and PDAMs to tap debt. This has been successfully demonstrated by PDAMs in Bogor and Surabaya, which have recently accessed debt financing from PT SMI.

[31] In April 2017, the MOF signed a regulation setting the new deficit limits for 2018–24. Deficit limits are expressed in two ways: as a cap of 0.3 percent of national GDP projected for the 2018 fiscal year in aggregate across all SNGs; and as a scale of low-to-high relative to estimated local revenue for 2018, where 5 percent is very high, 4 percent is considered medium, and 3 percent is low. This requirement can be waived on a case-by-case basis by the MoF

4.2.3. Access to equity and risk capital

The availability of equity and mezzanine capital for water PPPs in Indonesia is limited, particularly for municipal-scale projects. Large infrastructure developers and investors, both domestic and international, tend to focus on sectors with higher returns and lower perceived payment risk, such as toll roads or power generation. Water PPPs often involve smaller capital expenditures and lower internal rates of return (IRR), which can make them less attractive to equity investors without risk mitigation or portfolio diversification benefits.

The Indonesia Investment Authority (INA), the country's sovereign wealth fund, has begun exploring co-investment structures in infrastructure, but its focus has so far been on transport and energy. Recently, Indonesia's sovereign fund, Danantara[32] announced a partnership with Japanese Bank for International Cooperation (JBIC) to explore investment opportunities in water management along with renewables and power. For water PPPs, a pooled equity fund structure anchored by INA, PT Sarana Multi Infrastruktur (SMI), and development finance institutions (DFIs) could help aggregate smaller projects into a portfolio, thereby attracting institutional investors. DFIs such as INA and Danantara could set up water equity platforms to take an equity position in large, better-run PDAMs and this could provide multiplier effect to crowd-in equity capital from private sector. This idea is discussed further in *chapter 5*.

Discussions with developers and financiers reveal that water PPPs are perceived as high-risk endeavours. Key concerns include demand risk (will consumers connect and pay as projected), tariff risk (local politics will come in the way of tariff increases), and credit risk of PDAM or GCA off taker. Developers have stressed that equity mobilisation is constrained by uncertainty in achieving commercial operations date (COD), delays in securing raw water rights (SIPA), and complex subnational approval processes. These delays extend equity lock-in periods and reduce effective returns. For some investors, the inability to exit through secondary market transactions or asset recycling further limits appetite. There is also a track record issue. Outside of Jakarta's concessions and a handful of new projects, private water projects are rare, giving lenders little precedent to gauge performance. Consequently, lenders and investors that do engage often place significant risk premiums. This can push up risk adjusted return expectations, creating a chicken-and-egg situation.

Other Institutional investor, especially pension funds, social security funds (BPJS), and insurance companies, hold long-term liabilities that make them natural candidates for infrastructure equity investment. However, their participation is again constrained by low asset volumes, regulatory caps, and lack of suitable investment vehicles. Pension and insurance sector reforms together with creation of a credible bankable project pipeline can help in scaling availability of domestic patient capital to support a scaled water PPP programme. The contours of a National Program to catalyse the demand-side triggers for the same in terms of a credible project pipeline and enabling reforms is discussed as part of the action agenda in chapters 6 and 7.

4.3. Risk mitigation and payment security architecture

Bankability of water PPPs in Indonesia is closely tied to the strength and credibility of payment security arrangements. While the Indonesia Infrastructure Guarantee Fund (IIGF) provides guarantees against government-related contractual risks, its coverage is often limited to specific triggers and may not span the full concession term. IIGF guarantee can help de-risk certain aspects (particularly political breach of contract or regulatory changes), improve the credit profile and enable lower financing costs but they typically cover specific risks, and do not protect against general commercial failure and hence lenders remain cautious. Overall, the current market environment means that without government support, most water PPPs would likely fail to attract affordable financing, given the perceived risk-return imbalance.

A key challenge in subnational water PPPs is ensuring timely payment from PDAMs whose revenues depend on user tariffs and, in some cases, subsidies from local government budgets. Although standardised escrow and intercept

[32] Source: Sovereign fund Danantara Indonesia, Japan's JBIC agree to jointly finance renewables, power projects | Reuters

arrangements, whereby GOI transfers to LGs can be intercepted in case of payment default, are in place, they are not yet uniformly implemented. Developers and lenders note that such mechanisms, if codified and consistently applied, would substantially improve creditworthiness perceptions.

Contractual provisions for credit enhancement and bankable water PPP projects are often missing or weakly dealt with in PPP contracts. These provisions are even poorly enshrined in B2B contracts given that these are typically implemented through unsolicited proposals, and LGs and PDAMs often do not have requisite capacities to deal with these issues. Select areas for harmonization include:

1. Payment security mechanisms including clearly defined mechanisms for Escrow Accounts (with clear waterfall mechanisms), and payment service reserve accounts
2. Process for dealing with Termination situations and mechanisms for arriving at Termination payments in case of default of GCA, Operator and Force Majeure
3. Substitution and step-in rights for lenders including clearly specifying conditions that allow a lender step-in
4. Dispute resolution frameworks including provisions for international arbitration, sectoral dispute resolution forums and deeper capacity creation for PPPs at LG and PDAM levels.
5. Clearly laid out Recourse mechanisms available to private operator for dealing with default of GCA obligations and for LG-PDAM to deal with operator defaults

Consultations with Developers reveal that uncertainty in enforcement of contractual remedies, including step-in rights and termination payments, adds to perceived risk. Developers opined that bankability improves significantly when payment flows are structured through a centralised payment framework or backed by interceptable revenue streams. Without such structures, lenders apply higher risk premiums, reducing affordability for offtakers.

4.4. Climate finance and ESG integration

Indonesia is highly exposed to climate risks including rising sea-levels, floods, droughts, and extreme weather events. Water supply infrastructure is often at the front line of these impacts. These climate related disruptions can have disproportionate impacts on vulnerable groups, including women, people with disabilities, older persons, and low-income communities, who are often the most reliant on water services and the least able to absorb service disruptions or seek alternatives. Strengthening climate resilience through diversified water sources and upgraded treatment technologies is essential, but such measures can increase capital costs and complicate project structuring, especially in ways that may unintentionally exclude or burden vulnerable populations if social dimensions are not adequately considered.

While concessional climate finance from sources such as the Green Climate Fund (GCF) and bilateral climate facilities exists, accessing these funds for municipal-scale PPPs is challenging due to capacity constraints in project preparation and the small ticket size of many projects. This is particularly problematic for smaller municipalities or local governments in underserved areas which may lack the technical and institutional capacity to develop bankable proposals, perpetuating regional inequalities and limiting access to resilient infrastructure for marginalised populations.

Although the broader green bond market is emerging in Indonesia, a sector-specific green bond framework for water may help catalyse resource flows. This will require focused efforts including clear eligibility criteria, and a pipeline of certifiable projects than can tap ESG-labelled capital markets. This also presents an opportunity to link sustainability and social equity outcomes, as green or sustainable bonds if designed with GEDSI safeguards could channel finance towards projects that benefit underserved communities, promote inclusive access, and enhance gender equity in service delivery. Introducing preferential guarantee pricing or interest rate subsidies for certified green and inclusive projects could further incentivise adoption.

Integrating ESG requirements into preparation of water PPPs also requires balancing environmental, social, and economic objectives. For example, specifying advanced treatment standards to meet ESG criteria can increase project costs, potentially leading to tariffs that exceed what is affordable for low-income or vulnerable households unless mitigated through targeted subsidies, cross-subsidization, or blended finance mechanisms. Doing so would ensure that investments in water infrastructure actively contribute to social equity, gender equality and poverty reduction, in line with Indonesia's commitment to sustainable development.

4.5. Lack of alternative instruments to diversify from user charges

A heavy reliance on user tariffs as the primary revenue source for PDAMs constrains their ability to commit to long-term offtake payments in PPPs. Alternative funding instruments can help diversify revenues and improve creditworthiness. Land value capture (LVC) mechanisms—such as betterment levies, developer impact fees, or tax increment financing—are underutilised in Indonesia. Similarly, earmarked tourism or visitor taxes could provide dedicated funding streams for water infrastructure in high-tourism areas. Carbon credit monetisation presents an emerging opportunity. Energy-efficient treatment plants and reduced non-revenue water can generate measurable carbon savings that can be monetised through carbon markets. However, the transaction costs and technical capacity required for verification have so far limited uptake by PDAMs.

Diversifying the funding base of PDAMs beyond user fee revenue can potentially mitigate PPP project financing risk and reduce vulnerability of PPP projects to tariff uncertainty. A hybrid approach that blends user charge revenues with other structured funding support in the form of land value capture mechanisms, carbon credits, and performance grants, can help close viability gap effectively while maintaining affordability and equity.

4.6. Summary

The constraints mapped reveal that Indonesia's water sector faces a range of institutional, regulatory, financial, and demand-side challenges. While the investment need is clear and the policy framework for PPPs has strengthened over the past decade, the flow of long-term private capital into water infrastructure remains constrained by structural weaknesses in the financial system, subnational creditworthiness, and underdeveloped risk-sharing mechanisms. The constraints outlined in this chapter are interlinked—limited access to debt and equity discourages investor participation; weak payment security frameworks elevate risk premiums; and the absence of diversified funding sources leaves projects overexposed to politically sensitive tariffs. For water PPPs to scale up meaningfully, Indonesia must deepen its domestic capital markets, create reliable credit enhancement mechanisms for sub-sovereign off takers, and proactively mobilise climate and ESG-linked finance. Equally, enabling regulations for alternative revenue instruments—such as land value capture, tourism levies, and carbon credit monetisation—can reduce reliance on user charges and improve bankability. These systemic issues require a multi-pronged response that combines reform incentives, regulatory clarity, and bankable project structures.

The transformation agenda proposed in this Paper seeks to move beyond project-level interventions to a nationally coordinated, reform- and performance-driven framework. It is built on three distinct yet mutually reinforcing strategic pillars namely, (i) a **National Water Services Improvement Program (NWSIP)** to pool resources and link fiscal support to governance and service delivery reforms, (ii) Critical **policy actions** to create a predictable and enabling environment for private participation and sector accountability, and (iii) standardized, replicable **PPP structures** focused on downstream distribution and customer service components tailored to PDAM capacity and designed to mobilize private capital while embedding social accountability.

Chapters 5 to 7 discuss the specific actions under each of these three strategic pillars.

5. Strategic pillar – I: National program

This section outlines possible contours of a national program that focuses on improvements in drinking water distribution services, hereinafter referred to as the National Water Services Improvement Program (NWSIP). It discusses (i) Preamble and principles, (ii) Objectives, scope and targets (ii) Institutional structure and role of different stakeholders, (iii) Features and components, (iv) Convergence of fiscal instruments and (v) Indicative eligibility criteria & readiness requirements for enlisting participating LGs and PDAMs.

5.1. Program rationale, guiding principles and phasing

5.1.1. Rationale and guiding principles

PDAMs face persistent institutional, fiscal, regulatory, and PPP-related challenges that constrain their ability to deliver on GOI vision for universal access to piped water. Addressing these constraints through an outcome-oriented, and programmatic approach, anchored in GOI's budgetary support, is essential for achieving meaningful improvements in service delivery and customer outcomes.

While GoI has set ambitious targets to expand piped water access, the current delivery architecture is inadequate to realise these. Fragmented institutional responsibilities, and weak PDAMs have hindered progress. GOI's fiscal support needs to look beyond the confines of MOF's PPP instruments (including VGF, PDF and IIGF guarantees). These are inadequate to address internal challenges and to incentivise the wider governance, managerial and financial challenges faced by PDAMs that serve as GCAs. These gaps create financial and operational pressures and undermine sustainability of PPP projects. Realizing GoI's long-term targets will require a shift in focus to address downstream delivery and institutional reform at the PDAM level.

This Paper explores the concept of a National Water Services Improvement Program (NWSIP) to blend public and private interventions in tandem to pursue two core objectives: (i) institutional and operational reform to make PDAMs operationally and financially vibrant, and (ii) adoption of performance-linked PPPs in downstream distribution to drive service outcomes at scale. The proposed NWSIP should be underpinned by the following principles:

- **Align stakeholders across the water value chain:** The program should coordinate actions across ministries including MPW, MOF, MOHA, and BAPPENAS, as well as PGs and LGs. A platform to convene these stakeholders at the apex level is needed to align regulation, project development, and financing actions.
- **Incentivise PG–LG-PDAM commitment to reforms and performance improvement:** The program must secure strong reform commitments from PGs and LGs. Incentives mechanisms linked to implementation of key reforms such as cost-reflective tariffs, NRW reduction, and PDAM restructuring, should be put in place. Binding agreements with LGs and PGs covering specific reform commitments will be crucial. A combination of conditional grants and performance-based transfers rather than non-earmarked fiscal transfers and VGF, coupled with the right to exercise devolution intercepts, can help engender compliance.
- **Reimagine fiscal support beyond general budgetary allocation and PPP instruments:** The NWSIP must adopt broader fiscal convergence and blend a higher share of fiscal transfers through sector-earmarked and performance-linked instruments including DAK Fisik, Hibah grants, and Insentif Fiskal, to incentivize reforms linked to governance, performance, and cost recovery. A medium-term fiscal framework which enables stable resource visibility through instruments to earmark and ring-fence resources on a longer term basis will be a crucial boundary condition for successful program implementation.
- **Embed Regulatory enablers upfront:** Operationalizing PPP structures requires regulatory clarity on issues such as private participation in distribution, tariff setting, cost recovery, and groundwater usage. The coordinating body under NWSIP should address these cross-cutting regulatory gaps early. Chapter 7 elaborates policy actions required in this regard.

- **Expand scope of technical assistance beyond project preparation:** NWSIP should provide technical assistance not just for project preparation, but also for broader institutional strengthening. This includes support for financial management, customer information systems, NRW control, service delivery improvements, and implementation of tariff reforms. PDAMs should also be supported in preparing 10-year rolling business plans and in adopting digital technologies for modernizing distribution systems and customer interfaces.
- **Forge strategic partnerships with donors and development institutions:** To achieve scale, the program must institutionalize partnerships, including with multilateral and bilateral agencies, donor institutions and philanthropic institutions. Lessons from notable initiatives including World Bank's NUWSP and KIAT's PBG should be mainstreamed under the NWSIP to mobilize financing, expertise, and best practices.
- **Pilot test the structural actions:** Addressing structural constraints is key to long-term sustainability. NWSIP should support pilots to test reforms such as priority allocation for raw water through SIPA permits, consolidation of sub-scale PDAMs, and independent regulation for tariff setting, with a view to inform national rollouts. Lessons from these pilots can help shape nation-wide transformation.

In sum, the NWSIP must transcend support to one-off project-level interventions to address the deeper, systemic challenges undermining PDAM performance, sector regulation, and financing.

5.1.2. Program objectives and phasing

The NWSIP is a national mission-mode initiative designed to accelerate the expansion of safe, reliable, and sustainable piped water supply services across Indonesia through a structured public-private partnership (PPP) framework. The program aims to overcome critical institutional, financial, and regulatory constraints that have hindered the scale-up of water services to date. The Program will select and extend support to reform-oriented LGs and PDAMs, based on eligibility and readiness criteria, with the following end objectives:

- **Strengthen governance, financial, managerial capacity of LGs-PDAMs** for sustainable piped water services.
- **Enhance piped water coverage** through viable PPPs to crowd-in private capital, expertise, and innovation.
- **Enable cost recovery and financial sustainability** through tariff reforms and direct subsidy mechanisms.
- **Improve service outcomes** including NRW reduction, service coverage, service continuity, and water quality.
- **Facilitate institutional reforms** including PDAM professionalisation, restructuring, and consolidation.
- **Align GOI, PG and LG priorities** for coordinated planning, financing, and regulation of the water sector.

NWSIP could be implemented in two phases over 10 years, aligned with GOI's medium-term development plans:

- **Phase 1 (Pilot Phase, 2025–2029):** The program will pilot 4–5 large-scale water PPP projects in high-potential PDAMs. These pilot projects, each a major infrastructure investment in distribution networks, treatment plants, and service improvements, will serve as proof-of-concept models for PPP arrangements with focus on downstream distribution. Emphasis will be on building institutional capacity within PDAMs and LGs through technical assistance and reforms, to prepare them for PPP project implementation. The pilot PDAMs will be chosen based on rigorous eligibility and readiness criteria to ensure a high likelihood of success. At the end of Phase 1, the program aims to demonstrate tangible improvements in service quality and efficiency in these pilot locations (e.g. significant increase in connections, NRW reduction, continuous supply) to create a strong demonstration effect for wider scale-up. An interim evaluation will capture lessons learned and best practices from the pilots.
- **Phase 2 (Scale-up Phase, 2030–2034 and beyond):** The Phase 2 will expand NWSIP nationally to reach a larger number of PDAMs. Successful PPP models and institutional improvements from Phase 1 will be replicated and scaled up. During the 2030–2034 period (aligned with the next RPJMN), the program targets could support PPP projects in around 20 PDAMs and deepening reforms sector-wide. Targets for Phase 2 could be set in keeping with GOI's goal of achieving universal safe piped water access and could illustratively, include the following: (i) raising piped water coverage to ~50% of the population, (ii) implementing PPP-based improvements in 20+

PDAMs, (iii) converting ~15 PDAMs to the Perseroda governance structure (bringing in external investment and expertise), and (iv) ensuring all participating PDAMs reach operational benchmarks such as >70% household connection ratio, 100% network coverage in their service area, <30% non-revenue water, and full cost-recovery tariffs (with subsidies as needed for affordability).

This phased approach could potentially include early wins and institutional learning in Phase 1, followed by broader deployment at scale in Phase 2. The continuity of the program across two RPJMN cycles, with government commitment to a "mission-mode" effort, provides clarity to investors and development partners that Indonesia is undertaking a sustained drive to transform its water services.

5.2. Program components

The NWSIP could be structured around six interlinked components that function in a coordinated manner across GOI and subnational governments:

5.2.1. Policy reforms

The program will support development and implementation of key enabling policies and regulatory frameworks that are foundational to PPPs and to PDAM reforms. Focus areas under this component could include:

- Clarifying the legal basis for private sector participation in downstream distribution
- Issuance of model regulations for conversion of PDAMs to Perseroda and for induction of external shareholders
- Streamlining processes for SIPA (Water use rights) permits and prioritizing drinking water as a first use category
- Enforcing cost recovery and evolving roadmap towards independent regulation
- Clarifying groundwater regulations including issuance of model regulations for adoption by PDAMs and LGs

This track will be led by MOHA and will ensure coherence in national policy and regulatory enablers to underpin local project implementation.

5.2.2. Project pipeline development, feasibility and transaction support

A dedicated facility under the program will focus on the identification, preparation, and structuring of water supply PPPs. This component will cover:

- Screening and selecting eligible PDAMs and LGs based on defined readiness criteria.
- Undertaking diagnostic assessments and developing city-/region-specific water investment plans.
- Providing transaction advisory support for feasibility studies, including ESG compliance documents, financial modelling, risk allocation frameworks, bidding documents, and contract negotiations.
- Supporting LGs in navigating PPP approval processes and building capacity for project execution.

This component will work closely with the existing PDF and project preparation facilities (e.g., under PT SMI, IIGF, and MOF) but tailored specifically to downstream water PPPs.

5.2.3. Institutional strengthening of PDAMs

To bridge capacity gaps at PDAM level, the program will extend long-term technical assistance to PDAMs and their parent LGs, focused on:

- Institutional restructuring and conversion to Perseroda where relevant.
- Organisational capacity development and training, reflecting gender disaggregated opportunities and results.
- Rolling 10-year business planning and asset management, reflecting social accountability mechanisms.
- Capacity building for performance-based management and regulatory compliance.
- Leveraging technology and digital systems for operational efficiency.
- Improvements in financial management and disclosure practices.

This technical support will accompany investment and PPP structuring efforts, ensuring that projects are institutionally grounded and performance oriented.

5.2.4. Fiscal support instruments and financing levers

The program will consolidate and align multiple fiscal instruments from the central government to create a unified public financing umbrella for water PPPs. This may include:

- VGF and PDF under MOF for viability gap support and project development.
- DAK Fisik as base capital investment support.
- Performance-based Hibah grants to incentivize delivery outcomes and tariff reform.
- Insentif Fiskal and other conditional transfers linked to LG-PDAM reform milestones.
- Multilateral and donor co-financing for demonstration projects and replication.

A harmonized fiscal framework will ensure predictable and performance-linked funding flows, reduce fiscal burden on LGs, and crowd in private investment.

5.2.5. Piloting structural reforms

The program will support pilot initiatives in reform areas critical to long-term sector transformation. Illustrative areas of support that could be taken up under this component include:

- PDAM consolidation in sub-scale and underperforming regions, based on voluntary or incentive-linked models.
- Independent regulatory pilots to test economic oversight functions at regional or multi-utility levels.
- SIPPA prioritization pilots that elevate domestic water use over competing allocations.
- Land value capture and asset monetization pilots to augment PDAM revenues.

Insights from these pilots will inform national policy and enable systematic scale-up of structural reforms.

5.2.6. Monitoring, evaluation and reform accountability

A robust monitoring and evaluation (M&E) framework will underpin the program, focusing on:

- Tracking implementation of project and reform milestones by PDAMs and LGs.
- Independent verification of service delivery outcomes and PPP contract KPIs.
- Public disclosure and stakeholder engagement mechanisms to ensure social accountability.
- Periodic program reviews and course corrections based on evidence and feedback.
- A centralized program dashboard integrated with regional and LG systems.

This track will ensure the program remains adaptive, accountable, and focused on results. Where possible, data collected as part of the M&E framework should be disaggregated by gender.

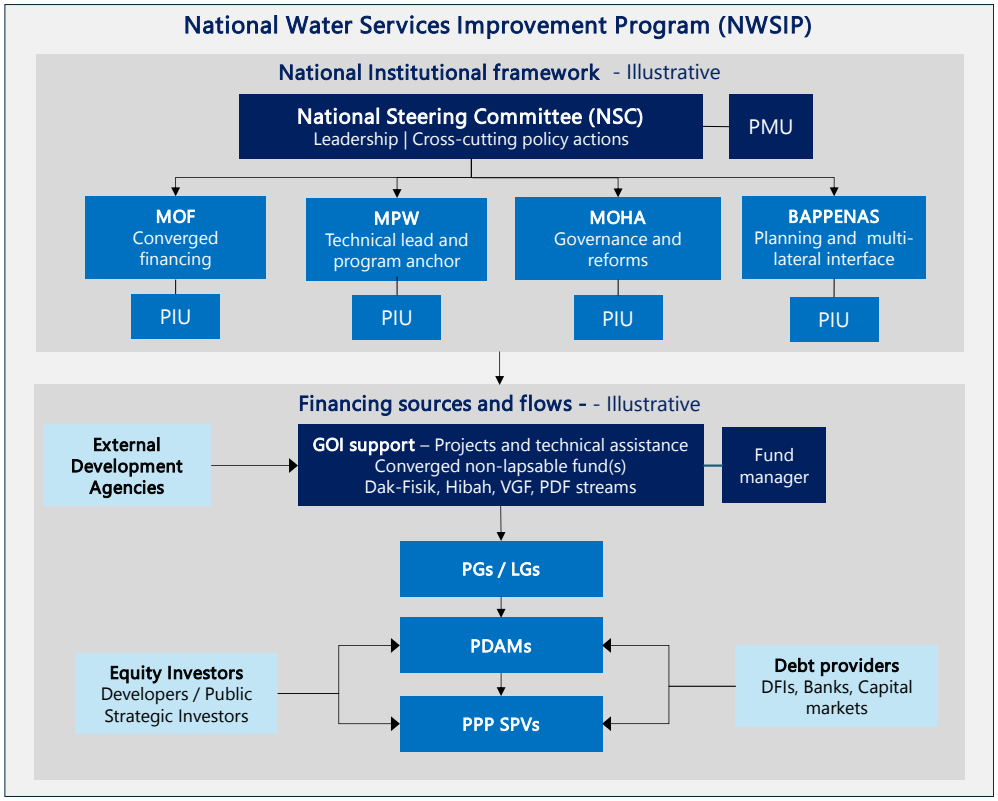
The NWSIP will move beyond ad hoc support to individual projects, and instead establish a structured, phased, and results-oriented national program for transforming Indonesia's piped water service delivery. Its multi-track design enables a whole-of-government and whole-of-sector approach to reform, financing, and service improvement.

5.3. Governance and institutional framework

The NWSIP could be managed through a **multi-tiered institutional structure** that enables strategic alignment, clear accountability and coordinated action. This will help bring together the diverse stakeholders comprising ministries, and government levels involved in water supply under a unified program. Teams at each level shall strive to be gender balanced, with a commitment of increasing women's representation that will be firmed up during program design stage.

Exhibit 5.1 provides an indicative institutional and governance framework which is described below.

Exhibit 5.1 NWSIP – Institutional and governance framework



Note: Representative schematic for the purpose of illustration and to be elaborated further out during program design stage.

- **National Steering Committee (NSC):** At the apex level, a high-level NSC (or an equivalent inter-ministerial committee) could be set up to provide strategic guidance and oversight, and may include representatives from MPW, MOF, MOHA, BAPPENAS and other relevant agencies. As the line ministry for water sector, the MPW could be the technical anchor for the program. The NSC could accord critical approvals under the program, help resolve critical inter-agency issues and be charged with oversight for keeping the program on track.
- **National Secretariat - Program Management Unit (PMU):** A dedicated PMU may be set up to serve as the **central program secretariat** and be housed in the MPW. This PMU will handle day-to-day coordination, program administration, and monitoring. Its tasks include preparing program operational guidelines, consolidating project pipelines, monitoring progress against KPIs, facilitating technical assistance, and reporting to the NSC. The PMU will be staffed with specialists in project finance, engineering, procurement, and M&E, and will coordinate closely with relevant directorates and program implementation units (PIUs) set up in other ministries and at the level of participating LGs and PDAMs.
- **Ministry-level Project Implementation Units (PIUs):** PIUs or focal teams may be set up in key central ministries to steer activities within the scope of the respective ministries under the program. Similar arrangements may also be required at the level of participating LGs and PDAMs. Possible roles of different ministries (including departments and agencies under them) are summarised in *Exhibit 5.2*.

Exhibit 5.2 NWSIP – roles and responsibilities of select stakeholders

Ministry of Public Works MPW

Select responsibilities ▪ Provide technical oversight. Screen, shortlist PDAMs based on eligibility criteria and readiness requirements ▪ Lead PPP project pipeline preparation; Work with MOF, MOHA and BAPPENAS to monitor and implement projects pipeline; ▪ Review, expedite SIPA/raw water permits ▪ Prepare technical guidelines for distribution PPPs; develop model documents with MOF, BAPPENAS and LKPP ▪ Coordinate rollout of PDAM assessment framework and consolidation strategy	
DG - Human Settlements	▪ Lead sector policy formulation ▪ Facilitate sectoral alignment across upstream and downstream water supply systems Coordinate technical standards, planning guidelines, benchmarking for WSS services ▪ Support alignment of fiscal transfer allocations with NWSIP priorities
Centre for development of drinking water systems (PPSP)	▪ Provide technical backstopping to LGs/PDAMs ▪ Support project identification and piloting PDAM consolidation, SIPPA prioritization
Ministry of Finance (MOF)	
Select responsibilities ▪ Converged financing through PPP instruments (PDF, VGF, IIGF guarantee), fiscal transfer mechanisms (DAK-Fisik, Hibah) ▪ Formulate mechanisms to exercise Devolution Intercept against liabilities arising from LG-PDAM non-compliance ▪ Review, formulate enabling guidelines, regulations to implement PPPs, private financing ▪ Work with BAPPENAS, LKPP and MPW in finalising project structures, bidding/contracting templates	
DG - Fiscal Balance (DJPK)	▪ Align fiscal transfers (DAK Fisik, Hibah) with NWSIP reform and performance ▪ Develop Devolution Intercept mechanisms for reform-linked grants
DG - Support & Infrastructure Financing (DJPI)	▪ Appraise and approve PPP projects ▪ Manage MOF VGF, PDF and other PPP fiscal instruments
Ministry of Home Affairs (MOHA)	
Select responsibilities ▪ Mandate and enforce LG and PDAM compliance with FCR or direct subsidy regulation ▪ Engage PGs/LGs on reforms (Cost recovery, Structure change to Perseroda) etc. ▪ Coordinate PDAM consolidation or where multi-PDAM coordination may be required ▪ Undertake other allied structural actions (e.g., roadmap for PDAM consolidation)	
DG - Regional Development (Ditjen Bangda)	▪ Guide LGs and PDAMs on service delivery responsibilities ▪ Monitor LG compliance with performance, governance, and tariff reform mandates
DG - Regional Autonomy (Ditjen Otda)	▪ Support regulatory and governance reforms (e.g., PDAM conversion to Perseroda) ▪ Clarify roles in cross-jurisdictional systems and regional cooperation
Directorate of BUMD, BLUD, and Barang Milik Daerah	▪ Issue guidance for LG shareholding in PPP SPVs and PSI induction where required in reference to PPP structures (refer to Chapter 7) ▪ Ensure compliance with Law 23/2014 and PP 54/2017
Ministry of National Development Planning (BAPPENAS)	
Select responsibilities ▪ Ensure integration with RPJMN 2025–29 and long-term development plans ▪ Coordinate with multilateral agencies to pool technical assistance and financing support ▪ PPP Book updating in consultation with MPW ▪ Support MPW in development of indicators, targets, and assessment frameworks ▪ Work with stakeholders to clarify, revise regulations on PPPs and allied areas	
Directorate of Housing and Settlements	▪ Set national water supply targets and align NWSIP with RPJMN and RPJPN ▪ Coordinate NWSIP within broader SDG-6 and climate adaptation planning
Directorate of Public Private Partnerships Development	▪ Oversee PPP project pipeline and quality control ▪ Mainstream PPP reforms into NWSIP ▪ Facilitate inter-ministerial coordination through NWSIP governance framework
Directorate of Funding for Development of Infrastructure and Regional Affairs	▪ Ensure consistency between NWSIP and regional infrastructure planning ▪ Coordinate funding strategy with MOF and development partn

- **Local Coordination Teams:** Participating LGs may form coordination teams to implement the program on the ground. At the provincial level, PGs can help harmonize efforts if multiple PDAMs in the province are in the program (and support any province-level investments or capacity building). At the city/regency level, each participating LG could establish a PIU comprising relevant local officials and experts, which can liaise with the central PMU/PIUs, oversee local execution (e.g. facilitating permits, local stakeholder engagement, ensuring any LG obligations like land acquisition or subsidy payments are fulfilled), and monitor private partner's performance at the local level. The local teams ensure on-ground accountability and that the program's reforms are carried out in the PDAM's operations (for example, implementing new tariff structures or updating customer databases).
- **Development Partners' Consultative Forum:** The NWSIP could include a consultative forum comprising various development partners that provide technical and financing assistance in the water sector. This forum will enable better alignment of financing and technical assistance plans of these partners with NWSIP's objectives and program components. For instance, donors might contribute to a pooled fund (or a multi-donor facility managed by PT SMI) that co-finances NWSIP projects or supports project preparation. They may also offer grant-based expertise for capacity building, policy advice, or innovative pilots (such as performance-based contracts and support to policy and regulatory reviews). By coordinating through the forum, overlapping efforts can be avoided and gaps in support can be identified quickly. The forum could help secure global best practices and financing at scale for the program.

This institutional design creates a **"command centre" approach** at the national level (NSC/PMU) to harmonise actions needed while empowering ministries, PGs and LGs to act within their mandates towards common goals. Clear roles defined for each ministry and communication channels will facilitate swift decision-making. Such a structure potentially helps in fostering seamless policy-to-execution pathways and streamlines implementation. Tools including regular monitoring meetings, joint field visits, and online monitoring dashboards could be integrated to maintain alignment across this multi-tier framework.

5.3.1. Potential areas for Development Partners' support

Development partners, including multilateral institutions, bilateral agencies, and international development finance institutions, can potentially play a critical role in supporting NWSIP by complementing government efforts with financing, technical assistance, policy advisory, and knowledge-sharing support. Their engagement can be streamlined by setting up a Development Partner Coordination Forum to ensure that interventions are harmonized with national and program priorities. Development partners can contribute through concessional financing, blended finance mechanisms, and grants that help de-risk private investments and strengthen project bankability. Equally important is their role in technical assistance beyond project preparation into areas such as institutional reform, regulatory development, and innovation in service delivery. *Box 5.1* captures indicative areas.

Box 5.1 Indicative Areas of Support by Development Partners

- **Transaction Advisory Support:** Funding and technical advisory for project preparation, PPP structuring, and financial modelling.
- **Technical Assistance for Institutional Strengthening:** Capacity building for PDAMs, LGs, and provincial governments on governance, financial management, and operational efficiency.
- **Policy and Regulatory Reform:** Support for developing and refining policies on cost recovery, groundwater regulation, and private sector participation in distribution.
- **Blended Finance and Co-Financing:** Establishment of multi-donor platforms or facilities (e.g., via PT SMI) to mobilize concessional finance and de-risk private investment.
- **Capacity Building Programs:** Training modules, workshops, and knowledge exchange initiatives for public officials, PDAM staff, and private sector partners.
- **Monitoring, Evaluation, and Learning:** Designing robust M&E frameworks, impact assessments, and systems for data-driven policy adjustments.

- **Innovation and Technology Transfer:** Introducing global innovations in digital water management, non-revenue water reduction, metering, and customer service platforms.
- **Climate Resilience and Sustainability Advisory:** Integrating climate risk assessments, green infrastructure principles, and sustainability metrics in project designs.
- **Knowledge Sharing:** Facilitating platforms for exchange of experiences between Indonesia and peer countries undertaking similar water sector reforms.

5.4. Financing strategy and fiscal support mechanisms

5.4.1. Financing strategy

NWSIP must utilize a blended financing model that efficiently uses public funds to crowd-in private capital through PPPs. While the program will be supported with GOI's fiscal resources in recognition of water services provision as a public priority and sizable viability gap, the design must leverage private investment and expertise to reduce overall fiscal burden and long-term sustainability of service provision

GOI support: GOI financing support should aim to achieve the following: (1) Address viability gap upfront to reduce fiscal burden on LGs and (2) Incentivise reforms to improve financial and operational health along the water value chain notably at LG-PDAM level (3) Drive performance improvements on service delivery indicators. The financing support should therefore converge PPP instruments (to address viability gap and bankability) and other fiscal transfer mechanisms including DAK-Fisik outlays (for infrastructure provision), Hibah grants (linked to service delivery performance indicators) and Insentif Fiskal (to drive policy reforms at LG and PDAM levels). GOI could set up a dedicated non-lapsable NWSIP fund to channel its annual budgetary outlays under various fiscal transfer and PPP instruments. This could be a ring-fenced budget allocation (potentially managed by MOF or PT SMI) that pools various streams of support into an integrated financing package. As a principle, NWSIP could adopt a principle of high GOI cost-share to incentivize local participation especially in the initial phases of the program. As the program moves from piloting projects in Phase 1 to scale-up, the GOI share could possibly come down. *Box 5.2* captures lessons from the National Water Initiative in Australia which linked subsidies for reforms and performance improvement

Box 5.2 National Water Initiative (NWI) and NSW targeted subsidy program

Context and institutional setup

In 2004, Australia's federal and state/territory governments signed the National Water Initiative (NWI), committing to integrated water planning, full metering, cost-reflective pricing, water rights markets, and transparent reporting. Under clauses 75–76 of the NWI, jurisdictions commit to independent, public, annual benchmarking of pricing and service quality for urban water utilities. In conjunction with the NWI's national framework, New South Wales (NSW) operates the Water Security for Regions Program, which provides capital grants to LGs for priority regional water and sanitation infrastructure. Projects must meet strict technical, financial, and community-benefit criteria to qualify for subsidy support.

Key features and performance

The NWI's performance reporting framework covers over 80 utilities and bulk water providers, tracking more than 150 performance indicators on pricing, service reliability, water quality, asset utilization, and customer metrics. Typical residential water and wastewater bills saw a modest 2% increase from 2022–23 to 2023–24, reflecting balance between cost pressures and affordability. NSW's subsidy program enables LGs to co-finance projects that may be otherwise financially marginal, thus bridging gaps and catalysing investments in underserved communities.

Lessons & applicability for Indonesia

- **Linking central funding to reform compliance:** NWI ties federal transfers to states' adherence to pricing, metering, reporting, and governance reforms. That offers a strong analogy to Indonesia's proposed NWSIP.
- **Performance-linked subsidies:** NSW's approach ensures that grant recipients meet eligibility and performance criteria, thus protecting against wasteful expenditures and ensuring that subsidies go to systems that can deliver.

- **Institutional anchoring:** The NWI's success depended on long-term intergovernmental commitment, monitoring, and periodic review, a useful reminder that transformation requires political durability.

Fiscal incentives can drive sector reform when tied to measurable performance and national benchmarking ensures transparency and accountability. Subsidy programs should be merit-based, technically rigorous, and aligned with reform actions.

Source: Secondary research

- **Fiscal incentives and performance grants:** NWSIP's financing mechanism should include a sizable share of performance-linked grants to drive outcomes around reforms and service delivery, moving away from purely input-based financing to "pay-for-performance" funding. For instance, the output-based Hibah grant could be used to augment funding base of PDAMs and tied to realisation of performance KPIs. Likewise, the Insentif Fiskal (a performance grant to PGs and LGs) can be tied to reform milestones such as timely tariff adjustments or reduction in groundwater extraction. Conversely, if performance commitments are not met, fiscal transfers could be limited through devolution intercepts for non-compliance.
- **Contribution from LGs and PDAMs:** Although participating LGs and PDAMs are expected to demonstrate commitment by contributing resources, local cost-sharing could be kept modest initially. Local contributions may include in-kind support (e.g. providing land for facilities, fast-tracking permits, absorbing right-of-way costs). By keeping direct local financial burden low in Phase 1, the program could incentivise more LGs and PDAMs to join without fear of overstretching their finances. However, LGs must commit to direct subsidies if needed to ensure full cost recovery. This commitment is enforced via the program's legal agreements (MoU and State Support Agreement – PDAM selection process below) and backed by the right of GOI to do a devolution intercept: if a local government fails to implement commitments made. Refer Box 5.3 for international experience with use of devolution intercepts.

Box 5.3 Leveraging devolution intercepts to enforce service delivery and financial discipline

Across countries with fiscal decentralization, devolution intercepts have emerged as a powerful mechanism to ensure compliance with service delivery and financial mandates.

- In Mexico, the national government directly intercepts devolved transfers, such as participations and revenue-sharing grants, when subnational entities default on debt obligations. This practice has significantly boosted lender confidence but carries the risk of encouraging moral hazard if overused. Similarly, China uses performance-linked intercepts to align local government behaviour with national policy goals.
- In Latin America, countries like Colombia and Peru have tied transfers to concrete infrastructure or social outcome benchmarks (e.g., school attendance, health indicators), fostering alignment across tiers of government.
- In national systems like Canada, a balance is struck between conditional grants that promote harmonization (e.g., Canada Health Transfer) and unconditional grants that respect subnational autonomy.

Drawing from these global lessons, a structured and legally grounded intercept framework could be a critical enforcement lever for Indonesia. Specifically, it could be applied to reinforce tariff setting, NRW reduction, and compliance with Operation, Maintenance, and Development Agreements (OMDA) in water PPPs involving Perseroda. A well-designed intercept mechanism for Indonesia should be anchored in the following principles:

- **Legal authorization**: Amend or clarify MOHA and MOF regulations to permit intercepts of DAU and DBH transfers when subnational entities breach obligations (e.g., fail to adopt cost-recovery tariffs or under-deliver on service metrics).
- **Trigger conditions**: Clearly define performance failures that activate intercepts—such as persistent budget deviations, lack of APBD support to PPP commitments, or failure to meet agreed NRW and service delivery milestones.
- **Temporal design**: Ensure intercepts are automatically lifted once corrective actions are verified (e.g., via third-party audits or sensor-based data on service levels).
- **Transparency**: Mandate full public disclosure of intercepted amounts, rationale, and reinstatement requirements to ensure accountability.

- **Institutional integration**: Embed intercept provisions within Shareholders Agreements (SHA) and OMDAs, thereby linking financial flows to operational performance.
- **Pilot use in water PPPs**: Begin with pilot applications in selected water PPPs involving Perseroda, allowing the government to test effectiveness, refine design features, and build stakeholder confidence.

A carefully implemented devolution intercept can help Indonesia strike a balance between local autonomy and service delivery mandates and improve credibility and sustainability of its water sector PPPs.

Source: Secondary research

- **Private financing:** Each PPP project under NWSIP will bring in private financing. The private partner (typically a consortium of a water operator and investors) will finance a portion of capital expenditure and will recover this investment over time primarily through user fee revenues of PDAMs or in cases, through availability payments. The exact financing structure (revenue-risk vs. annuity payments) will depend on the PPP modality chosen per project. The program's blend of grants and VGF ensures that the required tariff levels remain affordable and that the private sector gets a reasonable return. Additionally, long-term loans from development banks or domestic financial institutions (possibly via PT SMI or commercial banks with partial guarantees) will be accessible. By harnessing private capital, NWSIP can stretch public funds to achieve more coverage, a leverage effect critical given the large investment need.
- **Development Partners:** Multilateral and bilateral agencies could play a catalytical role by bringing concessional grants and loans to cofinance some investments or provide parallel financing for related components. The Development Partner Coordination Forum may be used to share project pipelines and explore avenue for coordinated co-financing arrangements where different sources (grants, loans, equity) converge on the program. Options include creation of a multi-donor financing facility or simply coordinated project-by-project financing. Such collaboration can also provide technical assistance (e.g. donors supporting feasibility studies, pilots for new technology, or community outreach programs that complement the PPP).
- **Financial Management:** All funds (national grants, VGF, etc.) will be managed under robust financial management procedures. The program will issue detailed financing guidelines outlining cost-sharing formulas, disbursement conditions, and fiduciary safeguards. Outlay from GOI will flow to projects based on approval by the NSC/PMU, and disbursements will typically be made to the project escrow accounts or through the state treasury system to the PDAM/LG (in line with Indonesia's public financial processes). Keeping GOI contributions non-lapsable and ring-fenced will allow GOI to roll over unspent allocations providing flexibility and stability for multi-year projects. Regular audits and financial disclosures should be put in place to ensure transparency.

In summary, NWSIP's financing mechanism should be structured to maximize impact of public spending by leveraging private finance and enforcing performance. NWSIP should converge and pool GOI instruments and attract PPP financing, while linking outlays to reforms and results.

5.5. Eligibility, selection and appraisal

Given the scale of investment and the need for demonstrable success, NWSIP should employ a targeted selection process to systematically identify which PDAMs and LGs participate, especially in the pilot phase. This process ensures that only those entities with sufficient commitment and baseline capacity coupled with significant need and potential, are brought into the program, thereby increasing the likelihood of positive outcomes.

5.5.1. Eligibility criteria, screening and shortlisting

The program should clear eligibility criteria that PDAMs/LGs must initially meet to be considered. The entry conditions signify that the PDAM has a minimum scale and viability for a PPP intervention. Indicative *eligibility criteria* for selection of LG-PDAMs for support under the program are identified in Exhibit 5.3 below. Project preparation support from PDF could be provided where PDAM and LG meet the above entry eligibility conditions.

Exhibit 5.3 NWSIP – suggested eligibility criteria

Parameter	Basis and rationale
Incremental demand > 350 LPS	Ensures that the project achieves commercially viable scale to attract credible private partners and generate adequate cash flows.
Connections > 20,000	Selects PDAMs with sufficient customer base to benefit from economies of scale and justify PPP transaction costs.
Commercial demand > 20% share	Diversifies revenue sources, improving cross-subsidy potential and reducing affordability risks for domestic users.
Average domestic tariff > IDR 5,000	Demonstrates willingness to move toward cost-reflective pricing, a precondition for financial sustainability and PPP bankability.
Service coverage > 25%	Focuses on PDAMs with an operational base, enabling PPP investments to accelerate service expansion rather than create entirely new systems.
SIPA rights confirming raw water availability are in place	De-risks project preparation by ensuring access to legally secure and sufficient raw water.
LG Fiscal Capacity Index > 1.5:	Prioritizes LGs with adequate fiscal space to co-finance investments, disburse subsidies, and meet payment obligations.
Commitment to binding MoU: LG–PDAMs must sign an MoU with GOI (MPW and MOF) confirming (i) adoption of PPP model for distribution, (ii) use of MOF PDF for project preparation, (iii) availing of VGF and other GOI support, (iv) compliance with cost recovery, groundwater, and PPP regulations, (v) implementation of disclosure and social accountability measures, and (vi) suspension of dividends until performance milestones are achieved.	

The MPW through the PMU and its PIU can manage the screening process. An open call or targeted invitation may be issued asking PDAMs and LGs to express interest and provide data against the eligibility criteria. MPW could evaluate candidates meeting the criteria and demonstrating credible commitment. This evaluation should be done in coordination with MOHA (to gauge reform willingness of LGs) and BAPPENAS and MOF (to consider alignment with planning and availability of budgets).

Based on this, PDAMs for Phase 1 pilots (perhaps 4–5 initially) could be shortlisted. Those on the shortlist will proceed to the next stage of detailed appraisal and project preparation. Importantly, if the demand for the program exceeds the available slots, prioritization will consider factors like geographic balance, urgency of needs (e.g. areas with acute water shortages or high population density), and the strength of local proposal (including any innovation or extra local contributions offered).

5.5.2. Readiness requirements and measures to strengthen project preparation

Once shortlisted, each PDAM/LG will receive project preparation and technical assistance support. MOF's PDF and possibly donor-funded transaction advisors will help conduct feasibility studies, environmental and social impact assessments, and structure the PPP deal. Technical support will also cover areas such as perseroda migration, preparation of 10-year business plan and allied capacity building requirements to help LGs and PDAMs meet their reform commitments listed in 5.5.4 below. During this stage, additional readiness criteria must be fulfilled before the project can receive approval for GOI financing support.

- **Construction stage:** Local regulations on cost recovery and groundwater management are in place; matching grants are budgeted and disbursed on time, with any delays backstopped by PT SMI loans and recovered through devolution intercepts.
- **Operational stage:** Tariff revisions are implemented in line with MOHA Regulation 21/2020; NRW, connection expansion, cost-recovery, billing efficiency, and continuity targets are met; and data is disclosed through the national PDAM platform.

MPW will lead the screening process through an open call or targeted invitation, with applications jointly reviewed by MOHA (to verify reform commitment), BAPPENAS (to ensure alignment with RPJMN/RPJPN), and MOF (for fiscal implications). The first phase will shortlist 4–5 reform-ready LG–PDAMs for pilot PPPs, selected based on urgency of need, potential for demonstration effect, and strength of reform commitments. This sequenced approach combines

clear entry conditions, binding commitments, and enforceable readiness requirements to ensure that NWSIP resources catalyse credible, bankable projects and deliver measurable improvements in water service deliver

Feasibility and preparatory activities for water supply PPPs should cover the entire value chain and implementation of non-PPP components should be a clear GCA obligation. The preparatory activities for should encompass technical and financing requirements in the entire value chain and not just the components that are covered in the scope of PPP. For instance, if the PPP project covers only the distribution system, and if a bulk water supply system is being separately addressed through a regional SPAM, then meeting the financial closure, procurement and operations of the regional SPAM in a timely manner (co-terminus with the PPP components) should be an obligation of the GCA under the PPP agreement. Measures to deal with delays in completion (on part of both GCA and private operator for their respective components) including financial compensation should be captured in the PPP agreement. This will ensure that the non-PPP components of the water value chain are also implemented in a timely manner.

Additional measures to improve the rigor and diligence of project preparation should be incorporated. The FS stage should include a fiscal affordability analysis covering the LG and PDAM fiscal position and financing trends and make clear recommendations to cover funding gaps if any along the water value chain. The Real Demand Survey should expand the sample size for willingness-to-connect surveys to 15-20% of households using a stratified random sampling method in keeping with the diversity of customer profiles. Further, the RDS should also undertake surveys to confirm the potential for household connectivity as proposed in the FS, especially in congested areas with narrow streets and low-income neighbourhoods, where technical issues or affordability concerns may impede network expansion

5.5.3. Project appraisal and approvals

The PMU along with MOF and Bappenas will appraise each prepared project to ensure it meets the program standards – technically, financially, and in terms of risk allocation. They will also verify if the PPP contract includes provisions to synchronize any non-PPP components (e.g. if a bulk water supply is separate, it must be ready in time) and that contingency measures (like compensation for delays) are in place. Only upon satisfactory appraisal will the project receive a "go" for initiating the bidding process and an allocation of central funds. The NSC will give the final approval for a project to join NWSIP and receive funding support, based on the appraisal recommendation. At this point, MOF can issue a commitment letter for VGF/grants, and any guarantee issuance can be endorsed. The project then proceeds to PPP tendering with the comfort that the necessary public funding is secured.

5.5.4. Binding reform commitments

A strong commitment to reforms is mandatory. Each participating LG and PDAM must be required to sign a Memorandum of Understanding (MoU) with GOI, represented by MPW and MOF as a pre-condition for program support. BAPPENAS (in consultation with MOF, MOHA, MPW) should prepare an updated model MOU which makes commitments of PGs-LGs binding under NWSIP. This binding commitments could possibly include the following:

- Pursue a PPP structure for downstream distribution and specified scope to secure private expertise and financing.
- Utilise MOF's PDF to ensure transaction advisors are in place and quality of project preparation is assured
- Avail GOI financing including through PPP instruments and fiscal transfer instruments as per terms of NWSIP
- Compliance with key national regulation, notably cost-reflective tariffs as per regulations, enforcement of groundwater use limitations to complement piped supply, and adhering to PPP regulations
- Consent to implement other reforms including conversion of PDAM to Perseroda, induction of external shareholders and other initiatives as identified under the reform component of NWSIP
- Preparation of Business Plan of Financing for PDAM and implementation of commitments including capital infusion and capital spending as per commitments
- Agree to suspend PDAM dividends till performance improvements are achieved.
- Commitment to enhanced transparency and disclosure including providing regular information to PMU on financial and service performance.

Where PG-LG is not meeting obligations, GOI should have the right to make good the gap from APBN and recover the same as a Devolution Intercept from PG-LG. Revocation of IIGF guarantee could also be handled in this manner. The MoU essentially captures the LG and PDAM acceptance of the "rules of the game" for participation, ensuring local stakeholders understand their obligations. These commitments later be mirrored in a Support Agreement tied to the PPP contract, making these commitments legally enforceable within the project structure. A rigorous selection and appraisal process should be put in place to ensure that NWSIP resources are directed to environments where they will have the highest impact and that there are strong accountability frameworks in place. By requiring upfront reform commitments and using eligibility filters, the program mitigates the risk of failed PPPs due to local factors. This approach will help create a portfolio of model projects that could catalyse the envisaged scale up in Phase 2.

5.5.5. Monitoring and evaluation framework

A robust Monitoring and Evaluation (M & E) system will be central to the design and implementation of NWSIP. It should enable systematic tracking of program progress, guide course corrections, and ensure transparency and accountability in the use of public resources. The M & E framework should help link disbursements to performance and facilitate data-driven decision-making. Salient aspects of a robust M & E framework include:

- **Key Performance Indicators (KPIs):** KPIs will be defined at both program and project levels and will be tied to financial incentives. At the program level, KPIs may include: number of new household connections, increase in national piped water coverage, total volume of treated water supplied, number of operational PPP projects, and share of participating PDAMs achieving financial sustainability. At the project level, these could cover service expansion (connections, coverage), service quality (supply hours, water quality compliance), operational efficiency (NRW, energy use), customer service (billing collection, complaint resolution), and financial performance (working ratio, cost recovery). Additionally, an additional indicator on the ratio of female workers may be included. [33]
- **Data collection and systems:** A centralized online platform will be developed by the PMU to consolidate operational data submitted by PDAMs and private operators. Data will be submitted monthly or quarterly, validated where necessary by third-party verifiers or independent engineers, especially for KPIs linked to performance-based grants. Advanced tools such as IoT, GIS, and digital customer feedback mechanisms may be piloted to enable real-time performance monitoring.
- **Performance Reviews and evaluations:** The PMU will prepare periodic scorecards for review by the National Steering Committee (NSC). Performance deviations will trigger corrective actions, such as deployment of technical support or contract enforcement measures. Annual public reports will summarize program-wide and project-specific performance. Structured evaluations will be conducted at key milestones—mid-term (around 2027–28) and final (around 2034). These evaluations will assess results, identify lessons, and inform redesigns for scale-up. Knowledge-sharing platforms will be established to enable learning across PDAMs and LGs.
- **Transparency and Public Engagement:** Key program data will be disclosed through public dashboards to enhance accountability. Citizen feedback will be institutionalized through surveys, community scorecards, and digital interfaces, complementing quantitative KPIs with qualitative assessments of service quality.

The M&E framework will not only assess whether infrastructure is delivered but, more importantly, whether it translates into improved service delivery and PDAM performance. This results-focused approach will form the foundation for scaling up successful interventions across the sector.

[33] A set of 5 GEDSI indicators are currently being piloted through KIAT PDAM Performance Benchmarking, including one that has been agreed to be included in the national report (Ratio of female workers)

6. Strategic pillar II: Policy actions

The Policy actions covered in this chapter aim to address the chronic sectoral constraints identified in this paper that inhibit the effective management and functioning of water services delivery. Addressing them is crucial to realize GoI's objectives of universal piped water supply coverage across Indonesia in the medium-to-long term. Critical actions in this regard are covered here.

6.1. Regulatory clarity and enforcement

6.1.1. Enabling PPPs in downstream distribution

Indonesia's ambition to expand equitable access to piped water supply cannot be met without mobilizing private sector participation in downstream distribution. PPPs can bring much-needed capital, innovation, and service improvements. However, the current legal and regulatory framework governing water distribution PPPs remains fragmented and ambiguous, deterring investment and limiting uptake at the local level.

The 1945 Constitution and Constitutional Court rulings underscore that water is a public good under state control, setting clear boundaries for private involvement. While Law No. 17/2019 on Water Resources permits private participation in cases where public provision is inadequate, the law's implementation requires strict safeguards and often lacks operational clarity. PPPs are broadly allowed under *Presidential Regulation No. 38/2015 on Government Cooperation with Business Entities in Infrastructure*, and *Law No. 17/2019 on Water Resources* permits private participation under certain conditions.

As outlined in chapter 3, the regulatory framework for water supply conceptually divides service delivery into four functional "units" (as per MPW Regulation No. 19/2016 and related guidance) namely, (1) **Unit Air Baku** – Raw water intake, (2) **Unit Produksi** – Water treatment/production, (3) **Unit Distribusi** – Water distribution to households and (4) **Unit Pelayanan** – Customer interface (metering, billing, complaints, etc.). Currently, there is currently no explicit regulatory enabler for private sector involvement in the distribution and customer service functions. This creates legal ambiguity that undermines bankability and deters private investment in these downstream segments.

Despite the absence of explicit regulatory provisions under Law No. 17/2019 and Ministerial Regulation No. 19/2016, several PDAMs and LGs have adopted performance-based service contracts (PBSCs) and business-to-business (B2B) arrangements to engage private partners in downstream water distribution (*Unit Distribusi*) and customer interface (*Unit Pelayanan*). These arrangements operate in a legal grey zone, structured not as formal PPPs under Presidential Regulation No. 38/2015, but as service contracts framed around operational support and efficiency improvements. These models remain constrained, however, by legal and regulatory uncertainty, limiting their replicability, scalability, and attractiveness to long-term private investment.

Exhibit 6.1 summarises enabling actions needed to improve clarity and facilitate implementation of PPPs in downstream distribution.

Exhibit 6.1 Action roadmap to remove regulatory ambiguity for PPPs in downstream distribution

Indicative Time Frame	Key Actions	Institutions / Stakeholders
Medium-Term (0-5 years)	▪ Issue sector-specific PPP regulations ▪ Develop model contracts and Perda templates ▪ Launch PPP pilot projects	MPW, MoHA, MoF, Bappenas, PT SMI, BKPM, Donors
	▪ Establish Water PPP Support Unit ▪ Implement structured capacity-building programs ▪ Scale access to financing for PPPs under NWSIP	MPW, Bappenas, PT SMI, MoF, IIGF
Long-Term (5+ years)	▪ Institutionalize PPPs through ongoing legal reform ▪ Use pilot lessons to refine frameworks and tools	MPW, MoHA, MoF, Bappenas, PDAMs/LGs

- In the **short to medium term**, GOI should issue sector-specific PPP regulations that define the permissible models for private participation in downstream distribution. These regulations should be supported by model contracts and standardized regulation that clarify performance standards, risk allocation, tariff adjustment mechanisms, step-in rights, payment security, and termination provisions. Early pilot PPP projects should be launched under these frameworks to demonstrate feasibility, test risk allocation, and build confidence among LGs, PDAMs, and private operators. Institutional capacity should be strengthened through the creation of a dedicated Water PPP Support Unit within MPW. This unit would provide transaction advisory support, model documentation, and training for LGs and PDAMs. A structured capacity-building program should be implemented to improve local capability for PPP project preparation and contract management. In parallel, access to financing under NWSIP, including VGF, PDF, IIGF guarantees, and performance-linked Hibah grants, should be scaled up to de-risk early projects and crowd in private investment.
- In the **long term (5+ years)**, lessons from early pilots should inform ongoing legal reform to institutionalize PPPs in distribution as a mainstream solution. Regulatory frameworks should mandate transparency and public disclosure of contracts, tariffs, and key performance indicators, complemented by citizen engagement mechanisms to strengthen accountability. This will ensure that private participation is not only legally secure but also socially legitimate and sustainable.

To sum up, legal and regulatory clarity is critical to unlock the potential of PPPs in Indonesia's water distribution sector. A coordinated effort involving MoHA, MPW, MOF, and LGs, supported by technical assistance and risk mitigation instruments, can ensure private participation aligns with public interest and constitutional mandates. A clear framework will foster investment, accountability, in improved and efficient piped supply access

6.1.2. Translating cost recovery principles into practice

Most PDAMs in Indonesia continue to operate under sub-economic tariffs due to political reluctance by local governments (LGs) to raise user charges, often without providing the legally required compensatory subsidies. This chronic underfunding weakens utility performance, deters private participation, and threatens the sustainability of water supply infrastructure.

MOHA Regulation No. 21 of 2020 on the planning and evaluation of PDAM tariffs clearly mandates that local governments must ensure that water tariffs recover the full cost of service provision—including operational expenses, depreciation, and a reasonable margin for reinvestment. In cases where a local government determines that full cost recovery tariffs are not socially or politically feasible, it is required under the regulation to provide direct subsidies to PDAMs that fully compensate for the revenue shortfall. Despite this clear mandate, enforcement remains weak. Tariff reviews are often delayed, cost structures are not transparently assessed, and required subsidies are either under-provided or not delivered at all. This undermines PDAM financial viability and violates the regulation's intent.

A phased approach summarised in *Exhibit 6.2* is needed to strengthen tariff discipline, ensure compliance with MOHA Regulation 21/2020, and ultimately depoliticize tariff setting. This covers:

- **Medium term:** Enforce tariff regulation through systematic performance audits, identify PDAMs in the NWSIP pipeline with cost-recovery gaps, and pilot a Devolution Intercept mechanism so that MOF can compensate PDAMs directly and recover funds from LG transfers in cases of non-compliance. Introduce **independent tariff review pilots** for selected PPPs, draft enabling regulations for delegated or third-party oversight, and build institutional capacity for tariff evaluation at the provincial or national level.
- **Long term:** Mandate independent tariff regulation for PDAMs participating in NWSIP Phase 2 and ensure that all PPP projects under GOI programs are subject to transparent, independent regulatory review. *Box 6.1* summarizes the experience of independent tariff regulation in Victoria, Australia.

Exhibit 6.2 Action roadmap to enforce MOHA's cost recovery regulations

Indicative Time Frame	Key Actions	Lead Institutions / Stakeholders
Medium-Term (2-5 years)	▪ Enforce MOHA Regulation No. 21/2020 through performance audits ▪ Identify PDAMs in NWSIP pipeline with cost-recovery gaps ▪ Pilot use of Devolution Intercept to deter non-compliance	MOHA, MoF, MPW, Local Governments, PDAMs
	▪ Launch pilot projects with independent tariff reviews for selected PPPs ▪ Draft enabling regulations for delegated or third-party regulatory oversight ▪ Build institutional capacity for tariff review at the provincial or national level	MOHA, MoF, MPW, Bappenas, Provincial Governments
Long-Term (5+ years)	▪ Mandate independent tariff regulation for PDAMs under NWSIP Phase 2 ▪ Mandate tariff regulatory oversight for PPPs by GOI programs	MOHA, MoF, Bappenas, MPW, Regulatory Entities

Box 6.1 Independent tariff regulation – Victoria's ESC model

Regulatory context and process

Victoria's water sector pricing is regulated by the **Essential Services Commission (ESC)**, an independent economic regulator. Utilities in Victoria prepare five-year price submissions including business plans, demand forecasts, cost projections, and proposed service levels. ESC reviews these proposals through a formal consultation and vetting process before issuing price determinations.

Mechanisms & incentive models

Victoria uses the **PREMO** (Performance, Risk, Engagement, Management, Outcomes) framework to incentivize utilities to submit higher-quality proposals and deliver outcomes valued by customers. The ESC assesses tariff proposals not solely on cost recovery but also on customer value, equity, service performance, and risk allocation. Utilities must engage stakeholders through public forums, respond to submissions, and justify proposed deviations from benchmarked standards.

ESC finalized maximum prices for Goulburn-Murray Water and Greater Western Water from July 2024 to June 2028 after reviewing submissions, stakeholder feedback, and performance metrics. The review included consultation forums, 24 public submissions, and evaluation under legal pricing frameworks and ESC's qualitative scoring. https://www.esc.vic.gov.au/water/water-prices-tariffs-and-special-drainage/water-price-reviews/water-price-review-2024?utm_source=chatgpt.com

Lessons for Indonesia

Independent tariff regulators foster stability and investor confidence. An independent or delegated regulatory body can depoliticize tariff-setting, improve predictability, and protect consumer interests. The use of incentive frameworks (like PREMO) rewards utilities for outperforming base expectations, promoting innovation and customer-centric service delivery. Transparent consultation, public scrutiny, and accountability mechanisms are essential to legitimacy and public trust.

6.1.3. Eliminating over-exploitation of groundwater

Indonesia's legal framework for groundwater management is grounded in Law No. 17/2019 on Water Resources, which mandates the protection, licensing, and sustainable use of groundwater resources. The law is supplemented by various implementing regulations that assign roles to multiple ministries and LGs. In principle, the framework seeks to regulate abstraction, promote equitable access, and protect aquifers from over-extraction and pollution. However, in practice, groundwater remains the default water source for households, industries, and farms, due to its accessibility, low cost, and insufficient piped water coverage, particularly in urban peripheries and rural areas.

Despite legal provisions, groundwater regulation is poorly enforced, and over-abstraction is rampant, especially in areas facing rapid urbanization or weak piped water infrastructure. Institutional mandates are fragmented across leading to inconsistent permitting, enforcement, and monitoring. LGs and PDAMs often lack technical and financial capacity and licensing systems are disjointed. Economic instruments such as groundwater fees are rarely implemented effectively. Illegal abstraction, under-reporting, and proliferation of unregistered wells are widespread, especially in industrial and informal residential sectors. Agricultural users are largely exempt, and data systems for well mapping and extraction tracking are incomplete or non-integrated. This results in unchecked exploitation of

aquifers, causing land subsidence, water quality deterioration, and long-term environmental degradation, undermining water security and the commercial viability of PDAMs.

- In the **medium term**, GOI should issue a joint ministerial decree (MPW–MOHA) clarifying institutional roles and establishing a national coordination mechanism for groundwater regulation. LGs should begin revising groundwater fee structures, updating licensing procedures, and launching pilots in high-impact urban areas that combine licensing enforcement, metering, and PDAM connection drives. These pilots should prioritize groundwater-stressed regions, where over-abstraction poses immediate risks. An integrated, geospatially linked licensing and monitoring system should be developed, mandating registration and renewal for all wells and telemetry for large users. A national groundwater dashboard should be established to track permits, abstraction volumes, and aquifer status, with public disclosure to improve compliance. Local regulation on groundwater permitting, tariffs, and enforcement should be harmonized with national regulations, and incentives should be linked to compliance.
- In the **long term,** independent groundwater regulatory entities should be institutionalized at the river basin or provincial level to oversee permitting, data integration, and enforcement. Enforcement should be scaled nationally and aligned with NWSIP-supported piped water expansion, including mandatory household connections in PDAM-served areas to reduce private well reliance. Over time, economic instruments, such as progressive abstraction charges and strict penalties for non-compliance, should be mainstreamed.

Exhibit 6.3 provides a summary roadmap of actions to strengthen enforcement of groundwater regulation

Exhibit 6.3 Action roadmap to enforce groundwater regulation

Time Frame	Key Actions	Lead Stakeholders
Medium-Term (0-5 years)	▪ Issue joint ministerial decree defining institutional roles ▪ Launch pilots in high-impact urban areas ▪ Revise groundwater fee structures and update licensing procedures ▪ Develop integrated licensing and monitoring systems ▪ Establish and test national dashboard for data transparency ▪ Align local Perda with revised national regulations	MEMR, PUPR, KLHK, MOHA, LGs, PGs, PDAMs, BAPPENAS
Long-Term (5+ years)	▪ Institutionalize independent groundwater regulation at basin / provincial level ▪ Scale enforcement and integrate with NWSIP-supported piped water rollout ▪ Mainstream incentives for sustainable water sources	Regulators, PDAMs, MOF, BAPPENAS

A coherent, data-driven, and enforceable groundwater governance regime—aligned with expanded piped water supply—will reduce aquifer stress, safeguard long-term water security, and improve PDAM commercial viability.

6.1.4. Prioritizing drinking water in SIPA permit allocation for water PPPs

The viability of piped water supply PPPs hinges critically on the timely and assured allocation of raw water resources. Under Indonesia's water licensing framework, the **Surat Izin Penggunaan Air (SIPA)** is the formal permit issued for the use of surface or groundwater for specific purposes—including domestic supply, industry, and irrigation. Currently, SIPA issuance processes are often delayed or deprioritized for drinking water, particularly when multiple sectors compete for water from shared sources. This undermines project preparation timelines, creates regulatory uncertainty, and deters private investment in water infrastructure.

Key actions to address these constraints include:

- In the **medium term (2–5 years)**, MPW should formally declare drinking water as the highest priority use category for water allocation, consistent with Law No. 17/2019, through an internal directive. Priority PDAM and PPP-designated projects should be identified, and inter-directorate coordination between water resources and

drinking water units in MPW should be strengthened to align resource allocation with project timelines. A Ministerial Instruction or Technical Guideline (Juknis) should be issued to operationalize this prioritization nationwide, with clear criteria for SIPA fast-tracking for PPPs and other strategic projects. A streamlined, time-bound approval protocol should be developed and piloted in NWSIP priority regions to demonstrate improved processing efficiency and coordination.

- In the **long term (5+ years),** drinking water prioritization should be embedded into basin-level water allocation plans and integrated into national water resource planning. Roles and responsibilities for allocation, monitoring, and conflict resolution should be formalized across agencies. Over time, a digital, transparent SIPA management platform could be scaled nationally to provide real-time status of permit applications, allocations, and compliance monitoring

Exhibit 6.4 provides a summary roadmap.

Exhibit 6.4 Action roadmap to address water security

Time Frame	Key Actions	Lead Stakeholders
Medium-Term (0-5 Years)	▪ Declare drinking water as the highest priority in SIPA allocation through internal MPW directive ▪ Identify PPP-designated PDAM projects requiring fast-tracked SIPA processing ▪ Enable greater coordination between water resources and drinking water directorates in MPW ▪ Issue Ministerial Instruction or Technical Guideline (Juknis) formalizing SIPA prioritization for piped water ▪ Develop and roll out a SIPA fast-track protocol for PPP projects ▪ Integrate SIPA approval into PDAM project preparation workflows	MPW MPW, LGs, BAPPENAS
Long-Term (5+ years)	▪ Institutionalize drinking water priority in national and basin-level water allocation frameworks ▪ Monitor compliance and implementation through transparency dashboards and audit reports	MPW, River Basin Authorities, BAPPENAS, MOHA

6.2. Consolidation of PDAMs for scale and efficiency

6.2.1. Rationale, objectives and key considerations

Consolidation of PDAMs is a strategic imperative for Indonesia's water sector. Over 51% of PDAMs serve fewer than 20,000 connections, leading to scale inefficiencies, weak governance, and poor service outcomes. Larger PDAMs (>50,000 connections), though only 18% in number, account for over 70% of total revenue and demonstrate superior performance across most operational indicators. Consolidating sub-scale PDAMs into larger, regionally integrated utilities can enable improved financial viability, governance, and service delivery while enhancing their attractiveness to private financing and PPPs.

The GOI should accordingly prioritise and operationalise a phased, structured, and well-incentivised roadmap for PDAM consolidation, to be implemented over a 10-year period with a clear outcome which could illustratively be - *"to bring the threshold size of PDAMs to a minimum of 40,000 connections in a 10-year period to foster scale efficiencies, resource pooling, harmonized operating models, and improved creditworthiness."*

The overarching objectives of PDAM consolidation are to:

- Enhance service efficiency and financial sustainability by creating larger, more viable utility entities.
- Improve governance and institutional capacity, enable autonomy, professionalisation, and strategic investments.
- Attract private capital and expertise by improving the credit and operational profile of PDAMs.
- Facilitate coordinated planning and financing, particularly for regional source-to-tap water supply systems.

Implementing such a national-wide consolidation is a complex undertaking and involves addressing multiple dimensions. Key considerations in this regard are summarised in *Exhibit 6.5* and summarised below:

- **Legal and institutional framework:** PDAM consolidation is permitted under Law No. 23/2014 and Law No. 17/2019, allowing for inter-LG cooperation. A key decision is the legal form, Perumda or Perseroda, with the latter offering greater flexibility for external investment while retaining public control. Local regulations must be updated to reflect changes in ownership, governance, and institutional structure.
- **Political commitment and buy-in:** Strong political will and inter-LG coordination are essential. Securing support from governors, mayors, and DPRDs can be formalised through MoUs. Central government incentives, such as DAK Fisik and Insentif Fiskal, can be used to encourage participation and offset transition costs.
- **Operational and financial integration:** Successful consolidation requires alignment of assets, liabilities, tariffs, and staffing. Operational systems such as billing, NRW management, and customer service need to be harmonised. Careful planning is required to ensure uninterrupted service and smooth staff integration.
- **Financial sustainability and creditworthiness**: Pre-consolidation assessment should include financial health of merging PDAMs. A consolidated business plan should outline investment needs, potential efficiency gains, and financing strategy including PPP options. Scale economies must enhance creditworthiness and access to capital.
- **Public communication and outreach**: Transparent communication with customers and stakeholders is critical to managing expectations. Public outreach should address concerns around tariffs, service continuity, and grievance mechanisms, and build public trust in the reform process.

Exhibit 6.5 PDAM consolidation – Select considerations

Dimension	Considerations
Legal & Institutional framework	▪ Permitted under LG Law No. 23/2014 and Water Law No. 17/2019 ▪ Structure and form of the consolidated entity – Perumda Vs Perseroda ▪ Flexibility to induct external stakeholders | Shareholding & governance aspects
Political commitment and buy-in	▪ Leadership buy-in | Politically supported & legally binding cooperation agreements (MoUs) ▪ Incentives and facilitation from GoI –DAK Fisik and Insentif Fiskal streams for the transition
Operational and financial integration	▪ Asset and liability integration | Tariff and subsidy harmonization ▪ Staffing and HR integration | Service planning and network operations integration
Financial & creditworthiness	▪ Financial diagnostics (Investment needs, Service coverage, Revenue potential, Cost efficiencies) ▪ Consolidated Business plan including PPP arrangements, and financing / funding strategy
Public outreach	▪ Manage perception on service delivery, tariffs, complaints handling, and transition arrangements ▪ Stakeholder engagement and communication outreach

6.2.2. Consolidation options

In view of the diverse institutional, political, and geographic contexts underlying PDAM operations, a range of structuring options can be employed to operationalize PDAM consolidation. Three possible models are discussed below. These offer varying degrees of integration, ranging from full legal mergers to functional coordination, thereby allowing flexibility in tailoring the approach to local conditions while preserving the objectives of improved service delivery, operational efficiency, and financial sustainability.

- **Voluntary merger:** Two or more PDAMs agree to legally merge into a single new entity with unified ownership, governance, and operational structures. This model is most effective in cases where the PDAMs are geographically contiguous, share infrastructure (such as water sources or transmission networks), or fall under the same PG. Voluntary mergers offer strong potential to realise economies of scale, enhance managerial capacity, and improve creditworthiness. They however will need political commitment, legal clarity on asset and liability transfers, and stakeholder consensus at executive and legislative levels in participating regions.

- **Holding company:** PDAMs retain legal identities and autonomy but are grouped under a single corporate umbrella, typically held by the PG or a designated regional authority. The holding company is responsible for joint financing, capital planning, and strategic oversight across constituent PDAMs. This model offers a politically acceptable solution when full mergers face resistance or legal constraints. It allows for resource pooling and investment coordination while facilitating phased alignment of operational practices and governance standards. Over time, this structure can serve as a transitional arrangement for deeper integration or full consolidation.
- **Shared services or functional consolidation:** PDAMs maintain independent legal and administrative status but collaborate in delivering key operational functions. These shared functions may include billing and collection, customer service, NRW reduction programs, IT systems, or even joint procurement of inputs. This model is particularly relevant for small or underperforming PDAMs that lack internal capacity to manage certain functions efficiently. Shared services can be operationalized through performance-based contracts, PPPs, or dedicated regional service units. This approach allows for incremental consolidation by building collaborative capacity and trust among utilities and can act as a stepping stone to more formal integration over time.

Each of these models presents different legal, institutional, and financial implications. The selection of an appropriate structure should be informed by diagnostic assessments of local conditions, stakeholder consultations, and alignment with provincial and national policy goals. The flexibility to apply a combination of these models across different regions may also be considered as part of a phased national consolidation strategy.

6.2.3. Process and roadmap for operationalization

A structured, legally grounded, and politically feasible consolidation roadmap is essential to navigate the complexities of decentralization, local ownership, and institutional reform. The process should align with Law No. 23/2014 on Local Government and Law No. 17/2019 on Water Resources, while preserving public service obligations and regional autonomy. *Exhibit 6.6* summarises a possible action roadmap for operationalization of PDAM consolidation under 5 inter-linked phases which are described below.

Exhibit 6.6 PDAM consolidation – Suggested phasing and operationalization roadmap

Phase and Time Horizon	Key Actions	Institutional Leads
Phase 1: Policy & Legal Framework Preparation Short Term Year 2	▪ Issue MoHA Ministerial Regulation on PDAM consolidation ▪ MoHA and BAPPENAS release national guidelines enabling inter-LG cooperation under Law 23/2014, Law 17/2019 ▪ Establish National task force with representatives from central agencies, provinces, and development partners ▪ Identify pilot provinces (for instance, Central Java, East Java, NTB) and clusters of underperforming PDAMs for feasibility assessment ▪ Initiate stakeholder engagement and outreach to LGs, DPRDs, and PDAMs	MoHA (Lead), BAPPENAS, MPW, MOF
Phase 2: Feasibility and Planning Medium Term Years 2–5	▪ Conduct diagnostics of PDAMs' financial, technical, institutional performance ▪ Undertake feasibility studies (financial, legal, demand) ▪ Define legal structuring options (Perumda, Perseroda etc.) ▪ Build political consensus and secure buy-ins from LG heads, DPRDs, civil society	PGs and LGs in consultation with MPW, MOF and Bappenas.
Phase 3: Structuring Medium Term Years 2–5	▪ Finalize ownership and governance model for each pilot consolidation ▪ Revise or enact local regulations (Perda) enabling share transfer or merger ▪ Legally establish a new regional PDAM entity (e.g., Perseroda or holding PDAM) ▪ Sign legal agreements for transfer of employees, assets, liabilities, and equity	LGs (Lead), MoHA, PGs
Phase 4: Integration Medium–Long Term Years 3–10	▪ Harmonize HR, SOPs, IT, billing, and customer service platforms across merged PDAMs ▪ Reconfigure production and distribution infrastructure to optimize efficiency	New PDAM Entities, PGs, MOF, MPW

Phase and Time Horizon	Key Actions	Institutional Leads
	▪ Consolidate financial statements, restructure legacy debts, and access MoF support if needed ▪ Prepare PPP-ready business plans aligned with regional masterplans	
Phase 5: Monitoring, and Scale-Up Long Term Years 5–10	▪ Define and track KPIs (e.g., coverage rate, NRW, O&M ratio, customer satisfaction) ▪ Conduct annual performance reviews and benchmarking against baseline ▪ Identify and replicate successful pilots in new provinces ▪ Provide ongoing TA, fiscal support, and access to blended financing for scaling	MoHA (Lead), BAPPENAS

- **Phase 1: Policy and Legal Framework Preparation:** This phase focused on policy and legal framework preparation could be led by MOHA in coordination with the MPW, MOF and BAPPENAS. A ministerial regulation (Permendagri) may need to be issued to provide legal clarity and procedural guidance for PDAM consolidation, supported by a national guideline outlining inter-regional cooperation mechanisms under the prevailing laws. A National Task Force may be established to steer implementation, comprising ministries of GOI, representatives of PGs and LGs. Selection of pilot provinces for initial feasibility assessments based on PDAM performance, infrastructure overlaps, and institutional readiness should also ideally be completed in this phase.
- **Phase 2: Feasibility and strategic planning:** The second phase covering feasibility and planning may be led by BAPPENAS in collaboration with PGs. This phase involves comprehensive mapping and assessment of existing PDAMs, including technical, financial, and governance evaluations for clusters of sub-scale PDAMs with geographic proximity and shared infrastructure. Pre-feasibility studies must also include financial modelling, demand forecasting, asset mapping, and legal compatibility analysis. During this phase, political buy-in through stakeholder consultations with regents, mayors, DPRDs, PDAM staff, and civil society may also be sought to mitigate resistance and foster reform ownership.
- **Phase 3: Institutional and Legal Structuring:** The third phase pertains to institutional and legal structuring and could be led by respective LGs with support from MoHA. Here decisions regarding the ownership and governance model of new entity, such as forming a Perseroda, Perumda may need evaluation. Legal instruments such as revised regional regulations (Perda) must be passed to enable asset and share transfers. Once legal foundations are established, new regional PDAM entities could be constituted, and formal agreements for the transfer of employees, assets, and liabilities executed.
- **Phase 4: Operational and Financial Integration:** The fourth phase involves operational and financial integration. This phase, led by newly established PDAM entities and PGs, entails harmonization of standard operating procedures, billing systems, customer service platforms, IT infrastructure, and staffing. Infrastructure interconnection must be planned and implemented to optimize production and distribution systems across merged jurisdictions. Financial restructuring of debts and liabilities should be supported by MoF, where necessary, to ensure fiscal sustainability and unlock access to PPP structuring and financing mechanisms.
- **Phase 5: Monitoring, Evaluation and Scale-Up:** The fifth and final phase relates to monitoring, evaluation, and scale-up. MoHA and BAPPENAS, should define and track key performance indicators such as coverage rates, non-revenue water (NRW), operating ratios, and customer satisfaction. Annual evaluations should benchmark performance against pre-consolidation baselines. Lessons from successful pilots, including potential regional models in Solo Raya (Central Java), Surabaya-Gresik (East Java), or Bandung Basin (West Java), should inform replication in other provinces. This phase should also institutionalize technical assistance, blended financing support, and national scale-up mechanisms under the guidance of the National Task Force.

Key enablers for successful consolidation include strong political leadership at both national and regional levels, targeted incentives such as DAK Fisik and Insentif Fiskal grants, access to concessional and blended finance, and the appointment of institutional champions at the provincial level to facilitate inter-jurisdiction coordination. When implemented systematically, PDAM consolidation can serve as a foundational pillar to modernize Indonesia's water

utility sector and achieve national water supply targets sustainably. *Box 6.2* provides a case study on regional water utility consolidation in Queensland Australia.

Box 6.2 Regional utility aggregation – Seqwater and Unitywater, Queensland

Context and rationale

Following the Millennium Drought (early 2000s), Queensland restructured its water sector to improve resilience, efficiency, and governance. The reform created a *two-tier institutional model: Seqwater* as a centralized bulk water authority managing dams, treatment, and transmission infrastructure; and *Unitywater* as a consolidated distributor–retailer serving multiple LGs in southeastern Queensland.

Seqwater oversees major bulk supply assets including dams, reservoirs, and major pipelines, acting with a regional purview. **Unitywater** integrates retail and distribution functions across several LGs, consolidating customer-facing operations, tariff setting, billing, and network maintenance. A major supporting infrastructure is the **Western Corridor Recycled Water Scheme** (about AUD 2.5 billion), capable of delivering up to 232 ML/day of treated recycled water into the SEQ supply system as a drought buffer. Aggregation allowed economies of scale, reduced duplication in planning and procurement, and improved asset management across jurisdictional boundaries. Unified tariff and investment strategies facilitated cross-subsidy and resource optimization. Governance structures with clear roles and accountability helped manage complexity and avoid institutional fragmentation.

Lessons for Indonesia

Aggregated utilities unlock scale, professionalism, and planning coherence. Regional water utilities should be set up with strong governance protocols and ideally as Perserodas. Such regional *Perserodas* could replicate the Seqwater–Unitywater model by centralizing bulk supply and letting downstream networks operate under locally adapted PPP contracts. Cross-jurisdictional coordination, standardized performance metrics, and legal clarity are essential to prevent conflicts and ensure smooth cooperation. Infrastructure pipelines like the recycled water initiative demonstrate how innovative supply sources can be integrated into regional systems to improve resilience.

6.3. National digital platform for PDAM disclosures and assessment

GOI should establish a Digitized National PDAM Information, Disclosure, and Assessment Platform to enhance the governance, financial transparency, and performance management of PDAMs, the Government of Indonesia (GoI) should. This initiative would serve as a foundational reform to address the systemic challenges of fragmented data, weak transparency, and inconsistent performance evaluation across PDAMs. It would also underpin broader consolidation, financing, and private participation efforts by providing stakeholders with accessible, reliable, and actionable information. *Box 5.3* captures salient aspects of the National Performance Reporting (NPR) framework for water utilities in Australia.

Box 5.3 Australia's National Performance Reporting framework for water utilities

Australia's **National Performance Reporting (NPR)** framework stems from commitments under the NWI, mandating independent and public benchmarking of urban water utilities across pricing, service quality, financial, and environmental dimensions. Reports are produced by the Bureau of Meteorology (BOM) in collaboration with states, utilities, and industry associations. The 2023–24 report includes data from **86** service providers, covering both bulk water authorities and retail utilities. More than **150** performance indicators are tracked, organized into themes: *Water Resources & Use, Pricing & Finance, Customer Service, Asset Management, Service Quality, and Environment & Health*. Sample metrics include *non-revenue water, cost per megalitre, customer complaints, service outages, and drinking water quality compliance.*

The NPR is audited and publicly published annually, enabling direct comparisons among utilities and across states. In 2023–24, median residential bills for water and wastewater rose by 2% over the prior year (≈ A$33 increase), reflecting calibrated price adjustments consistent with inflation and service requirements. Utilities that underperform relative to peers face increased scrutiny from regulators, customers, and governments—driving internal reforms and performance improvements.

Lessons for Indonesia

A **national PDAM digital platform** modelled on Australia's NPR could aggregate data, enforce standards, benchmark performance, and support accountability across PDAMs. Performance-linked fiscal transfers can be tied to NPR results, aligning incentives for reform. Transparent, audited benchmarking encourages peer competition, continuous improvement, and better

governance. It will strengthen accountability, enable more effective cross-PDAM comparison, drive performance culture and inform fiscal incentives.

6.3.1. Rationale and objectives

Currently, PDAMs report their operational and financial performance in varied formats and with limited consistency, hindering national-level planning, benchmarking, and financing decisions. A harmonized, digital reporting and assessment framework would improve decision-making by government agencies, lenders, investors, and civil society, while also enhancing accountability and customer trust. This reform aims to:

- Establish a standardized and mandatory reporting protocol for PDAMs;
- Enable real-time access to disaggregated and comparable PDAM performance data;
- Support a transparent performance-based incentive system;
- Institutionalize comprehensive, multidimensional assessment of PDAMs; and
- Serve as a monitoring tool for national water access and sustainability goals.

6.3.2. Components

Possible components of this initiative should include the following:

- **Reporting and Disclosure Standards:** MOHA, as the regulator of PDAMs could lead the issuance of a new ministerial regulation or revision of Permendagri No. 47/1999 to define mandatory disclosure obligations for PDAMs. These standards should cover financial and operational metrics, including service coverage, non-revenue water (NRW), operating ratios, customer complaints, procurement over defined thresholds, and performance against regulatory norms. Implementation should be backed by technical assistance and incentivized through performance-linked grants, including access to Insentif Fiskal, DAK Fisik, and other fiscal instruments under MOF.
- **Digitized Reporting Portal:** A centralized digital platform should be developed to serve as the official repository of PDAM data. This portal would allow for secure uploading of periodic reports, dashboards for benchmarking, and public access to selected information. Integration with local government e-governance systems and platforms like LKPP's procurement monitoring system can further enhance transparency. It would also allow for disaggregated, real-time analysis by stakeholders, enabling data-driven reforms, investment planning, and research.
- **Updated PDAM Assessment Framework:** The existing performance assessment of PDAMs is anchored in the broader BUMD evaluation framework issued by the MOHA, which categorizes BUMDs into three groups: Healthy, Less Healthy, and Sick. While this framework is useful as a high-level diagnostic, it suffers from serious limitations in the context of water utilities. The grading system, largely driven by accounting ratios, fails to adequately capture the operational realities and service delivery performance of PDAMs. As a result, the classification can be misleading. For instance, while 58% of PDAMs are not compliant with full cost recovery (FCR), 52% record non-revenue water (NRW) levels above 30%, and 65% serve less than half their service areas through piped water, 66% of PDAMs are still rated as "Healthy" under the current BUMD framework.

  This disconnect highlights the inadequacy of existing PDAM disclosures and the need to update the assessment system with sector-specific metrics. To address this, a revised PDAM assessment framework should be developed and led by the MPW, in collaboration with MOHA and MOF. This new framework could ideally incorporate a broader, multi-dimensional evaluation of governance, technical operations, financial health, infrastructure management, customer service, and environmental sustainability. Critical refinements and improvements of the assessment framework include: (i) Reporting, benchmarks and assessment by category of PDAM (large, medium, small), (ii) Fine-tune weightage / parameters in scoring / grading framework to ensure that PDAMs are categorized better to guide policy making, financial support and project implementation. Box 6.3 provides a few additional enhancements that may be considered.

Box 6.3 Enhancing PDAM assessment – possible focus areas

- **Rebalance Indicator Weightings:** Increase the weight assigned to financial sustainability metrics such as cost recovery, collection efficiency, and debt ratios. Financial indicators currently account for less than 25% of total scoring, resulting in misclassification. At the same time, technical indicators (e.g., NRW, continuity of service) should be retained and expanded.
- **Improve NRW Metrics:** Move beyond simple percentage-based NRW figures to include more actionable indicators like litres lost per connection per day or the Infrastructure Leakage Index (ILI), providing a more accurate picture of system efficiency.
- **Include Governance & Transparency Metrics:** Incorporate evaluation of governance structures, board accountability, legal form (Perumda vs. Perseroda), and disclosure practices. Better governance correlates with improved utility performance and bankability.
- **Add Customer Service Indicators:** Introduce metrics for customer satisfaction, complaint resolution, metering coverage, ease of connection, and digital service availability to ensure PDAMs are responsive and citizen-centric.
- **Integrate Environmental Sustainability:** Include indicators on source vulnerability, energy use, licensing compliance, and resilience planning. Environmental metrics are essential given Indonesia's increasing water stress and climate risks.
- **Shift to a Dynamic, Digitized Platform:** Transition from annual, static assessments to a continuous reporting model linked to a national digital dashboard. This platform would enable regular data uploads, benchmarking, and real-time performance monitoring to support financing, oversight, and reform decisions.

- **Stakeholder Roles and Institutional Support:** The success of this platform depends on coordinated roles across multiple institutions:
  - **MoHA**: Regulatory leadership; setting reporting obligations via Permendagri.
  - **MPW**: Development of technical and operational benchmarks; integration with infrastructure programs.
  - **MoF**: Conditioning financing eligibility (e.g., PT SMI, debt restructuring) on reporting compliance.
  - **BPKP**: Design of internal audit templates, risk-based assessment tools, and capacity building for PDAMs.
  - **Local Governments (Pemda)**: Enforcement through regional regulations (Perda); performance monitoring.
  - **PERPAMSI and Water Associations**: Technical training, benchmarking exercises, and peer support.
  - **LKPP and E-Government Initiatives**: Platform development integration with financial systems.

A national digitized PDAM information and assessment platform will be a critical enabler of Indonesia's water sector reform agenda. It will help institutionalize transparency, promote fiscal discipline, and unlock access to results-based financing and PPPs. Importantly, it will build a robust evidence base to support policy decisions, public accountability, and sustainable water service delivery. GOI should prioritize this initiative as part of its broader transformation of PDAMs into professionally managed and financially viable utilities.

6.4. Resilient funding and financing architecture

A coherent and coordinated funding and financing architecture is crucial to support a scale-up of water PPPs. These measures should help increase the scale, diversity and effectiveness of financing investment while improving predictability, buoyancy and depth of funding resource flows at the level of PDAMs to service this financing. This will require addressing three objectives namely,

1. Scale public outlays effectively to drive sector outcomes and to crowd-in private financing:
2. Enable flow of low-cost, long-term debt financing
3. Diversify funding streams beyond user charges to enhance financial sustainability

Measures needed along each of these three themes are discussed below:

6.4.1. Scale public outlays effectively to drive sector outcomes and to crowd-in private financing:

This involves actions on two fronts, namely, (i) increasing GOI's financing resource envelope and (ii) deploying these resources to achieve sector outcomes and to crowd-in private financing.

Increasing GOI's financing resource envelope

To achieve its long-term national goal of universal access to safe piped water supply by 2045, GOI must significantly expand its financing envelope for the water sector. This requires not only a step-change in the quantum of public investment but also a diversified and stable pool of financial resources. The Infra Dashboard analysis done by KIAT on behalf of GoI has proposed an increase in WSS financing from IDR 180.1 trillion during the RPJMN 2020–2024 period to IDR 1,521 trillion during RPJMN 2025–2029, which translates to an 8.5-fold increase. The MPW and MOHA must work with MOF to increase outlays for water supply under RPJMN 2025-29 and beyond, in a manner commensurate with GOI vision and targets. Further, the following measures are recommended:

- **Introduce a dedicated Cess to create a predictable, leverageable public outlay**: GOI should consider levying a dedicated national water cess on personal income tax to generate a predictable, sizable, and earmarked pool of public resources. Such a measure would insulate water sector financing from annual budget uncertainties and create a long-term, rule-based financing stream. The predictability of this stream also means that these resources could be leveraged to raise extra-budgetary resources in the form of debt to multiply the resource envelope available for investment financing upfront. There are international precedents, such as India's Road Cess on fuel taxes has been used to finance its National Highway Development Program.
- **Establish a Non-Lapsable National Water Fund to provide a single window for converged GOI grant support for water projects and water PPPs in particular**: To enable long-term commitment and leverage opportunities, the proceeds from the cess, alongside extra-budgetary resources raised, could be pooled into a non-lapsable **National Water Fund** that could be managed by a credible financial intermediary such as PT SMI to provide grants to water PPPs under the NWSIP and similar strategic national initiatives. Such an approach would allow multi-year programming, and the resources managed under the Fund could be allocated between upstream water infrastructure (e.g., source development, treatment plants); and downstream infrastructure (distribution network and household connections and allied areas).

  Water PPPs have been constrained by grants flowing from different sources with different processes and time frames. For example, public finance component for the Semarang water supply project came from four entities namely, MOF, MPW, Semarang LG and Semarang PDAM, and led to delays in establishing the main distribution network. Creating a Water Fund to converge and channel all grant support for water PPPs centrally would address this challenge. Getting an institution like PT SMI as a fund manager for this grant fund under the oversight of either MPW or the NSC (set up to oversee NWSIP) could pave the way for efficient blended financing including commercial and multi-lateral loan facilities. In this regard, a similar multi-donor financing facility (Refer recommendations in the following section) could help pool concessional long-term lines of credit from multi-lateral agencies.

Linking deployment to sector outcomes and to crowd-in private financing

Indonesia's current fiscal transfer regime is predominantly composed of non-earmarked transfers. Earmarked transfers are miniscule and mainly in the form of capital grants (DAK-Fisik, and MOF-VGF). Transfers under performance-linked instruments such as Hibah Air Minum and Insentif Fiskal account for just 0.1% and 0.9% of total APBN transfers, respectively. This structure provides little incentive to effect sector reforms and to improve service delivery outcomes at the LG and PDAM levels.

- **Increase share of earmarked transfers within APBN**: A higher proportion of GOI transfers should be explicitly earmarked for water sector outcomes and preferably routed through the proposed non-lapsable Water Fund. This would improve predictability and help GOI enforce reform-linked conditionalities and strengthen alignment between national goals and subnational execution.
- **Introduce a matching mechanism concept to increase budgetary support from PGs and LGs:** GOI should consider requiring PGs and LGs to earmark a minimum share of their APBD budgets for piped water financing under national initiatives such as the proposed NWSIP. GOI support could be made contingent upon such

commitments but calibrated to the fiscal capacity in each region. This co-financing principle could apply to both conventional projects and PPPs and be linked to 10-year capital investment plans of PDAMs.

- **Link financial support to time-bound reform commitments**: GOI support to LGs and PDAMs, whether in the form of capital grants, VGF, or soft loans, should be conditioned upon implementation of defined reform actions. These may include improvements in cost recovery, NRW reduction, corporate governance reforms, digital reporting adoption, and customer service metrics. Reform milestones should be codified in the form of MoUs or performance agreements between LGs, PDAMs, and GOI.
- **Consider a portion of GOI support for water PPPs through a performance-lined Hibah grants component rather than entirely as upfront VGF**: Rather than directing all GOI support solely as VGF during construction, GOI could consider structuring a blended mechanism that combines VGF (to address capital viability) with performance-based Hibah grants linked to realisation of performance KPIs. This dual-track approach would improve project bankability while also ensuring greater accountability for outcomes.
- **Incorporate lessons from KIAT and WB programs to scale performance-lined grants in the sector:** The GoI should mainstream and expand performance-based Hibah grants building on insights from KIAT's Performance-Based Grant (PBG) pilots and the World Bank's National Urban Water Supply Program (NUWSP). These programs have demonstrated that well-targeted grants, linked to tangible outcomes, can catalyse reform and service delivery improvements.
- **Readiness assessments and binding reform commitments should be a pre-requisite for accessing GOI support**: All LGs and PDAMs seeking GoI funding or participating in PPPs should undergo structured readiness assessments to evaluate institutional capacity, financial health, and regulatory compliance. Only those entities that commit to specific reform trajectories, supported by clear investment and performance plans, should qualify for GOI support.
- **Make effective use of Devolution Intercept to deter non-compliance**: To ensure accountability for payment obligations under PPPs and other contractual commitments, GOI should make effective use of fiscal intercept mechanism. This would allow MoF to automatically redirect a portion of future intergovernmental transfers (e.g., DAU, DBH) in the event of LG non-compliance, protecting lender and investor interests and ensuring the financial integrity of PPP arrangements.
- **Expand the scope of support for technical assistance beyond project development:** At present MOF's PDF is focused largely on supporting project preparation, feasibility and transaction advisory. MOF may consider expanding support through development of a **revolving fund** for wider technical assistance including for capacity building and sectoral reform actions such as PDAM consolidation and review of regulations.

6.4.2. Enable flow of low-cost, long-term debt financing

GOI should actively promote a diversified and more flexible set of debt instruments for subnational governments and PDAMs to improve access to long-term, low-cost financing. This includes both enabling regulatory frameworks and the development of appropriate financial products:

- **Multi-donor Debt Financing Facility (MDFF):** GOI should explore the feasibility of setting up a multi-donor Debt financing facility. Debt financing from commercial lenders is often a challenge given relatively under-developed debt market, adverse risk perception of lenders in the absence of credit history of PDAMs and asset-liability mismatches to provide long-term loans of scale. Lines of credit from multi-lateral agencies can address this gap as transient sources for building a water supply focused loan book of scale. Instead of taking a project-to-project approach, GOI could possibly set up a Framework Fund managed under a GOI institution like PT SMI under which concessional credit lines from different multilateral agencies could be managed. This MDFF can finance debt component of water PPPs and network expansion for creditworthy PDAMs. The Water Fund and the MDFF will allow for converged blended financing of water PPPs.

The Regional Infrastructure Development Fund (RIDF) was formed with similar objectives earlier to channel World Bank line of credit into municipal infrastructure but has faced several constraints that inhibited loan offtake and scale-up in piped water supply. Therefore, a detailed assessment may be required to ensure that lessons from this experience are duly factored. Box 6.4 profiles the experience of RIDF and that of the Tamil Nadu Urban Development Fund which has seen relatively higher success, to distil some imperative for setting up an MDFF.

Box 6.4 Setting up a multi-donor financing facility – Lessons from other experiences

Regional Infrastructure Development Fund (RIDF), Indonesia

The Regional Infrastructure Development Fund (RIDF) was launched by GOI in 2017, with support from the World Bank and AIIB, to provide long-term affordable financing to PGs and LGs for infrastructure development. Managed by PT SMI, RIDF was envisioned as a revolving fund that would blend capital from development partners with government budget allocations and complement this with a Project Development Facility (PDF) to support project preparation at the subnational level. It aimed to address the financing gap for infrastructure in lagging regions and expand access to debt financing for subnational governments.

Despite a strong policy rationale, RIDF faced implementation challenges. As of its closure in 2022, only around USD 48 million had been disbursed out of a USD 100 million commitment, with disbursement rates ranging between 11% and 33% in early years. Uptake by LGs was limited due to a combination of factors: weak political incentives to borrow, limited capacity for project preparation, rigid debt-only financing, and absence of credit enhancement mechanisms such as fiscal intercepts or escrow arrangements. A centralised governance model also proved slow and insufficiently responsive to local needs. While conceptually sound, these constraints restricted its ability to generate a robust pipeline or scale up disbursement.

Tamil Nadu Urban Development Fund (TNUDF), India

The Tamil Nadu Urban Development Fund (TNUDF), established in 1996, is India's first PPP in subnational infrastructure finance. Set up as a trust under the Indian Trusts Act with Tamil Nadu Urban Infrastructure Financial Services Ltd (TNUIFSL) as a Fund Manager, TNUDF blends equity participation from the Government of Tamil Nadu and leading domestic financial institutions (ICICI Bank, HDFC, and IL&FS). Its mandate is to provide long-term financing to urban local bodies (ULBs) for water supply, sanitation, and other urban services.

Set up with World Bank support, TNUDF has since evolved into a multi-window financing platform managing pooled bond structures, donor-funded programs, and performance-based grants. TNUDF has delivered over USD 1.5 billion in infrastructure financing to date and has maintained high loan recovery rates. It has mobilized funds from the World Bank, ADB, KfW, and JICA, and has implemented large-scale multi-lateral programs including the ADB-funded Tamil Nadu Urban Flagship Investment Program and the World Bank's Climate Resilient Urban Development Program. A key enabler of its success has been the professional, semi-autonomous fund management structure and the ability to offer flexible, blended financing solutions tailored to the fiscal capacity and performance of ULBs. However, TNUDF's model is context-specific and has benefited from a strong state-level policy framework, a single-jurisdiction focus, and long-term donor engagement, factors that may not be easily replicated at the national scale in a diverse setting like Indonesia.

Critical Prerequisites for a Successful Multi-Donor Water Financing Facility

- **Robust Pipeline of Bankable Projects:** A credible and well-prepared project pipeline, anchored in LG/PDAM investment plans and readiness assessments, is essential to ensure timely uptake and disbursement.
- **Access to Converged Grants for Blended Financing:** Grants from sources such as DAK-Fisik, Hibah, VGF, and the proposed Water Fund should be pooled to address viability gaps and provide incentives linked to reform and performance.
- **Dedicated Technical Assistance for Project Preparation and Institutional Capacity:** Well-resourced TA should support both upstream project structuring and downstream capacity building at LG and PDAM levels.
- **Operational Alignment with NWSIP and Sector Reform Initiatives:** The facility must be closely linked with NWSIP to ensure coordinated pipeline development, reform monitoring, and outcome-based funding.
- **Built-in Credit Enhancement and De-risking Mechanisms:** Instruments such as escrow accounts, fiscal intercepts, and donor-backed first-loss reserves are critical to mitigate risk and enable access to finance.
- **Autonomous, Responsive, and Decentralized Governance:** A professionally managed, semi-autonomous structure with decentralized LG interfaces is necessary for agility, accountability, and subnational engagement.

- **Expand sub-national debt financing to creditworthy LGs and PDAMs:** MOHA should work with institutions such as PT SMI to identify and work with creditworthy LGs and PDAMs to **expand subnational debt financing** at the level of LGs and PDAMs to support water supply infrastructure and service delivery improvements, building on the recent experience of PT SMI in Bogor and Surabaya. Innovative credit enhancements including escrows on DAU-DBH transfers or local tax revenues should be explored to improve creditworthiness and lender comfort. The lending institutions should also explore mainstreaming flexible loan products including (i) **Structured loans** with long moratoriums and back-loaded repayments to accommodate slow demand uptake, (ii) **Liquidity support mechanisms**, such as cash shortfall loans during early operations, and (iii) **Refinancing products**, including post-COD interest rate resets or bond issuance, especially for PDAMs with improved financial positions.

6.4.3. Diversify funding streams beyond user charges to enhance financial sustainability

LGs and PDAMs guided by MPW and MOHA must actively explore and operationalize a diverse set of innovative and alternative financing instruments to foster long-term financial sustainability of piped water supply services and reduce overreliance on user tariffs and GOI transfers. These instruments can augment project viability, improve bankability, and enable crowding in of commercial financing while maintaining service affordability and equity. MPW and MOHA should ensure that feasibility assessment for water PPPs should explicitly evaluate the scope and potential for alternative instruments and avenues to diversify and expand funding base of PDAMs for water PPPs.

- **Land Value Capture (LVC):** Urban water infrastructure potentially has a catalytic effect on property values, especially in fast-growing urban and peri-urban areas. LGs can leverage this value creation through Land Value Capture (LVC) mechanisms to finance water supply investments. A range of LVC instruments—such as betterment levies, development charges, land sales and lease proceeds, and Tax Increment Financing (TIF)—can be deployed to generate additional and predictable revenue streams.

  Presidential Regulation No. 79 of 2024 provides the legal basis for implementing LVC schemes in Indonesia, recognizing increased land and property values from infrastructure development as a legitimate and scalable funding source. LGs should be encouraged to ring-fence LVC proceeds for investment in water infrastructure and to support payment obligations under PPP contracts.

- **Earmarked local taxes, fees and budgetary transfers:** Given challenges associated with cost recovery and the gradual ramp-up of user charge revenues in early years of water PPPs, LGs should consider earmarking and ring-fencing a portion of local tax revenues or general budget allocations to support water sector investments and payment obligations under PPP contracts. These transfers can be directed to PDAMs or used to supplement tariff revenues during the initial operational period, thereby improving project cash flows and bankability. A good example is the proposed use of tourism or visitor arrival tax, as implemented in Bali. Such taxes can be designed as dedicated levies on incoming tourists and earmarked for water and sanitation infrastructure, especially in high-tourism areas where seasonal demand pressures often strain existing systems. The revenue generated can be escrowed to support both capital investments and debt servicing obligations, creating a reliable and locally anchored funding stream. By combining these earmarked local revenues with user charges and central transfers, LGs can offer a more stable and creditworthy revenue.

- **Output-Based Aid (OBA) and Performance-Based Grants:** Indonesia has existing mechanisms such as Hibah Air Minum and Insentif Fiskal that offer output- or performance-based transfers to LGs and PDAMs. These instruments can be more systematically integrated into the structuring of water PPP projects, particularly in contexts where baseline service levels are low and measurable improvements can be clearly linked to operator performance. Performance-based grants can be linked to milestones such as increased coverage, reduced NRW, improved customer satisfaction, or achievement of financial breakeven. Structured appropriately, such grants can (i) act as a complementary revenue stream to user tariffs, (ii) Mitigate affordability risks for end-users, and (iii) improve investor confidence in project outcomes.

- **Carbon Credit monetization and climate finance:** Water infrastructure improvements can offer significant opportunities for carbon mitigation and access to climate finance. LGs and PDAMs can benefit from carbon credit monetization by implementing interventions such as (i) Energy-efficient water treatment and pumping systems, (ii) Reduction of non-revenue water (NRW) to lower energy intensity, (iii) Nature-based solutions for watershed management and source protection, (iv) Transition to renewable energy sources for water operations, and (v) Gravity-fed systems and surface water sourcing to reduce groundwater extraction and energy demand. *Box 6.5* provides some additional details.

Box 6.5 Unlocking Carbon Finance in Indonesia's Water Sector

Water utilities and local governments can tap into voluntary carbon markets and climate finance by designing water infrastructure projects with measurable carbon mitigation co-benefits. Key intervention areas include:

- Energy-Efficient Infrastructure: Retrofitting pumps and treatment plants with high-efficiency equipment reduces electricity use and GHG emissions.
- Renewable Energy Integration: Installing solar PV or mini-hydro systems for PDAM operations can displace fossil-based grid power.
- Gravity-Fed and Surface Water Systems: Shifting from energy-intensive groundwater pumping to gravity-fed or surface water sources lowers energy demand and enhances resilience.
- Non-Revenue Water (NRW) Reduction: Reducing leakages and optimizing pressure management cuts energy use per unit of water supplied, generating verifiable emission reductions.
- Nature-Based Solutions for Source Protection: Watershed reforestation, wetland restoration, and catchment management provide both carbon sequestration and water quality benefits.

To operationalize these interventions, the following steps are recommended:

- National Roadmap: MoEF and Bappenas should develop a carbon monetization roadmap for the water sector, identifying eligible interventions, standards (e.g., Verra, Gold Standard), and aggregation strategies.
- Aggregation Platforms: Smaller PDAMs should bundle similar projects through national or provincial platforms to reduce monitoring and verification costs and access economies of scale.
- Capacity Building: Provide technical assistance for developing project documentation, conducting baseline and additionality assessments, and implementing MRV protocols.
- Revenue Utilization: Carbon revenues can be earmarked to co-finance capital expenditure, support O&M in early years, or service PPP payment obligations.
- Synergy with Climate Funds: PDAM investments with both mitigation and adaptation co-benefits should be structured to qualify for climate finance from GCF, GEF, or bilateral donors (e.g., JICA, KfW, DFAT).
- By aligning infrastructure design with carbon finance frameworks, PDAMs and LGs can diversify their funding base, enhance project bankability, and contribute to Indonesia's broader climate goals.

- **Synergies with GOI's National Environment Fund (NEF):** As a related measure, GoI should enable PDAMs and LGs to access the NEF, as a source of blended finance, technical support, and carbon revenue pre-financing. A programmatic window under NEF specifically targeting low-carbon water infrastructure, NRW reduction, and nature-based solutions for water security should be developed in coordination with MOEF, MOF, and MPW. Established under Law No. 32/2009 on Environmental Protection and Management and later formalized under PP No. 46/2017 and MoF Regulation PMK No. 137/PMK.01/2022, the NEF is managed by the Environmental Fund Management Agency (BPDLH), a public service agency (BLU) under MOF. The Fund supports activities related to climate change mitigation and adaptation, forest and peatland restoration, biodiversity protection, and environmental rehabilitation. It can channel financing through grants, soft loans, blended finance, and performance-based payments to a wide range of entities, including LGs, SOEs, BUMDs (including PDAMs), NGOs, and the private sector. PDAMs and LGs can leverage the NEF in the following ways:

- **Climate mitigation projects:** Projects that generate carbon mitigation, such as energy-efficient pumping, renewable energy integration, NRW reduction, or reforestation for source protection, can be co-financed by NEF alongside carbon market monetization. NEF can provide upfront capital or results-based payments.
- **Nature-Based Solutions and Watershed Management:** NEF already supports landscape and watershed conservation. PDAMs sourcing from rivers or springs can develop joint proposals with basin agencies or LGs for watershed restoration, reforestation, and land use management, creating shared value for water security and carbon sequestration.
- **Access to Blended or Concessional Financing:** NEF can provide blended finance in partnership with PT SMI, donor programs, or multilateral climate funds. PDAMs piloting green infrastructure or low-carbon technologies could access concessional debt or grant components via this route.
- **Capacity Building:** NEF could support technical assistance and measurement reporting and verification (MRV) capacity needed for carbon credit development, especially for smaller PDAMs or LGs with limited in-house expertise.
- **Aggregation and Programmatic Approaches:** Since BPDLH is designed to manage multi-source environmental financing (including climate finance and donor contributions), it can act as a platform to aggregate PDAM-led projects and standardize protocols for carbon credit registration and revenue sharing.

7. Action agenda – Strategic Pillar III: PPP Project Structures

7.1. Rationale and guiding principles

This chapter examines potential PPP project structures to enable private sector participation in downstream distribution, with the objectives of enhancing efficiency and improving service delivery. Three PPP structures are proposed to address the downstream distribution and customer interface segments, for individual PDAMs and in integrated regional water supply systems.

Core principles informing the design of these structures are summarized below:

- **Regulatory clarity around PPPs in downstream distribution to unlock efficiency and service delivery gains as a prerequisite:** These PPP structures are designed to facilitate private sector participation in downstream distribution and customer service, particularly in larger PDAMs where bulk water arrangements are in place. They are also applicable to integrated regional water systems encompassing both upstream and downstream components. The structures promote end-to-end accountability in service provision, with the private operator acting as a service provider under the oversight of the LG, which complies with tariff revision requirements in line with MOHA regulations. This approach complies with Indonesia's Water Law, which affirms water as a public right and emphasizes the accountability of public authorities in piped water provision.
- **Different structures for different PDAM contexts:** The proposed structures are designed to meet varied local conditions, including variations in the scale and financial strength of PDAMs and respective LGs. While some structures, such as performance-based contracts (PBCs), are adaptable to smaller PDAMs, the overall emphasis is on mid-sized to large PDAMs that manage more complex service areas and operations.
- **Leveraging mixed shareholding models:** The use of mixed shareholding, where public and private entities jointly hold equity, can enhance governance while retaining public sector control, align incentives, mitigate political sensitivities surrounding water PPPs, and improve project bankability. Structure A presents the use of a *Perseroda* with external shareholding to strengthen governance. Structure B includes an option for PDAMs to hold equity in a special purpose vehicle (SPV) established under a DBFOT PPP model.
- **Addressing governance and capacity constraints of PDAMs:** The structures directly tackle the institutional, technical, and financial constraints of PDAMs. They are designed to hold the private operator contractually accountable for service delivery and performance outcomes, while the LG and PDAM retain responsibility for governance, tariff regulation (balancing affordability and cost recovery), and customer oversight.
- **Linking GOI support to reforms and long-term sustainability outcomes:** Over time, the objective is to transition toward financial sustainability of the PDAM. Accordingly, GOI support is aligned with compliance to regulations and reforms including on cost recovery performance improvement, and financial discipline.

7.2. Proposed PPP structures

7.2.1. A – Perseroda with external shareholders

This structure is recommended for large PDAMs with more than 50,000 connections and involves three key elements: (i) the transformation of the PDAM's legal status from Perumda to Perseroda, (ii) (ii) the induction of a public strategic investor (PSI), which is a government owned financial investment institution such as INA, Danantara, or PT SMI; and (iii) the inclusion of a private operator with a significant non-majority shareholding (typically, 20% to 49%). The conversion to Perseroda enables the PDAM to raise capital more flexibly, establish joint ventures, and attract private investment, while retaining its public character in accordance with Indonesia's Water Law. The involvement of a PSI strengthens corporate governance by enabling board-led decision-making, improving transparency and disclosures, and facilitating access to external financing. The private operator is selected through a competitive process and is awarded a non-majority stake. The operator also enters an Operations, Management, and Development Agreement

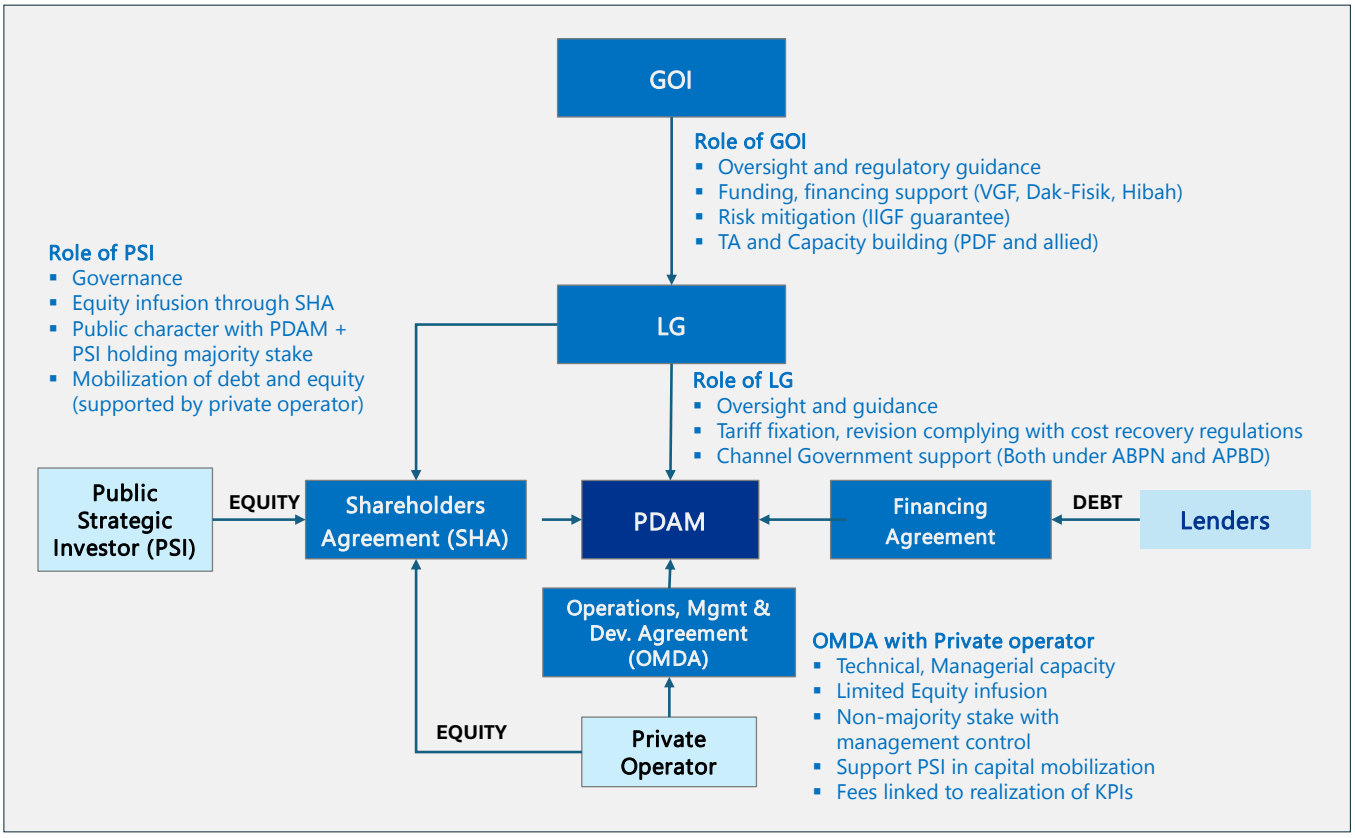
(OMDA) with the LG and is remunerated based on billed water volumes and defined performance indicators. Full Cost recovery is envisaged through user tariffs, but the structure is also suitable for PDAMs with affordability gaps. Government support may be provided under DAK Fisik or viability gap funding (VGF) from MOF. In addition, Hibah grants may be utilized to bridge funding gaps during operations, contingent on achievement of key performance outcomes to enhance the project's overall bankability.

Refer *Exhibit 7.1* for a schematic of the proposed structure, the salient features of which are described below.

Salient features

1. **Where suited:** This structure is particularly suited for large PDAMs (with more than 50,000 service connections) that demonstrate sound financial performance but face challenges in service coverage, operational efficiency, and customer satisfaction. A prerequisite for implementation is the availability of a reliable raw or treated bulk water source to meet projected demand. The structure aims to address infrastructure deficits with a specific emphasis on improving downstream distribution, reducing non-revenue water (NRW), and enhancing customer interface and service delivery. It can be used for large standalone PDAMs and integrated regional water supply systems of medium to large PDAMs.
2. **PPP arrangement:** The PDAM is converted into a *Perseroda*, followed by the induction of a public strategic investor (PSI), such as INA, PT SMI, or Danantara, as an equity partner. The *Perseroda* structure provides enhanced flexibility for capital raising and joint ventures while maintaining compliance with public service obligations. Refer to *Box 7.1* for a comparison of *Perseroda* and *Perumda*. The PSI and LG together retain majority ownership to preserve the PDAM's public character, while a non-majority shareholding is offered to a competitively selected private operator. The PSI may be inducted through direct negotiation, with the equity share valuation based on investment requirements, the LG's fiscal capacity, and the results of an independent asset and enterprise valuation. Refer to *Box 7.2* for steps in operationalisation of the perseroda structure

Exhibit 7.1 Structure A – Perseroda with external shareholding in PDAM + OMDA



Box 7.1 Regulations around Perseroda

A *Perseroda* is a sub-national government-owned limited liability company established under Law No. 23/2014 on Regional Government, and Government Regulation (PP) No. 54/2017 on Regional-Owned Enterprises (*BUMD*). These regulations empower PGs and LGs to establish Perseroda. A Perseroda may issue shares to other parties, including private sector entities, provided the originating LG retains at least 51%. Any share issuance must adhere to principles of transparency and accountability, including independent valuation, due diligence, and approval by the People's Representative Council (*DPRD*) at provincial or local levels. . Compared to a *Perumda*, a *Perseroda* offers greater commercial flexibility and is more oriented toward attracting external capital while operating on market principles. If the originating LG seeks to dilute its ownership below 51%[34], it must enact a Regional Regulation (*Perda*) to authorize such dilution.

Aspect	Perumda	Perseroda
Legal Status	Public Utility Entity (Non-Corporatized)	Corporatized Regional Company (Limited Liability)
Ownership	100% Local Government	≥51% Local Government; balance can be public/private
Applicable Law	Law 23/2014 & PP 54/2017 (Public Utility Rules)	Law 23/2014, PP 54/2017 & Company Law (UU 40/2007)
Capital Sources	Entirely from APBD (Local Budget)	Can raise capital via equity from LG, SOEs, or private
Profit Orientation	Not-for-profit; service delivery focused	Commercial orientation; expected to generate profit
Governance	Managed directly under local government oversight	Board of Directors, corporate structure
Private Participation	Limited or none	Permitted (e.g., SMI, INA, Operator as shareholder)
Raise Capital	Cannot raise external equity, borrowing restricted	Issue shares, borrow, and invest in SPVs with approvals
Use in PPPs	Can sign OMDA or GCA, but limited in risk-sharing roles	Flexible partner in PPPs and project JV structures
Best Use Case	Direct public service delivery with full control	Blended service-commercial models; suitable for PPPs

Box 7.2 Typical steps to operationalize this structure in select target provinces, LGs and PDAMs[35]

Pre-conversion (0–18 months)

- Conduct rapid diagnostic (legal, asset & HR due diligence).
- Analyse tariff gaps and identify remedies (MOHA 71/2016 compliance).
- Secure buy-in from Governor/Regent, DPRD, and other key stakeholders to pilot implementation in select PGs, LGs, PDAMs

Legal Conversion (12-30 months)

- Draft and pass Perda approving: (a) change of legal form, (b) valuation, (c) right to dilute to ≥51%.
- Establish Perseroda through a notarial deed and register with Ministry of Law and Human Rights.
- Transfer assets/liabilities; apply Permendagri 23/2024 for staff migration.

Governance & Clean-Up (24-36 months)

- Adopt Articles of Association (AoA) allowing for private shareholding, golden share, and veto rights.
- Appoint interim Board of Directors and Commissioners through fit-and-proper process.
- Ensure IFRS-based audited financial statements for the past 2 years.

Capital Structuring (24–36 months)

- Conduct independent valuation (KJPP) and obtain fairness opinion.
- Seek DPRD resolution to authorize share issuance or sale.
- Prepare and distribute investment memorandum to SMI, INA, Danantara, and qualified private operators.

Transaction Close (36–48 months)

- Complete competitive process to select private operator; enter OMDA
- Sign Shareholders' Agreement (SHA) outlining board rights, reserved matters, and dividend policy.
- Satisfy VGF/Hibah conditions and set up escrow/waterfall arrangements.

Post-Conversion (Year 3 onwards)

- Establish Key performance indictors (KPI) linked performance monitoring dashboard.
- Ensure annual reporting to DPRD and public disclosure.
- Explore bond issuance options once Perseroda achieves creditworthiness

[34] Article 35(5) of regulation PP 54/2017 states that "If LG wants to dilute below 51%, the plan must: (i) be included in the regional mid-term development plan (RPJMD), (ii) Have a business justification and valuation, and be approved by the DPRD via a Perda (local regulation).

[35] This is an indicative set of steps with tentative timeframes for piloting consolidation in LGs / PDAMs. A roadmap for consolidation of PDAMs may be prepared as a sector-level reform intervention during the initial phase of the NWSIP discussed in chapter 5.

3. **Induction of a Private Operator to bring in technical and managerial capacity:** A Private Operator is inducted through a competitive procurement process adhering to GOI PPP regulations and will sign a tripartite Operations Management and Development Agreement (OMDA) with the LG and the PDAM. The Operator is given a non-majority stake in the PDAM with management control as this could help internalize technical and managerial capacity within the PDAM, align public & private interest, and facilitate a longer-term perspective. Potential conflict of interest could be dealt through safeguards including the following: (i) Separation of oversight where the LG is also as a signatory to the OMDA and is responsible for oversight while PDAM board is vested with day-to-day monitoring, and (ii) by having Shareholders Agreement (SHA) safeguards including veto rights, golden share, public service obligations, and board representation.

4. **Obligations of Operator:** The Private Operator undertakes the following responsibilities:

    - **Capital works:** Part-finance, design, and implement capital improvement plans, including infrastructure rehabilitation, expansion, procurement, construction, and commissioning of assets as per OMDA provisions.
    - **Operations & service delivery:** Manage day-to-day operations, maintenance, and customer service, meeting KPIs on water quality, service continuity, NRW reduction, billing efficiency, and grievance redressal.
    - **Billing & collection:** Collect user fees at LG-regulated tariffs, deposit revenues into the PDAM account, and improve billing and collection systems as both service provider and shareholder.
    - **Capacity building:** Strengthen *Perseroda*'s systems (IT, customer service, asset management) and provide training to build institutional capacity.
    - **Financial management:** Operate within agreed budgets, ensure transparent financial reporting, and support tariff-setting by providing accurate cost and performance data to the GCA.

    As a minority **shareholder** in the *Perseroda*, the Private Operator is also obligated to:

    - **Governance & fiduciary duties:** Participate in governance through board representation, act in the company's best interest, and avoid conflicts of interest, in line with the SHA and Articles of Association.
    - **Equity commitment & risk sharing:** Contribute capital as agreed and assume commercial risks associated with performance and returns.
    - **Public mandate alignment:** Support regulatory compliance and delivery of public service obligations.
    - **Exit & transfer compliance:** Follow dividend policy, asset transfer rules, and shareholding exit procedures, including prior approvals from LG and PSI as per the SHA and *Perda*.

5. **Operator remuneration:** In this structure, the Private Operator assumes a dual role as both a shareholder in the *Perseroda* and a contracted service provider under the OMDA. The payment structure must balance incentives with safeguards to avoid any conflicts of interest, or loss of public trust. The Operator's revenues could comprise:

    - **Service payments:** A performance-linked fee based on metered billed volume at the customer level (IDR per kilolitre), indexed to inflation. Additional incentives are tied to achievement of specific KPIs including (i) supply duration, quantity and quality, (ii) billing and collection efficiency, and (iii) timely redress of customer complaints. This structure embeds demand risk and incentivizes NRW reduction.

    - **Dividends:** Returns on the Operator's equity investment. These are residual in nature payable only after covering all expenses, including OMDA payments, and are not guaranteed.

    Structured safeguards may be needed to mitigate risks associated with the Private Operator's dual role. The OMDA should define the scope of services, payment terms, and performance indicators to ensure transparency and enforceability. Independent oversight mechanisms, such as third-party auditors, joint oversight committee, and technical experts, would be needed to verify KPI achievement and monitor compliance. Dividend payouts to the Operator may be capped and returns should be regulated through integrated financial modelling that could cap compensation at a pre-agreed internal rate of return (IRR). The SHA could also include governance provisions, such as selective veto rights for LG and PSI, safeguards against conflicts of interest, and protections to uphold the public service mandate. *Box 7.3* provides a case study on treatment of dual-role operators in Manila water.

Box 7.3 Dual-role operators - The case of Manila water

In 1997, the Government of the Philippines privatized Metro Manila's water services by dividing the area into East Zone (Manila Water) and West Zone (Maynilad). Each zone was awarded to a private operator through a 25-year concession contract, renewable for another 15 years. Manila Water Company (MWC), a consortium led by Ayala Corporation, took over the East Zone. MWC operated the water system and held equity interest in the special purpose vehicle managing the services. The private operator had a dual role as a shareholder in the SPV, entitled to dividends from profits and service provider, entitled to recover costs and earn a regulated return from tariffs. The structure had to protect consumers from excessive returns while allowing the operator to earn a fair but regulated profit, and importantly, to prevent double dipping i.e., getting both guaranteed service payments and uncapped profit through equity. A host of structuring mechanisms were used to achieve this objective and included the following:

- **Regulated Asset Base (RAB):** The Concessionaire could earn a return only on "RAB"—i.e., investments approved by the regulator. Equity returns were linked to this, not to unconstrained operating surpluses.
- **Tariff rebasing:** Tariffs were re-evaluated every 5 years based on actual performance and investments, ensuring that OMDA-like payments (O&M costs, returns) remained aligned with service delivery.
- **Performance standards:** Service fee payments were conditional on meeting KPIs—continuity, coverage, and quality. Failure to meet these could lead to penalties or reductions in allowable returns.
- **Regulatory approval for Dividends:** The MWSS Regulatory Office reviewed the company's financial performance and approved allowable returns before dividends could be declared.
- **Separate Accounts and Audits:** Strict segregation between accounts related to equity returns and accounts related to operational expenditure under the service contract was enforced.

6. **Obligations of GCA:** As the GCA under the OMDA, the LG's obligations include the following:
    - **Tariff oversight:** Ensure a transparent, predictable tariff-setting mechanism in line with MOHA regulations.
    - **Financial commitments:** Ensure timely disbursement of service payments to Operator as per OMDA terms.
    - **Contract management and independent monitoring:** Establish a contract management unit; ensure independent monitoring and KPIs validation.
    - **Stakeholder engagement:** Maintain accountability through effective communication and disclosures.
    - **Permits and approvals:** Facilitate required approvals and permits required for construction and operations.
7. **Financing and government support:** This structure is most suitable for PDAMs with a large and growing customer base and stable financial performance but facing inefficiencies in service delivery. A significant portion of the investment requirement is expected to be mobilized through commercial financing, comprising both debt and equity, raised by the PDAM. The PSI, in collaboration with the Private Operator, is expected to lead capital mobilization efforts. Government support may be extended through the MOF-VGF based on a needs assessment of the cost-recovery shortfall and tariff affordability constraints. Alternatively, this support could be fully provided through *Hibah* grants, although consultations with private sector reveal that inclusion of a VGF component improves bankability and lender confidence.
8. **Funding base:** Investment and O&M costs are expected to be fully funded through user charges in compliance with MOHA Regulation on cost recovery and direct subsidy. However, given the typical ramp-up period in piped water connections and high initial levels of NRW, early-stage cash flows may be insufficient. To mitigate this, the GOI could consider providing time-bound *Hibah* grants, linked to performance targets, for a period of 6–8 years. This would help manage the financial viability during stabilization phase and support a smooth transition to full cost recovery.
9. **Effectiveness in addressing constraints identified:** Refer *Exhibit 7.2* for a snapshot of how constraints identified in this Paper are addressed. With government support fully coming from GOI's fiscal instruments linked to viability gaps and performance, there is sufficient incentive for the LG to commit to this structure and associated reform requirements, including on tariff setting and revision. Regulatory constraints will require actions beyond the project level have been discussed in *chapter 6*.

Exhibit 7.2 Structure A – Extent to which legacy constraints mapped earlier are addressed

Constraints identified in chapters 3 and 4	Extent to which addressed
Institutional - Weak PDAM capacity, financials, scale, disclosure **Issues with PPP Arrangements -** Customer interface unaddressed	▪ **Comprehensively.** Upgrade to Perseroda will professionalise PDAM through Board-led decision making, and induction of management / technical capacity through Private Operator. Scope of private operator includes distribution and customer interface
Fiscal and supply-side issues Financing gap | Timing difference in creation of infrastructure | Tariff, Funding gaps | Bankability	▪ **Comprehensively.** Government support during Construction (DAK-Fisik and MOF VGF) and Operations (Hibah) based on PDAM business plan is proposed to address financing gaps if any. LG commitment to direct subsidy and Contingent liability of Guarantee backed up by Devolution Intercept. Focus on reaching full cost recovery in 7-8 years
Regulatory Groundwater, Full cost recovery, lack of clarity on PPP in distribution	▪ **Will need Policy Actions.** Structural actions at GOI and LG level beyond Project in respective areas should be completed as a pre-requisite reform actions by GOI and PG/LGs (Refer to Chapter 7 *Action Agenda - Pillar 3 – Policy actions*).

7.2.2. B – PPP-Design Build Finance Operate & Transfer (DBFOT)

This structure is appropriate for mid- to large-sized PDAMs with relatively good financial health. Under this DBFOT model, a competitively selected Private Operator establishes a Special Purpose Vehicle (SPV) to undertake the design, financing, construction, and O&M of the water supply system. Capital investment is primarily mobilized through private financing, with VGF provided based on a feasibility assessment. Operator payments are derived from user charges, which are escrowed to mitigate payment risk. In addition, Hibah grants linked to performance improvements may be deployed to incentivize service delivery outcomes.

There is merit in considering PDAM equity participation in the SPV. Such participation can strengthen alignment between public and private interests, enhance project bankability, and address potential political sensitivities. It could also facilitate institutional capacity building and promote continuity of service beyond the PPP contract term. Involving the PDAM as a shareholder may also improve knowledge transfer and operational integration during the project lifecycle, supporting a smoother transition at the time of asset handover. Equity participation by PDAMs could be structured either through (i) Capital injection (cash) from the PDAM or LG, where financial health and borrowing capacity permit; or (ii) Asset contribution in kind, whereby existing PDAM assets required for service provision are transferred for use by the SPV under agreed terms. In both cases, safeguards will need to be incorporated into the PPP contract and the Shareholders' Agreement (SHA) of the SPV, including provisions to address potential conflicts of interest, define governance protocols, and ensure clarity on risk allocation. These measures are essential to preserve the integrity of the project structure while capturing the benefits of PDAM participation.

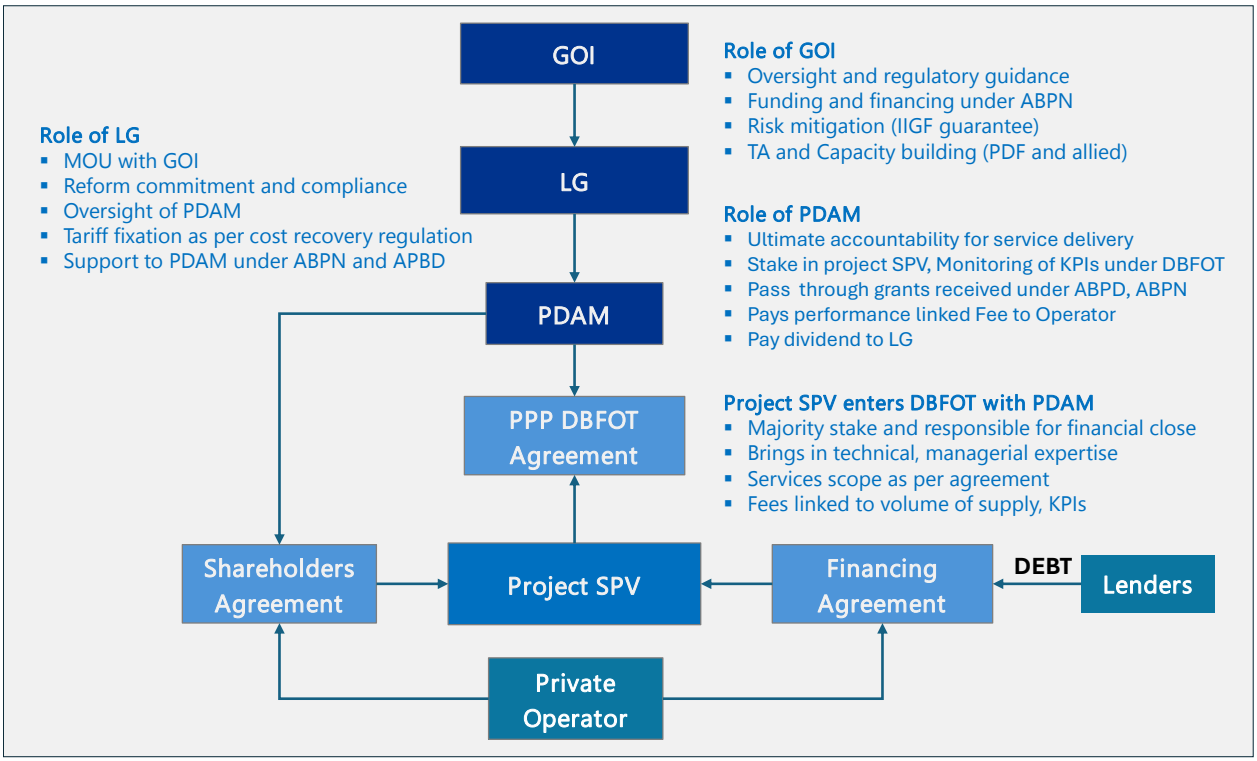
Exhibit 7.3 provides a schematic of the proposed structure, the salient features of which are described below.

Salient features

1. **Where suited:** This structure is designed for mid- to large-sized PDAMs (typically with over 30,000 connections) that demonstrate reasonable financial health but face service delivery challenges including limited coverage, high NRW, and weak customer interface and are not at a scale that is attractive to strategic investors. The structure is particularly well suited for PDAMs with access to a reliable raw or treated bulk water source and integrated regional water supply systems of medium to large PDAMs.
2. **PPP arrangement:** The model adopts a Design-Build-Finance-Operate-Transfer (DBFOT) framework, wherein a competitively selected Private Operator establishes a Special Purpose Vehicle (SPV) to undertake capital works and long-term operations. To strengthen effective governance, public-private alignment and enable institutional capacity building, the PDAM takes a minority equity stake in the project SPV. This approach reverses the logic of Structure A, where private investors participate in PDAM equity, by instead positioning the PDAM as a shareholder in the SPV set up to implement the water supply system. This facilitates board-level participation,

knowledge transfer, and improved governance, while preserving public oversight throughout the contract term. It provides a pathway to address addressing technical, managerial, and operational capacity gaps of PDAMs, while ensuring institutional continuity and enhanced professionalism at the utility level.

Exhibit 7.3 Structure B – PPP-DBFOT with PDAM (with and w/o PDAM stake in Project SPV)



3. **Induction of a Private Operator to enhance technical and managerial capacity:** A Private Operator is selected through a competitive procurement process in accordance with GOI's PPP regulations and enters a tripartite DBFOT contract with the LG and the PDAM. Under this structure, the Private Operator establishes a Special Purpose Vehicle (SPV), in which the PDAM holds a non-majority equity stake. This arrangement is intended to facilitate the internalization of technical and managerial expertise within the PDAM, promote alignment of public and private interests, and foster a long-term institutional perspective. PDAM participation in the SPV also supports improved business continuity at the time of asset handover and enhances technical know-how transfer throughout the project lifecycle. As with Structure A, potential conflicts of interest can be effectively managed through safeguards embedded in the SHA, including through veto rights, golden share provisions, public service obligations, and defined board composition. Refer Box 7.4 for international experience with public stake in project SPVs.

Box 7.4 Public equity stake in water PPPs – international experience

Governments increasingly take equity stakes in project Special Purpose Vehicles (SPVs) in public-private partnerships (PPPs) to align incentives, safeguard public interest, and improve project bankability. This approach ensures that public mandates—such as affordable access, performance metrics, and accountability—are upheld while leveraging private sector efficiency and capital. A few examples in this regard are presented below:

- **INDIA - Tirupur Water Supply and Sewerage project:** The New Tirupur Area Development Corporation Limited (NTADCL) was established in 1995 as a public limited company. Its equity holders included the **Government of Tamil Nadu**, **TWIC (Tirupur Water Infrastructure Corporation)**, and **IL&FS Ltd**, forming a SPV to execute the bulk water supply and sewage project. The State Government of Tamil Nadu held a significant equity stake, ensuring oversight and enabling coordination across municipal boundaries. This structure helped secure commercial financing by demonstrating public backing and mitigated regulatory and political risks. The SPV model allowed successful implementation of critical water infrastructure, facilitating urban industrial water supply operations, while balancing public control with private execution.

- **INDIA - Visakhapatnam Industrial Water Supply Project:** The Vizag Industrial Water Supply Company (VIWSCo) was created in 1998 to deliver industrial water from the Godavari basin to Visakhapatnam's industrial zone. IL&FS-sponsored India Project Development Fund held 66% equity, while APIIC (Andhra Pradesh Industrial Infrastructure Corporation) held the remaining 34%. APIIC's stake ensured continued alignment with state industrial planning goals, provided governance oversight, and enhanced financial credibility to attract private capital. The SPV structure facilitated delivery of reliable industrial water supply and enabled seamless integration across multiple state-led industrial infrastructure projects.
- **MALAYSIA – Water Treatment BOT projects:** Various Malaysian states have engaged private operators through BOT contracts (e.g., Johor Bahru, Kota Kinabalu, Langkawi). Equity occasionally involves local authorities or corporatized state entities.
- **VIETNAM – Equitization of utilities:** Vietnam's 2009 "equitization" policy enabled local water utilities (previously fully public) to incorporate equity participation, including from private and institutional investors, enhancing financial autonomy.

4. **Obligations of Operator:** Under the DBFOT framework, the Private Operator enters a 25–30-year concession to undertake the development and operation of the water supply system. Key obligations include:
    - **Design, Financing, Construction, and O&M:** Undertake the design, partial financing, construction, and long-term operation and maintenance of the water supply infrastructure, as per the technical and service standards defined in the DBFOT contract.
    - **Customer Management and Grievance Redressal:** Strengthen the customer database, implement robust customer service systems, and establish effective grievance redress mechanisms to enhance responsiveness and user satisfaction.
    - **Performance Management:** Achieve key performance indicators (KPIs) specified in the contract, including targets for non-revenue water (NRW) reduction, service coverage, supply continuity, and water quality.
    - **Billing and Revenue Collection:** Improve efficiency in billing and collection processes. The Operator collects user charges at tariffs approved and regulated by the Local Government (LG) and deposits all collections into the PDAM's designated account.
5. **Operator remuneration:** The Operator is remunerated through a performance-linked service fee structure. The primary component is a volumetric payment based on the aggregate metered consumption at the customer level, calculated at an inflation-indexed rate (IDR per kilolitre). In addition, the Operator is eligible for incentive payments tied to the achievement of pre-defined performance indicators, such as service continuity, customer satisfaction, and reduction in non-revenue water (NRW). This payment structure transfers demand risk to the Operator and aligns financial incentives with service efficiency. By linking the core fee to billed consumption, the model inherently promotes improvements in system performance, particularly in NRW management, and encourages sustained operational efficiency over the contract period.
6. **Obligations of GCA:** As the GCA under the OMDA, the LG's obligations include the following:
    - **Tariff Oversight:** Ensure a transparent and predictable tariff-setting and adjustment process in compliance with prevailing MOHA regulations, balancing cost recovery and affordability.
    - **Financial Commitments:** Fulfil all payment obligations under the DBFOT, including the timely disbursement of service fees and any performance-based payments to the Operator.
    - **Contract Management and Independent Monitoring:** Establish a dedicated contract management unit and ensure independent monitoring and validation of KPIs as defined in the DBFOT agreement.
    - **Stakeholder Engagement and Public Accountability:** Maintain effective communication with stakeholders and ensure transparency through periodic public disclosures and reporting on project performance.
    - **Permits and Approvals:** Facilitate the timely issuance of all regulatory approvals and permits required for construction, operation, and maintenance of the project facilities.
7. **Financing and government support:** This structure is suitable for PDAMs with sizable & growing connections base, and healthy financial performance but weak & inefficient service delivery. A significant portion of the investment requirement is expected to be mobilized through commercial financing, comprising both debt and

equity, raised by the Operator, who will be responsible for financial closure. Government support may be extended through the MOF-VGF based on a needs assessment of the cost-recovery shortfall and tariff affordability constraints. As in case of structure A, this support could be fully provided through *Hibah* grants, although consultations with private sector reveal that inclusion of a VGF component improves bankability.

8. **Funding base:** Investment and O&M costs are expected to be fully funded through user charges in compliance with MOHA Regulation on cost recovery and direct subsidy. However, given the typical ramp-up period in piped water connections and high initial levels of NRW, early-stage cash flows may be insufficient. To mitigate this, the GOI could consider providing time-bound *Hibah* grants, linked to performance targets, for a period of 6–8 years. This would help manage the financial viability during stabilization phase and support a smooth transition to full cost recovery.

9. **Effectiveness in addressing constraints identified:** Refer to *Exhibit 7.4* for a summary of how this structure addresses key constraints identified earlier. Structure B effectively tackles demand-side barriers, including institutional capacity gaps and weaknesses in PPP frameworks. Like Structure A, it integrates GOI fiscal support mechanisms, aiming to minimize the financial burden on LGs by converging GoI's financing avenues for construction and links operational phase support, limited to a defined 5–7-year window, to LG-PDAM reform commitments and Operator's performance obligations. Broader policy and regulatory constraints, which extend beyond the scope of individual projects, are addressed separately under Structural Actions in Chapter 7.

Exhibit 7.4 Structure B – Extent to which legacy constraints mapped earlier are addressed

Constraints identified in *chapter 3 and 4*	Extent to which addressed
Institutional - Weak PDAM capacity, financials, scale, disclosure **Issues with PPP Arrangements -** Customer interface unaddressed	▪ **Comprehensively.** The Private Operator will set up a Special Purpose Vehicle to ring-fence and bring in financial, managerial and technical capacity, all of which is enabled through contractual stipulations under Obligations of Operator. Governance is addressed through the PDAM taking an equity stake in the Project SPV. This will help internalize technical and managerial capacity within the PDAM, align public & private interest, and facilitate a longer-term perspective. It will also aid in better governance, better technical know-how transfers back to the PDAM and business continuity at the time of handover of the assets.
Fiscal and supply-side issues Financing gap | Timing difference in creation of Bulk, Distribution infrastructure | Tariff, Funding gaps | Bankability	▪ **Comprehensively.** Government support during construction (DAK-Fisik and MOF VGF) and Operations (Hibah) based on PDAM business plan is proposed to address financing gaps if any. LG commitment to direct subsidy and Contingent liability of Guarantee backed up by Devolution Intercept. Focus on reaching full cost recovery in 7-8 years
Policy and Regulatory Groundwater, Full cost recovery, lack of clarity on PPP in distribution	▪ Structural actions at GoI and LG level beyond Project in respective areas; should be completed as a pre-requisite reform actions by GOI and PG/LGs (Refer Pillar 3 – Structural actions in *chapter 6* for more details)

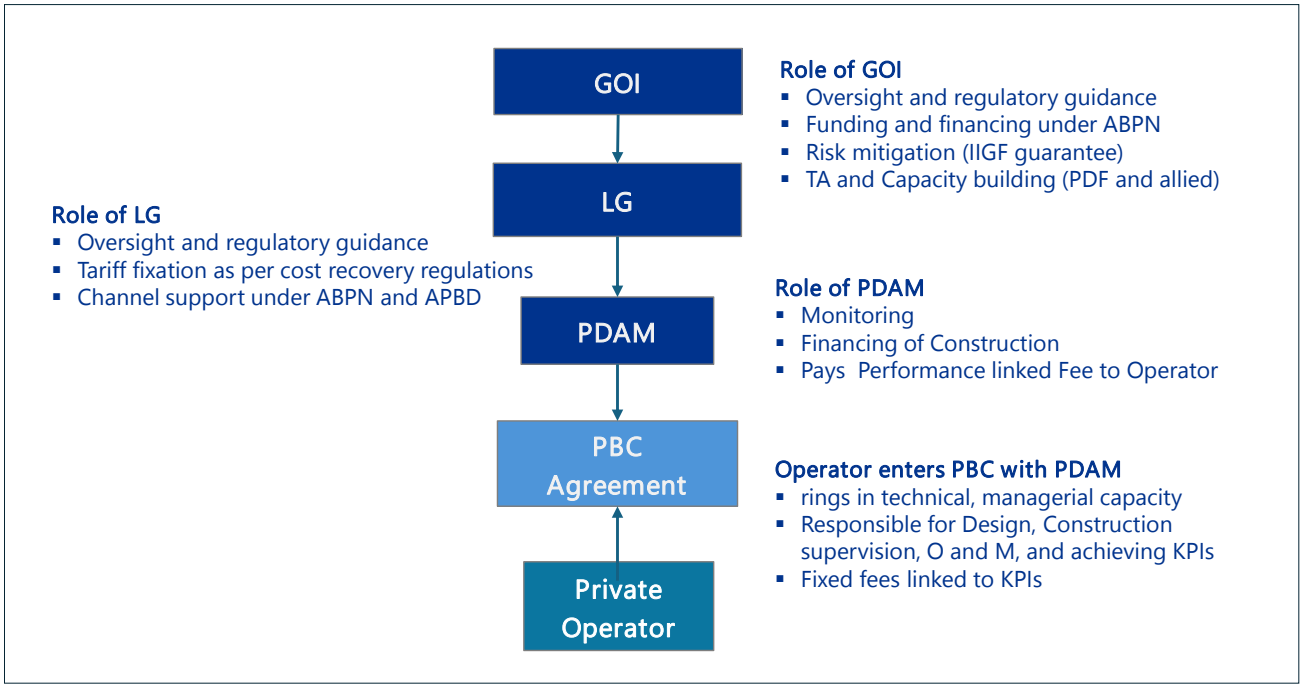
7.2.3. C – Performance-based Contract (PBC)

This structure is suited for financially weaker PDAMs and involves the induction of a Private Operator through a competitive procurement process. The Operator signs a tripartite Performance-Based Contract (PBC) with the Local Government (LG) and PDAM, typically structured as a Management Contract with limited financing obligations, as 70–80% of the project cost is expected to be publicly funded. The PBC may have a duration of 8–15 years, with the Operator responsible for: (i) design review, construction supervision support, and operations and maintenance (O&M), (ii) customer data management and grievance redressal, (iii) achieving performance targets, including NRW reduction, and (iv) improving billing and collection efficiency. User charges are collected by the Operator at LG-approved tariffs and deposited into the PDAM account. The Operator is compensated through a fixed, inflation-indexed monthly fee and a performance-linked incentive. As demand risk remains with the public sector, Operator payments are not tied to billed

volume. To reduce the initial financial burden on LGs, the Government of Indonesia (GOI) may fully finance the capital cost of early-stage demonstration projects under its PPP program.

Refer *Exhibit 7.5* for a schematic of the proposed structure, the salient features of which are described below.

Exhibit 7.5 Structure C – PBC without demand risk transfer



Salient features

1. **Where suited:** This structure is best suited for small to mid-sized PDAMs with weak financial capacity, low end-user tariffs that fall significantly below cost recovery levels, and poor service delivery performance. The structure is applicable where the PDAM has access to a reliable treated bulk water supply infrastructure is in place and the emphasis is on distribution improvements, NRW reduction, customer service enhancements, and operational efficiency.

2. **PPP arrangement:** This structure is designed as an investment-light PPP model for mid-sized PDAMs with weak financial performance and user tariffs well below that required for full cost recovery. Given these constraints, the focus is on getting in private expertise to drive operational and service delivery improvements. A Private Operator is selected through a competitive process and enters a tripartite Performance-Based Contract (PBC) with the LG and the PDAM. The PBC has operator payments linked to clearly defined performance outcomes, and provides a mechanism to address the PDAM's institutional, managerial, and technical capacity gaps,

3. **Induction of a Private Operator to bring in technical and managerial capacity:** A Private Operator is inducted through a competitive procurement process adhering to GOI PPP regulations and will sign a tripartite PBC with LG and PDAM. In a performance-based contract without financing obligations, the contract may be done with the private operator directly without the need for an SPV. However, even if the structuring envisages limited financing to be brought in by the Operator, it may be useful to have an SPV set up by the Private Operator.

4. **Obligations of Operator:** The PBC could be structured as a 8-15-year contract where the Operator's scope and obligations includes (i) Design review, Construction supervision support, and O&M of system thus completed, (ii) Improving Customer database, and grievance redress, (iii) Meet performance targets including NRW mgmt. and (iv) Improve efficiencies in billing and collection as a service provider / shareholder in PDAM. The Performance-Based Contract (PBC) is typically structured for a duration of 8 to 15 years. Under this arrangement, the Private Operator's obligations include:

- **Design and construction oversight:** Provide design and supervision support during the construction phase of the project, where works are primarily publicly funded.
- **O&M services:** Undertake full responsibility for the operation and maintenance of the completed water supply system, ensuring efficiency, reliability, and compliance with service standards.
- **Customer management:** Improve and maintain an accurate customer database, establish responsive customer service systems, and implement robust grievance redress mechanisms.
- **Performance delivery:** Meet agreed key performance indicators (KPIs), including reduction in non-revenue water (NRW), improved service coverage, and enhanced operational efficiency.
- **Billing and Collection support to PDAM:** Strengthen billing and revenue collection processes, operating as a service provider on behalf of PDAM and support PDAM in effective revenue administration.

5. **Operator remuneration:** The Operator collects user charges from consumers at tariffs approved and regulated by LG, with all revenues deposited into the PDAM account. The Operator's remuneration consists of: (I) A Fixed service fee which is an inflation-indexed monthly fee, reflecting the scope of services and baseline performance obligations and (ii) Performance-based Incentives: Variable payments linked to the achievement of specific KPIs, including NRW reduction, billing efficiency, and customer service standards. As the Operator is not responsible for demand risk under this structure, payments are not linked to billed volume, and financial exposure is limited to service performance.
6. **Obligations of GCA:** As the GCA, the Local Government (LG) holds overall responsibility for contract governance and enabling conditions. Key obligations include:
   - Tariff Regulation: Ensure transparent and predictable tariff-setting and adjustment in accordance with MOHA regulations, balancing affordability and cost recovery.
   - Payment and Financial Commitments: Ensure timely disbursement of Operator fees, including fixed and incentive components, as stipulated in the PBC.
   - Contract Management and Oversight: Establish a dedicated contract management unit and commission independent performance monitoring and KPI validation.
   - Stakeholder Communication and Accountability: Maintain public accountability through transparent reporting, stakeholder engagement, and dissemination of service performance data.
   - Regulatory Approvals and Facilitation: Expedite necessary permits, approvals, and administrative support to ensure smooth implementation and operation of the PBC.
7. **Financing and Government support:** Capital investment for infrastructure development is fully financed through public sources, including national budget allocations (e.g., *DAK Fisik* under the APBN) and subnational budget contributions (APBD). As private financing for construction is not envisaged, the structure is not eligible for Viability Gap Funding (VGF) from the Ministry of Finance. To reduce fiscal burden on LGs, the GOI may consider fully financing the construction cost of early-stage demonstration projects. This would help de-risk initial implementation and support replication of the model.
8. **Funding base:** Although the capital cost of infrastructure creation is met almost entirely with public financing, the endeavour will be to move towards full cost recovery in the medium- to long-term. However, in the early years of implementation, there may be a gradual ramp-up in service connections and billing revenues, while legacy infrastructure issues could contribute to high levels of NRW. To address these transitional challenges, the GOI may consider providing performance-linked *Hibah* grants over a defined period (typically 6–8 years). These grants would serve as targeted incentives for PDAMs to bridge early-stage financial gaps and ensure successful project stabilization.

9. **Effectiveness in addressing constraints identified:** Refer *Exhibit 7.6* for a snapshot of how constraints identified earlier are address in this structure. Compared to Structures A and B, Structure C offers a moderate response to demand-side constraints, focusing on operational improvement and capacity strengthening. However, it requires substantial public financing and technical assistance to achieve the intended service-level and institutional outcomes. Given its investment-light nature, the PBC is designed for a shorter contractual tenure and should be viewed as an initial step in the performance improvement trajectory for weaker PDAMs. It serves as an entry point to enable governance, managerial, and operational reforms, paving the way for eventual progress toward full financial sustainability through more advanced PPP arrangements.

Exhibit 7.6 Structure C – Extent to which legacy constraints mapped earlier are addressed

Constraints identified in *chapter 3 and 4*	Extent to which addressed
Institutional - Weak PDAM capacity, financials, scale, disclosure **Issues with PPP Arrangements -** Customer interface unaddressed	▪ **Moderate.** The Private Operator will bring in managerial and technical capacity, all of which is enabled through contractual stipulations under Obligations of Operator. The PPP contract would be augmented with additional technical assistance support to improve PDAM's governance and oversight capacity.
Fiscal and supply-side issues Financing gap | Timing difference in creation of Bulk, Distribution infrastructure | Tariff, Funding gaps | Bankability	▪ **Moderate**. Since this structure is focused on financial weaker PDAMs, the construction will have to largely from public sources and hence the financing constraint is not addressed effectively. Nevertheless, the performance improvement (including in NRW, service coverage and other aspects) is expected to sharply improve the PDAM capacity to raise revenues and therefore will have a moderately positive impact. The flow of GOI support especially during operations will also be subject to the PDAM and LG complying with MOH regulation on cost recovery and direct subsidy.
Policy and Regulatory Groundwater, Full cost recovery, lack of clarity on PPP in distribution	▪ Structural actions at GoI and LG level beyond Project in respective areas; should be completed as a pre-requisite reform actions by GOI and PG/LGs (Refer Pillar 3 – Structural actions in *chapter 6* for more details)

7.2.4. A comparative summary of the three project structures

Refer *Exhibit 7.7* for a comparative snapshot summary of the three project structures.

Exhibit 7.7 Pillar 1 - PPP structures – a comparative view of salient features

Structure	A - PERSERODA + OMDA External shareholding + public character	B - PPP DBFOT contract Demand-risk transfer + performance linkage	C PPP PBC No Demand-risk transfer + performance linkage
Where suited & System scope	▪ Large PDAMs (> 50k connections) ▪ Good finances, Poor service levels ▪ Assured raw / bulk water available. ▪ Distribution + Regional Water Systems with source-to-tap scope	▪ Large + Mid (> 25k connections) ▪ Moderate-Good finances ▪ Poor service levels ▪ Assured raw / bulk water availability, ▪ Distribution + Regional Water Systems with source-to-tap scope	▪ Small (15-25k connections) ▪ Weak finances, ▪ Poor service levels ▪ Assured raw / bulk water availability, ▪ Distribution+ select weaker PDAMs serviced under Regional water supply systems with weak financials
Governance & Management capacity	▪ Upgrade PDAM to PERSERODA. ▪ Public Strategic Investor (PSI) and Pvt. Operator* as shareholders ▪ Public character - LG+PSI majority ▪ OMDA between LG & Operator ▪ **LG:** Public Interest, Tariff revision ▪ **PSI:** Governance, Financial investor ▪ **Operator:** Tech, managerial expertise	▪ LG-PDAM-GOI MOU: 1) Compliance to MOHA cost recovery regulation, 2) PDAM dividends capped till service improved, 3) Reporting & Disclosure ▪ End-to-end services, performance linkages in Operator scope ▪ PDAM stake in SPV as an option	▪ LG-PDAM-GOI MOU: 1) Compliance to MOHA cost recovery regulation, 2) PDAM dividends capped till service improved, 3) Reporting & Disclosure ▪ End-to-end services, performance linkages in Operator scope
Process of selection and induction	▪ PSI + LG shareholding - capex need, asset value, LG fiscal capacity. ▪ Operator – competitive process, capped minority shareholding	▪ Operator competitively selected ▪ Preparation & transaction advisory supported and overseen by MOF	▪ Operator competitively selected ▪ Preparation & transaction advisory supported and overseen by MOF

Structure	A - PERSERODA + OMDA External shareholding + public character	B - PPP DBFOT contract Demand-risk transfer + performance linkage	C PPP PBC No Demand-risk transfer + performance linkage
Private role in financing	▪ PSI + Operator main share with Government support ▪ Nil / minimal LG commitment ▪ Full cost recovery in 5-7 years	▪ Pvt. Operator – main share ▪ Nil / minimal LG commitment ▪ Full cost recovery in 5-7 years	▪ Construction is publicly financed ▪ Construction: DAK-Fisik + LG share ▪ Partial Capex + O&M cost recovery
GoI support mechanisms	▪ Preparation: MOF PDF ▪ Construction: MOF VGF / DAK-Fisik ▪ Operations: Hibah grants linked to reforms, performance (5-7 years) ▪ IIGF guarantee / Devolution Intercept	▪ Preparation: MOF PDF ▪ Construction: MOF VGF / DAK-Fisik ▪ Operations: Hibah grants linked to reforms, performance (5-7 years) ▪ IIGF guarantee / Devolution Intercept	▪ Preparation: MOF PDF ▪ Construction: DAK-Fisik + LG APBD ▪ Operations: Hibah grants linked to reforms, performance (5-7 years) ▪ IIGF guarantee / Devolution Intercept
Operator obligations	▪ Financing, Design, Construction, O&M including NRW reduction, complaints redress, billing & collection on behalf of PDAM. ▪ Performance targets as per OMDA	▪ Financing, Design, Construction, O&M including NRW reduction, complaints redress, billing & collection on behalf of PDAM. ▪ Performance targets as per OMDA	▪ Design, Construction, O&M including NRW reduction, complaints redress, billing & collection on behalf of PDAM. ▪ Performance targets as per PBC
GCA obligations	▪ Facilitate permits & approvals. ▪ Oversee performance of Operator. ▪ Compliance with Regulations	▪ Facilitate permits & approvals. ▪ Oversee Operator performance ▪ Compliance with Regulations	▪ Secure financing, Facilitate approvals. ▪ Oversee performance of Operator. ▪ Compliance with Regulations
Payment to Operator	▪ Fee (Rs. per KL x Billed volume) + Performance Incentive linked to performance indicators	▪ Fee (Rs. per KL x Billed volume) + Performance Incentive linked to performance indicators	▪ Fixed Service Fee + Incentive linked to performance indicators
Positives	▪ Transition PDAMs to corporatized utility models with public character ▪ Professionalize management to deliver universal water access ▪ Reduced fiscal burden	▪ End-to-end scope for delivery & performance on Private Operator ▪ Professionalize management to deliver universal water access ▪ Reduced fiscal burden	▪ Professionalize management to deliver universal water access ▪ Improve service coverage and revenue realization; reduced fiscal burden

7.3. Enabling actions for operationalising the proposed PPP structures

The status of enabling actions required to operationalize the proposed PPP structures is summarized in *Exhibit 7.8*.

Exhibit 7.8 Pillar 1 - Enabling actions need to be implemented for the proposed PPP structures

Enabling factors for operationalization of different structures	Where the enabling action is needed		
	A	B	C
1. Shareholding related (focused on structures A and B)			
▪ MOF/MOHA + LG - LG stake < 51% (LG regulation + clarification from MOF/MOHA)	✓	N. A	
▪ LG - Upgrading to Perseroda + inducting shareholde4rs (Under Law 23/2014 + Reg. 54/2017)	✓		
▪ LG - PDAM equity in project SPV (Shareholding subject to DPRD and other approvals)	N. A	✓	N. A
2. Regulatory clarity on PPPs in distribution			
▪ MPW - Ministerial regulation to allow PPPs in distribution and customer interface	✓	✓	✓
▪ MPW + MOF + BAPPENAS – Develop model bidding, contract documents for PPP structures	✓	✓	✓
3. GOI financing support			
▪ MOF - Financing support under PPP instruments – VGF, PDF, IIGF guarantee – MOF + MPW	✓	✓	✓
▪ MOF + MOHA - Financing support under fiscal instruments – DAK-FISIK, Hibah, Insentif Fiskal	✓	✓	✓
4. Binding commitments from LG-PDAMs			
▪ Compliance to MOHA Cost recovery and direct subsidy regulation	✓	✓	✓
▪ Bring in LG share of financing (where applicable and agreed) in a timely manner	✓	✓	✓
▪ Commitment to cap / suspend dividends from PDAMs till threshold performance achieved	✓	✓	✓
▪ Consent to GOI Devolution Intercept when commitments not met by LG-PDAMs	✓	✓	✓

Structures A and B require a distinct set of actions related to shareholding arrangements, necessitating coordinated efforts from MOF, MOHA and LGs. Structure A involves the conversion of the PDAM into a *Perseroda* and the induction of both a Public Strategic Investor (PSI) and a Private Operator as shareholders. This process entails legal, regulatory, and institutional steps that must be undertaken jointly by national and local stakeholders. Structure B, in contrast, requires enabling actions to facilitate PDAM equity participation in the project Special Purpose Vehicle (SPV), also involving similar intergovernmental coordination.

All structures will require measures to enhance regulatory clarity around PPPs in downstream distribution (detailed in Chapter 7) and to secure GOI financing support through appropriate instruments. The long-term sustainability of these PPP arrangements hinges on strong reform commitments from LGs and PDAMs. This underscores the importance of a rigorous selection framework for identifying LG-PDAMs eligible for GoI support under a well-structured national program, a topic discussed further in Chapter 6.

7.4. Applicability to regional water systems

7.4.1. Regional water systems in Indonesia – need for a holistic approach

The GOI has promoted Regional SPAMs (Sistem Penyediaan Air Minum Regional) or water supply systems to enable scale, efficiency in its water sector which as explained earlier, is characterised by decentralised service delivery through PDAMs. These Regional SPAMS are bulk water supply schemes that serve multiple LGs through inter-jurisdictional cooperation. Typically, these are led by the MPW and financed through the APBN and aim to (i) Achieve economies of scale in water production and treatment, (ii) Leverage central government support to overcome local capacity limitations, and (iii) Facilitate regional planning and optimize raw water utilization across boundaries, even as local PDAMs remain responsible for downstream distribution, signing off-take agreements to purchase bulk water from the regional system.

To accelerate investment and improve service delivery, GOI has piloted *Source-to-Tap PPPs*, which envisage involvement of private sector participation across the full water value chain, from raw water abstraction to household connections. Key elements of Source-to-Tap PPPs include (i) Project SPVs led by private operators under long-term contracts (e.g., DBFOT), (ii) Revenue streams based on off-take or availability payments typically from PDAMs or Regional Water Companies and (iii) Government support mechanisms including MOF VGF, guarantees from IIGF and blended financing. Regional water systems with a source-to-tap philosophy like Jatiluhur II are important to scale piped water supply access expeditiously. The 700,000 households targeted under the Jatiluhur-II project is almost 70% of the 1 million connections target set during RPJMN 2019-24 and reflects the importance. Refer to *Box 7.5* for salient aspects of the project.

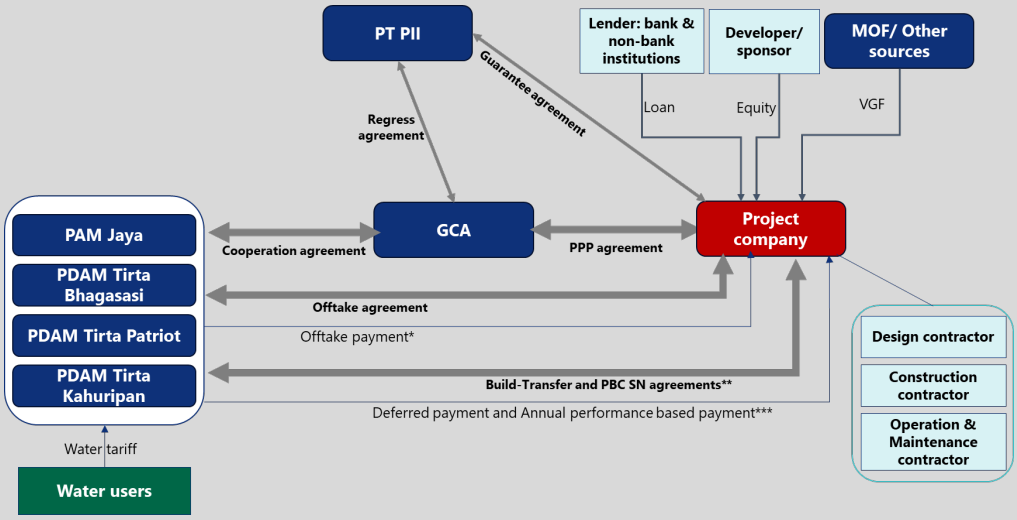
Box 7.5 Jatiluhur-II – Salient project features

The Ir.H. Djuanda (Jatiluhur II) Project aims to expand clean water access in Jakarta, Bogor Regency, Bekasi City, and Bekasi Regency, improving service delivery in densely populated areas. Key objectives of the project include (i) Expanding water service coverage area, (ii) boosting economic activity, (iii) enhancing public health through clean drinking water access and (iv) implementing the project with private financing. Originally conceived as an unsolicited proposal, the project is now being pursued and prepared as a solicited PPP project. The project estimated to have a capital cost of IDR 10-15 trillion, will produce 6300 litres per second (LPS) of potable water from a 7000 lps raw water capacity source from Jatiluhur Reservoir (or the Djuanda Dam) and will connect potentially 600,000 to 710,000 households with high quality piped drinking water supply. Although labelled as a source-to-tap PPP, Jatiluhur II follows a bulk water PPP model, structured primarily as a Design-Build-Finance-Operate (DBFO) project for upstream segments. The downstream distribution arrangements are to be finalised at the level of PDAMs as shown below.

Value chain segment	Entity responsible	Implementation mode
Raw Water Source	Perum Jasa Tirta II (PJT II)	State Owned Enterprise (SOE)
Water Treatment Plant	PT Wika Tirta Jaya Jatiluhur (Jaya SPV)	PPP DBFOT
Transmission pipeline	PT Wika Tirta Jaya Jatiluhur (Jaya SPV)	PPP DBFOT
Distribution to PDAMs	Respective PDAMs (e.g., PDAM Bekasi)	PDAM – public financing
Last mile and household connections	Respective PDAMs	PDAM – public financing

- **Perum Jasa Tirta II (PJT II),** a state-owned enterprise (SOE) under MPW, owns and operates the Jatiluhur Reservoir and its raw water intake infrastructure. PJT II has legal authority and concession rights to manage water resources in Jatiluhur, including abstraction, allocation, and raw water pricing.
- **PT Wika Tirta Jaya Jatiluhur (Jaya SPV)** is the private counterparty responsible for receiving raw water from PJT II at the intake point, treating and transmitting bulk water under the PPP-DBFOT concession to the participating PDAMs
- **MPW** is the GCA for the project and is responsible for (i) preparing and tendering the PPP project, (ii) signing the agreement with the private partner (Jaya SPV), (iii) monitoring compliance with service level agreements, and (iv) coordinating with other stakeholders including LGs and PDAMs. **DGHS** as the coordinator for GCA performs the technical execution and program management roles, and is responsible for planning and feasibility assessments, engagement with LGs and PDAMs (as off-takers) and inter-agency coordination (including with PJT II for raw water, MOF for VGF, BAPPENAS for development planning)
- **PDAMs** specified below receive bulk water, but are not part of the GCA. They are critical stakeholders as off-takers of bulk water from the PPP project through separate bulk water agreements with take-or-pay commitments. Downstream infrastructure and service delivery (i.e., after the delivery of bulk treated water) are outside the scope of the upstream PPP but are expected to be supported through Performance-Based Contracts and or B2B contracts. The work scope in these contracts could include Distribution Reservoir, Main Distribution Network Pipeline, and Distribution Pipe, with the PDAMs continuing to be responsible for connections, customer interface, billing and collection.

Jatiluhur II - proposed project structure



Source: Project screening presentation - Ir. H. Juanda (Jatiluhur II) Water Supply. KIAT. 2025

7.4.2. Deficiencies in Regional water SPAM PPPs and actions needed to address them

Despite compelling strategic rationale, regional water SPAM PPPs too face structural, operational deficiencies that hinder standalone PPPs in delivering integrated, sustainable, and high-quality services to end users. These are summarised in *Exhibit 7.9* and discussed below.

Exhibit 7.9 Regional water SPAM PPPs – select deficiencies and potential pathways to address them

Key Deficiency	Potential GOI actions to address deficiency
Incomplete source-to-tap integration of PPPs	▪ Guidance through model documents and capacity building support for downstream distribution PPPs at LG-PDAM level ▪ Technical assistance for project preparation for downstream distribution and PDAM capacity development ▪ Integration of upstream PPPs with downstream PPP arrangements (including possibly use of structures recommended in this chapter
Opportunity to incentivise LG and PDAM-level reforms is not utilised effectively	▪ Binding commitment from LGs and PDAMs on reforms and use of devolution intercept instrument in case of non-compliance

Key Deficiency	Potential GOI actions to address deficiency
	▪ Deploy a higher share of fiscal transfers from APBN through earmarked instruments such as Hibah linked grants and Insentif Fiskal reform-lined grants
Regulatory ambiguity and weak enforcement	▪ Clarify regulatory ambiguity surrounding PPPs in downstream regulation. ▪ Monitor enforcement of cost recovery and groundwater regulations.
Reliance on GOI support and risk of contingent liabilities falling back on GOI	▪ Rigour in feasibility, market sounding and willingness to pay assessments reflecting lessons from past PPP initiatives ▪ Incentivise compliance through conditional transfers under Hibah or Insentif Fiskal ▪ Retaining right to exercise Devolution Intercept option in case of non-compliance

- **Incomplete Source-to-Tap Integration as downstream distribution scope is left unaddressed:** Most regional SPAM PPPs are confined to bulk water abstraction and treatment, with last-mile distribution left to PDAMs. As a result, constraints at the level of PDAMs, as identified in chapter 3, persist and negatively impact the sustainability of regional SPAMs, weakens accountability, and results in inconsistent delivery at the household level. A harmonised approach to implement effective PPPs in downstream distribution component must complement the regional water SPAM PPP to address this gap squarely. Addressing this gap will require guidance from GOI in the form of model documents for PPP structures for downstream distribution (including for the structures recommended in this chapter) and associated capacity building support to LGs and PDAMs to implement them.
- **Opportunity to incentivise wholesome PDAM-level reforms is not utilised effectively:** The Regional SPAMs provide an opportunity for GOI to incentivise LGs to commit to, and implement reforms, including in (i) enhancing governance at PDAM-level, (i) implementing PPPs for downstream distribution, (ii) shifting to full cost-reflective user charges and independent regulation, (iii) enforcing groundwater regulation and limiting abstraction. Fiscal levers available with GOI. Regional PDAM initiatives should be preceded with binding commitments secured from LGs and PDAMs on reforms. GOI should use its performance-linked and reform-linked fiscal instruments to incentivise compliance and where necessary use punitive measures including the right to exercise devolution intercepts in the event of non-compliance by LGs and PDAMs.
- **Regulatory ambiguity and weak enforcement:** GOI should clarify and amend regulations that create uncertainty and restrictions to implement water PPPs for improved service delivery. Further, even where regulations exist, there is limited monitoring and enforcement mechanisms in place. These relating to permissibility and scope of PPPs in downstream distribution, tariff-setting, off-take, groundwater abstraction. Measures required in this regard are elaborated in chapter 7.
- **Over-reliance on GOI support and risk of contingent liabilities falling back on GOI:** Given the scale of investment needed for regional water SPAMs, it is inevitable that these projects will require sizable GOI support for implementation. However, evidence suggests that these projects are often excessively reliant on subsidies including VGF and DAK-Fisik grants, while delays in counterpart financing from PGs and LGs affect synchronised implementation and poor enforcement of cost recovery regulations at the PDAM level. These issues long-term financial sustainability of regional SPAMs and creates additional contingent liabilities for GOI when offtake payments are reneged on account of these constraints. Structuring of regional water SPAM projects will therefore need to be complemented with other fiscal levers available with GOI beyond capital grants and should include use of devolution intercepts (in event of non-compliance to reform commitments by LGs and PDAMs) and linking a portion of support to performance-linked Hibah grants (payable on realisation of reform and KPI conditionalities)

While some of these mirror deficiencies for water PPPs in general, they are particularly critical for regional water SPAM PPPs as these tend to be larger in scale and scope and often are implemented with a high share of GOI support.

7.4.3. PPP approaches for regional water systems – coordinated vs integrated

Two conceptual approaches are considered in configuring PPPs for regional water supply SPAMs namely, the *integrated approach*, where a single PPP structure encompasses the entire value chain from raw water abstraction to household-level service delivery, and the *coordinated approach*, where upstream and downstream components are treated as distinct PPP or public service delivery arrangements but are strategically aligned through contracts, governance mechanisms, and policy incentives. Each model offers trade-offs in terms of complexity, accountability, and feasibility. The choice between them is not merely technical, but also reflects broader considerations related to Indonesia's decentralized governance structure, capacity asymmetries across PDAMs, and institutional readiness for cross-jurisdictional coordination. *Exhibit 7.10* provides a summary of key facets of two conceptual approaches which are described below.

Exhibit 7.10 Regional water systems – Integrated Vs Coordinated PPPs – Pros and cons

Aspect	Integration	Coordination
Features	▪ Single player - intake → customer interface ▪ Single PPP contract source to tap ▪ Suitable for greenfield infrastructure, ▪ Low legacy issues and aligned LG/PDAM	▪ Modularized – Bulk component | Distribution ▪ LG-PDAM coordinates operations / interfaces ▪ Suitable for brownfield or large projects where PDAMs already manage a large existing network
Advantages	▪ Unified accountability ▪ Potential to optimize capex & lifecycle cost ▪ Economies of scale	▪ Flexible (PBC-O&M-heavy, DBFOT-capex-heavy) ▪ Agility for financing stages / sources ▪ Tap different capabilities for different components
Limitations / Risks	▪ Procurement complexity ▪ Large risk exposure for private sector ▪ May not suit areas with entrenched PDAM operations and fragmented infrastructure.	▪ Failure in weakest link (customer connections) ▪ Misaligned incentives across upstream PPP & downstream B2B operators / PDAMs ▪ Fragmented monitoring

Integrated approach

Here, a single private sector partner is contracted to design, build, finance, operate, and maintain infrastructure across the entire water service value chain—from raw water abstraction and treatment to household-level distribution, metering, and billing. The arrangement is governed by a single long-term PPP contract, say a DBFOT (Design-Build-Finance-Operate-Transfer) covering both upstream and downstream infrastructure under a unified scope of work and performance framework. The private partner assumes responsibility for financing, construction and O&M for the entire water value chain.

Implementing an integrated model in the Indonesian context, however, poses significant institutional and regulatory challenges. First, because regional water systems often span multiple LGs, a single integrated PPP would require a legally authorized contracting entity capable of acting on behalf of all participating LGs for downstream distribution, which makes operationalisation difficult given LGs retain full control over their respective PDAMs and water service mandates. While creation of a cross-jurisdictional utility, such as a regional Perseroda or joint BUMD, is legally possible it is administratively complex and politically sensitive. Further, harmonizing performance KPIs for downstream distribution component could become challenging as different PDAMs may be at varied level of performance. Finally, tariffs across multiple LGs, each with its own fiscal policies, customer base, and willingness-to-pay considerations, adds to the regulatory complexity.

Coordinated approach

In contrast, a coordinated PPP approach separates upstream and downstream responsibilities into distinct but interlinked PPP arrangements. Here, the upstream component is implemented through a regional PPP, either led by the central government (e.g., MPW) or under a joint regional BUMD arrangement. The private operator in the upstream PPP enters into bulk water supply agreements with PDAMs or LGs, who serve as the off takers. These contracts define service standards, volumes, tariffs, and payment obligations, and are backed by guarantees or intercept mechanisms where feasible. The downstream segment, comprising local distribution networks, customer

metering, billing, and maintenance, is managed separately, is handled through separate PPP contracts at the level of LG and PDAM. This modular architecture allows each component to be developed based on the readiness and capacity of individual LGs and PDAMs, without requiring full integration across jurisdictions.

Which approach is better

Indonesia's decentralized governance system, variation in PDAM capacities, and legal barriers to unified service provision across jurisdictions make a fully integrated PPP approach challenging in most contexts.

A coordinated approach aligns more closely with existing legal and institutional realities. It enables upstream investment through nationally coordinated PPPs, such as Jatiluhur II, while allowing downstream improvements to be pursued incrementally based on local reform commitment. It offers greater flexibility, allowing upstream investments to proceed while creating reform-linked pathways for downstream improvements. This model enables the GOI to anchor bulk water PPPs under national frameworks (e.g., PPP, DAK Fisik, VGF) while encouraging LGs to adopt fit-for-purpose PPP structures for distribution taking into consideration different options discussed earlier this chapter.

However, even coordinated models face practical challenges. Ensuring consistency in service quality across jurisdictions requires standardized bulk supply agreements and strong inter-agency coordination mechanisms. Off-take risk remains a concern where PDAMs have weak financials or where LGs are unwilling to provide budgetary support. Moreover, without a clear framework for synchronizing upstream and downstream investments, there is a risk of under-utilization of bulk water infrastructure or continued inefficiencies in household-level service delivery. By combining flexibility in downstream structuring with centralized investment and contracting in upstream systems, the coordinated model offers a more pragmatic pathway for scaling regional water PPPs in Indonesia. It provides room for phased reforms and capacity building, while leveraging fiscal and policy tools to incentivize alignment between central and local stakeholders.

7.4.4. Applying the proposed PPP structures in the Regional Water System context

The three structures proposed are well suited to regional water systems with a source-to-tap philosophy.

A. Upstream component

The bulk water system in a Regional Water System can be structured like existing PPPs of GOI (such as Semarang) while adopting features of either Structure A (Perseroda-based) or Structure B (DBFOT-based):

- **Option 1: Perseroda-based Regional SPAM Utility (Structure A):** A new Perseroda entity could be established as the Regional SPAM utility, with shareholding from participating LGs together with a Public Strategic Investor (PSI) and a Private Operator. In this model, the Private Operator would hold a capped minority stake but assume management control, bringing operational expertise and some financing responsibility, while the PSI and LGs provide governance oversight and safeguard public interest. The Regional Perseroda would then enter into offtake arrangements with the participating PDAMs.
- **Option 2: PPP–DBFOT SPV (Structure B):** A competitively selected private operator would establish a Project SPV, with potential equity participation by LGs. The SPV would develop, finance, and operate the bulk water system under a DBFOT concession and enter into offtake arrangements with participating PDAMs.

Adopting one of these structures will strength and align LG commitment to the Bulk supply system. Having a PSI will also help in enhanced governance and bring GoI perspective and vision to the functioning of the bulk supply SPAM.

Downstream distribution component

The PPP structuring of the distribution component can be aligned with the proposed structures. For instance,

- **Structure A (PERSERODA with stake dilution) is suitable** where PDAMs or LGs are willing to corporatize distribution networks via Perseroda. Here the LG could dilute its shareholding in the PDAM in favour of a PSI and Private Operator and other salient features of Structure A follow.
- **Structure B (DBFOT) is suitable** where PDAMs prefer to partner through a PPP contract rather than diluting shareholding. Here the PDAM could take a stake in the project SPV set up by the Private Operator as per the terms of Structure B. If the same private operator is contracted to service multiple PDAMs, there is a need to evaluate if a single SPV or multiple SPVs are required. A single SPV with equity stake by multiple PDMAs along with financial & accounting separately PDAM wise by the SPV may be an efficient option.
- **Structure C (PBC)** may be adopted for smaller PDAMs with weak financial capacity

Distribution PPP arrangements will need to consider the specific PDAM situation (in terms of scale of operations, institutional capacity, financial strength and managerial capacity) and tailor the structure accordingly. As emphasised earlier, distribution PPPs must focus on service delivery performance covering NRW reduction, metering, billing, and service quality, where private sector capabilities can potentially bring the most value gains.

Real-world challenges will need to be overcome through coordinated efforts and right incentives

Both options offer pathways to **strengthen and align LG commitment** to regional bulk supply schemes, while the inclusion of a PSI would help bring enhanced governance, capital market discipline, and a national perspective to the functioning of the Regional SPAM. At the same time, the adoption of either option faces real-world challenges that are acknowledged and recognised herein:

1. **Institutional and political commitment.** Political consensus among multiple LGs, each with different fiscal capacities, priorities, and electoral cycles, is essential but difficult to secure. Aligning incentives among LGs, PDAMs, provincial government, PSI, and private operator requires clear governance protocols and benefit-sharing mechanisms.
2. **Legal and regulatory gaps.** Establishing or converting to a joint Perseroda requires the enactment of *Perda* by each LG and DPRD approval, often lengthy and politically contested. For DBFOT models, clarity is needed on whether LG equity is injected in cash or via asset contributions, and how such contributions are valued. Asset ownership, liabilities, and revenue-sharing arrangements among multiple jurisdictions must be legally clarified to avoid disputes.
3. **Technical and operational issues.** Coordinating multiple PDAMs with varying network conditions, demand profiles, and financial health adds significant complexity. Payment security mechanisms will be essential to mitigate default risks from weaker PDAMs. PDAMs and LGs will require sustained capacity-building to manage joint ownership and contractual relationships.

To turn these options into reality, follow-up activities will be critical and include (i) detailed technical and financial feasibility studies, (ii) a legal and institutional roadmap for joint Perseroda or LG equity in SPVs, (iii) structured stakeholder consultations to build political buy-in, and (iv) preparation of model contracts, shareholder agreements, and governance frameworks. A phased approach, piloting with a smaller group of committed LGs before full regional roll-out, is recommended. Importantly, these regional structuring options cannot succeed as stand-alone initiatives. They should be ideally pursued within the broader programmatic and policy framework of this Paper, anchored in the NWSIP discussed in chapter 5 earlier, which provides the institutional and fiscal architecture for scaling PPPs, and supported by the policy actions identified in Chapter 6 that clarify regulations, strengthen PDAM governance, and harmonise fiscal incentives. Embedding regional PPP structures within this framework will be key to overcoming implementation hurdles and ensuring that regional bulk supply systems contribute meaningfully to Indonesia's long-term water security and service delivery goals.

7.5. Implementation will require coordinated action and strong LG-PDAM commitment

The three PPP structures proposed in this chapter*, (A) Perseroda with external shareholders, (B) DBFOT variants with or without PDAM shareholding, and (C) Performance-Based Contracts (PBCs),* represent a logical and context-specific response to Indonesia's water sector constraints. These models are tailored to PDAM scale, institutional capacity, and service performance, and offer a pathway to address persistent downstream challenges such as high NRW, weak revenue collection, and inadequate customer services, while also accommodating emerging source-to-tap regional water schemes. By embedding social accountability measures, equity participation, risk-sharing principles, and balanced contractual design, these structures seek to combine private expertise and financing with public sector oversight and accountability.

Yet, the Paper also recognises that successful adoption cannot be viewed in isolation from broader systemic constraints. *Regulatory ambiguity*, particularly the absence of explicit provisions in PP 122/2015, Law No. 17/2019, and MPW Regulation No. 19/2016 allowing private participation in distribution and customer-facing services, constrain adoption of such structures. *Commitment of PGs and LGs* to reforms is uneven, with variations in political priorities, fiscal discipline, and willingness to enforce tariff reforms. *Securing political buy-in and stakeholder consensus* is critical; experience shows that PPPs in distribution face resistance from LG councils (DPRD), communities, and PDAM staff, reflecting sensitivities around tariffs and perceived "privatisation" of public services.

These challenges need to be systematically addressed. The proposed PPP structures should therefore be aligned within the broader programmatic and reform-driven framework recommended in earlier chapters. As elaborated in *Chapter 5*, the proposed NWSIP provides the platform for integrating project structuring while incentivising LG–PDAM capacity-building with harmonised fiscal support, and a phased program roll-out that ties access to central funding with compliance to reforms around governance, tariff, and securing private expertise and financing. *Chapter 6* identifies the policy actions that are essential enablers for these structures. These including clarifying the legal basis for PPPs in distribution, enforcing cost-recovery tariff regulations, consolidating sub-scale PDAMs, and establishing a national PDAM digital platform for systematic disclosure and assessment.

The case for PPPs in distribution is therefore not just technical but strategic and requires multi-pronged actions. Unlocking efficiency gains in downstream services is crucial to overcome the status quo limitation of bulk water PPP investments remaining underutilised due to weak last-mile delivery. When pursued through NWSIP and supported by regulatory and institutional reforms outlined, PPPs in distribution can generate transformational benefits: accelerated NRW reduction, improved customer services, strengthened PDAM governance, and mobilised private capital to complement constrained public resources. The challenge of aligning regulation, local political commitment, and stakeholder consensus is real and well acknowledged, but the potential benefits of getting these structures right are compelling and makes the effort towards resolving them both necessary and worthwhile.

8. Stakeholder reflections, action roadmap and way ahead

This chapter summarizes key messages from stakeholder reflections on the findings and recommendations contained in this paper. It charts out a phased action roadmap (outlining short-, medium- and long-term actions to roll-out the transformation agenda) and enumerates areas of technical assistance required to steer and support implementation. It concludes with guidance on immediate next steps for MOF to embark on the transformation journey.

8.1. Reflections from stakeholder consultations

The findings and recommendations contained in this Policy Paper were deliberated with diverse set of stakeholders comprising GOI stakeholders, sub national governments, PDAMs, development partners and financiers, through three separate focus group discussions (FGDs) organised by KIAT and MOF in September 2025. The objective of these FGDs was to validate findings with stakeholders and to elicit their inputs and guidance on the proposed transformation agenda outlined in this Policy Paper. Inputs received from stakeholders thus have since been reflected in the Paper.

The FGD meetings were organised under three sessions: *Session 1* covered inputs from MPW including representatives from Directorate General of Infrastructure Financing (DGIF) and Cipta Karya, Ministry of Home Affairs (MOHA) and select LGs. *Session 2* involved deliberations with different directorates within MOF. *Session 3* had participation from PDAMs from Jakarta, Bogor, Semarang, Lombok, and Bandung; representatives from PERPAMSI; GOI financing entities including PT SMI, PT IIF, PT PII (IIGF), and INA, and multilateral agencies including the World Bank and Asian Development Bank. The FGD meetings were well attended and had participation of over 80 senior dignitaries and officials.

Stakeholders concurred with findings from constraints analysis and their thematic grouping and validated the same with very useful anecdotes and experience sharing. The proposed transformation agenda, organised under three pillars, also received a positive response. Stakeholders emphasised the criticality of addressing the policy and institutional actions and the importance of securing buy-in among LGs and political stakeholders. They also reiterated the criticality of coordination across diverse stakeholders and concurred with the need for a national programmatic thrust to realise the targets envisioned under GOI's development plans. Overall, participants also advocated that PPP structures ought to be tailored based on the technical imperatives (water source, customer demand), status of PDAMs capacity and commitment at the level of LG leadership. *Box 7.1* captures key takeaways from these FGD deliberations.

Box 7.1 Focus group discussions with Stakeholders – key takeaways

Constraints analysis

Stakeholders concurred with constraints analysis and the thematic grouping. Experience and anecdotes shared validated findings. Key messages are summarised below:

- The financial health of and funds available with PDAMs is constrained, with the notable exceptions of Jakarta and Bogor which have internal accruals and raised borrowings.
- Tariff revisions are infrequent and often resisted by governors and mayors despite contractual obligations. PDAM Semarang mentioned that the tariff hike will take place after 14 years subject to the approval of the new mayor. PAM Jaya shared that phased tariff adjustments work, when combined with blended finance, LG commitment, and PDAM management capacity.
- Ramp up of connections often does not mirror projections during feasibility stage. PDAM Semarang shared experience from the West Semarang SPAM PPP where consumers have not connected due to delayed project implementation. PDAM Semarang achieved domestic connections target by expanding coverage beyond the original West Semarang service area.
- There is a need for extensive public communication, enforcement of groundwater extraction, water quality improvements, detections of leaks and illegal connections. PDAM representatives confirmed that groundwater use is rampant even where piped water supply connections are provided and emphasised need for monitoring water usage.
- Private investors and financiers stressed the need for scale and a predictable project pipeline supported by timely approvals and clear risk allocation. Lenders highlighted gaps in downstream infrastructure and uncertainty in water offtake as key risks.
- MDBs recommended realistic PDAM and project selection. They advocated pilot performance-based contracts initially and reaffirmed that water PPPs are not just a technical issue but a political, institutional challenge requiring coordinated reform.

Transformation agenda

- The need for a **National Program** to incentivise institutional strengthening of PDAMs and to encourage private and commercial finance in downstream distribution was acknowledged. Stakeholders expressed concern about the recent trend towards a reduction in APBN fiscal transfers. Recommendations for an increase in APBN and APBD outlay for water, converged financing covering both PPP and non-PPP instruments, and channelling the proceeding through a non-lapsable fund structure were welcomed. Stakeholders reinforced the need for practical phasing of actions, careful selection of LGs and PDAMs for demonstration PPP projects to ensure that the pilot phase of the program is set up for success. In addition, MOF highlighted the National Program should allow for customising solutions depending upon the diverse needs of PDAMs. The unhealthy PDAMs are the most in need of improvement, but most financing facilities do not risk lending to such PDAMs.
- There was concurrence on the proposed **Policy Actions**, many of which the PDAMs felt are not within their authority and require broader GOI support, including (i) Streamlining SIPA rights. Often this takes a long time and needs multiple approvals, (ii) Enforcement of cost recovery regulation, (iii) Better enforcement of groundwater regulation and (iv) Enabling regulations for PPPs in distribution. **Institutional actions** proposed including upgrade of PDAMs to Perseroda, consolidation of PDAMs and the need for a digital PDAM information platform, also received positive response from stakeholders
- The proposed **PPPs structures** for downstream distribution were deliberated extensively. *First,* broadening PDAM shareholding to induct external investors in Structure A was welcomed. PAM Jaya though felt that this structure would not be of interest to them as they are performing well as a Perumda. However, in the context of their plans for an Initial Public Offer, they may adopt this migration. Second, Concern around potential conflict of interest from mixed shareholding in project SPV (as proposed in Structure B) was deliberated extensively. However, it was explained that the regulatory actions and safeguards proposed in the Policy paper address the conflict of interest issue, preserve the public character of the PDAM with adequate corporate governance and oversight, which align the public and private interests. Multilateral agencies strongly advocated adoption of PBCs to enhance efficiency and quality of service. The PPP structures proposed in the Paper can help to broad-base private sector participation while ensuring that the relatively larger PDAMs adopt the other mixed shareholding structures (Structures A and B).

8.2. Action roadmap

Exhibit 8.1 summarises action roadmap to facilitate a roll-out of the proposed transformation agenda. Actions are sequenced across short-term (0–4 years), medium-term (5–7 years), and long-term (8 years and beyond) timeframes to address systemic constraints and embed reforms for sustained sector transformation.

Exhibit 8.1 Action Roadmap

Pillar			Phasing	Actions	Responsibility
1	2	3			
NATIONAL PROGRAM					
✓	✓		S	Set up a National Steering Committee to oversee NWSIP roll-out	MOF, MPW, MOHA, BAPPENAS
✓	✓		S	Issue guidelines to launch NWSIP to pilot distribution-focused water PPPs	NSC
✓	✓		S	Shortlist LG-PDAMs meeting eligibility criteria, and readiness requirements	MPW
✓	✓		S	Enter into binding MOUs with an initial set of 3–5 PDAMs	NSC, LGs, PDAMs
✓	✓		S	Support shortlisted LG-PDAMs in feasibility assessment and capacity building	NSC, MPW, MOHA
✓	✓		M	Financial closure of at least 5 water PPPs of which 2 complete COD	NSC LGs, PDAMs
✓	✓		M	Enter binding MOUs to support water PPPs in over 20 PDAMs	NSC, LGs, PDAMs
✓	✓		M	Expand fiscal allocations for project funding and financing, and for TA	NSC, MOF, MPW,
✓	✓		L	Award PPPs in at least 20 PDAMs to add over a million new connections	NSC, MPW, LGs, PDAMs
POLICY ACTIONS					
Regulatory clarity for PPPs in distribution					
✓	✓	✓	S	Issue joint regulation to allow PPPs in distribution and customer interface	MPW, MOF, MOHA
✓	✓	✓	S	Develop model bidding and contract documents for adoption by LGs-PDAMs	MPW, MOF
✓	✓	✓	M	Capacity building on new regulation and model documents	MPW, MOF, MOHA

Pillar			Phasing	Actions	Responsibility
1	2	3			
✓	✓	✓	L	Review regulation once in 5 years to incorporate lessons from experience	MPW, MOF, MOHA
Enforcing cost-reflecting tariffs					
	✓	✓	S	Performance audits to review compliance to MOHA Regulation 21/2020	MOHA, MOF, MPW, LGs, PDAMs
	✓	✓	S	Identify PDAMs in NWSIP pipeline with cost-recovery gaps	NSC, MOHA
	✓	✓	S	Undertake TA on regulatory options and shift to independent tariff regulation	MOHA, BAPPENAS
	✓	✓	S	Build institutional capacity for tariff review at GOI / PG level	MOHA, MOF
	✓	✓	M	Pilot use of Devolution Intercept to deter non-compliance	MOHA, MOF
	✓	✓	M	Launch pilot projects with independent tariff reviews for selected PPPs	MOHA, MOF, BAPPENAS, PGs
	✓	✓	M	Draft enabling regulations for delegated or third-party regulatory oversight	MOHA, MOF
	✓	✓	L	Shift to independent tariff regulation for PDAMs under NWSIP Phase 2	MOHA, MOF, BAPPENAS, MPW
Expeditious allocation of SIP rights					
	✓	✓	S	Fast track SIPA rights allocation for pilot projects	MPW
	✓	✓	S	Adopt a protocol for fast tracking SIPA processing for water PPPs	MPW
	✓	✓	M	Identify and fast track SIPA processing for water PPPs	MPW, PGs
PDAM consolidation					
	✓	✓	S	Issue regulation for PDAM consolidation; prepare implementation roadmap	MOHA
	✓	✓	S	Identify pilot provinces and undertake TA to rollout consolidation	MOHA, PGs
	✓	✓	M	PDAM consolidation operational in at least 1 region in five years	MOHA
	✓	✓	L	Operationalise consolidation as per roadmap	MOHA, PGs
National Digital Platform for PDAM disclosures					
	✓	✓	S	TA to design and go-live on a digital platform	MPW
	✓	✓	S	Incentives to ensure compliance at LG / PDAM level	MPW, MOHA
	✓	✓	M	Web-based NDP rolled out in year 3	MPW
Priority funding and financing actions					
	✓	✓	S	Evaluate feasibility to levy cess; ring-fence allocations into non-lapsable fund	MOF
	✓	✓	S	Formulate a Technical assistance strategy; identify and earmark resources	MOF
	✓	✓	S	Issue Guidance on alternative funding; incorporate in feasibility assessments	MOF
	✓	✓	M	Roadmap for setting up a multi-donor financing facility for water PPPs	MOF

8.2.1. Short-Term actions (0–4 Years)

The program will be launched with the establishment of a National Steering Committee (NSC) to oversee NWSIP roll-out, issue program guidelines, and coordinate pilot PPP implementation. A dedicated PMU under the NSC and PIUs in key ministries will provide implementation capacity. Three to five LG–PDAMs will be shortlisted based on eligibility and readiness criteria, and binding MOUs will be signed to anchor the first wave of transactions. Shortlisted PDAMs will receive technical assistance for feasibility studies, transaction structuring, procurement preparation, and staff capacity building.

On the regulatory front, priority actions include issuing a joint regulation to enable PPPs in distribution, developing model bidding and contract documents, and streamlining SIPA allocation through MPW directives. Financial measures will include performance audits to enforce MOHA Regulation 21/2020, identification of PDAMs with cost-recovery gaps, and initiation of technical work toward independent tariff review.

Sector-wide reforms will also commence with the issuance of MOHA regulations to facilitate PDAM consolidation, development of a consolidation roadmap, and launch of a National Digital Platform for real-time data disclosure and performance benchmarking. Finally, a non-lapsable public fund will be set up to channel GOI and donor resources, alongside guidance to LGs on mobilising alternative revenues such as land value capture, earmarked fees, and carbon credits

8.2.2. Medium-term actions (5–7 years)

The second phase will focus on scaling up participation and delivering early results. At least five major water PPPs should achieve financial close, with two projects reaching COD. Program participation will be expanded to 20+ PDAMs, supported by larger fiscal allocations for project preparation, financing, and capacity-building. Regulatory and institutional strengthening will include nationwide training programs on new PPP regulations and model contracts and piloting independent tariff review mechanisms to inform future regulatory frameworks. Structural reforms will advance with consolidation of PDAMs in at least one region, unlocking economies of scale and efficiency gains. The National Digital Platform will be rolled out nationwide for real-time monitoring, and MOF will operationalise a multi-donor financing facility to pool concessional and market-based funds for a sustainable PPP pipeline

8.2.3. Long-Term actions (8 years and beyond)

The final phase targets nationwide adoption of the program, with PPPs implemented in at least 20 PDAMs and over one million new household connections delivered. Regulatory consolidation will include mandatory five-year reviews of distribution PPP regulations and full enforcement of independent tariff regulation to safeguard cost recovery and consumer protection. By this stage, PDAM consolidation roadmaps should be fully implemented, achieving larger, more efficient regional utilities. The National Digital Platform will be institutionalized as the sector's official performance monitoring and disclosure system. A fully operational, multi-donor blended financing facility will ensure predictable, diversified funding and mobilise capital to sustain long-term sector investments

8.3. Priority areas for technical assistance

Technical assistance (TA) will be central to translating NWSIP's strategic pillars into actionable reforms, transactions, and institutional change. While the Project Development Fund (PDF) will remain a key vehicle for project preparation, *Exhibit 8.2* highlights that TA must extend beyond feasibility studies to cover institutional, regulatory, financial, and programmatic dimensions on a sustained, multi-year basis

Exhibit 8.2 Select priority areas for technical assistance

Pillar			Technical Assistance Requirement	Responsibility
1	2	3		
	✓		Design and operating guidelines for NWSIP	MPW, MOF, MOHA, BAPPENAS
	✓		Staffing for PMU and PIUs to support the NSC and ministries in rolling out NWSIP	MPW, MOF
	✓		TA for screening and readiness assessments of pilot LG-PDAMs	PMU, MPW
✓	✓		Transaction advisory for early PPP project preparation in pilot PDAMs	MPW, MOF
✓		✓	Legal review and TA for joint regulation enabling PPPs in distribution	MPW, MOF, MOHA
✓		✓	Development of model bidding documents, contracts, and guidance notes for LGs-PDAMs.	MPW, MOF
✓		✓	PPP training for officials at participating LG-PDAMs	MPW, MOHA
		✓	Design and implementation of audit protocols to enforce MOHA Regulation No. 21/2020.	MOHA, MOF
		✓	Evaluation of options and roadmap for independent tariff regulation.	MOHA, BAPPENAS
		✓	Institutional capacity building for tariff review at GOI and provincial levels.	MOHA, MOF
		✓	SIPA process streamlining support, including application templates and tracking tools.	MPW
	✓	✓	PDAM consolidation roadmap, including legal review, models and financial assessment.	MOHA
	✓	✓	Advisory for pilot province consolidation roll-out, including stakeholder negotiation support.	MOHA, LGs
	✓	✓	National Digital Platform (NDP) design, development, and integration with PDAM systems.	MPW
	✓	✓	TA for data validation, compliance monitoring, and performance benchmarking on NDP.	MPW, MOHA
	✓	✓	Fiscal support design for NWSIP, incl. governance and fund management protocols.	MOF
	✓	✓	Development of guidance for LGs/PDAMs on alternative funding instruments	MOF
	✓	✓	Advisory for roadmap and design of multi-donor financing facility for water PPPs.	MOF

- **Institutional reform and governance:** A should support the design and operating guidelines for NWSIP, staffing of the PMU and PIUs, and readiness assessments of pilot LG–PDAMs. It should also provide transaction advisory services for early PPP projects and help develop consolidation roadmaps, including legal, financial, and stakeholder support for pilot province rollouts
- **Regulatory and policy support:** Interventions will include legal reviews and advisory support for drafting a joint regulation on PPPs in distribution, preparation of model bidding documents and contracts, and training of LG–PDAM officials in PPP procurement and management. Additional support will cover enforcement of MOHA Regulation No. 21/2020 through audit protocols, development of options and roadmaps for independent tariff regulation, and capacity-building for tariff reviews at central and provincial levels. Streamlining of SIPA processes, including templates and digital tracking tools, will also be prioritized
- **Programmatic systems and digital tools:** A major focus will be the design and implementation of the National Digital Platform (NDP), integrated with PDAM systems. TA will help develop its architecture, data validation processes, compliance monitoring, and performance benchmarking. This platform will serve as a cornerstone for transparency, accountability, and evidence-based decision-making across the sector
- **Financing and innovative revenue instruments:** TA will also contribute to structuring fiscal support mechanisms for NWSIP, including governance protocols for a non-lapsable public fund and a multi-donor blended facility. Guidance will be provided to LGs and PDAMs on mobilizing alternative revenue sources such as land value capture, earmarked fees, and carbon credit monetisation

To ensure efficiency and alignment, MOF should lead the establishment of a consolidated TA facility, pooling resources from GOI, multilateral and bilateral partners, and donors. This facility should be directly linked to NWSIP's monitoring framework, allowing TA to be demand-responsive, avoid fragmentation, and systematically capture lessons from early pilots. In this way, TA will evolve from a set of ad hoc, project-specific activities into a proactive program management tool, reducing transaction risks, strengthening institutional capacity, and accelerating the scale-up of water PPPs nationwide

8.4. Conclusion and next steps

This Policy Paper lays out a comprehensive transformation agenda to overcome barriers to water PPPs, positioning MOF to play a central convening and stewardship role in driving a sector-focused PPP program. As a first step, MOF should consider establishing a National Steering Committee (NSC) with MPW, MOHA, and BAPPENAS through a ministerial or joint decree to formalise governance, set decision-making processes, confirm an initial project pipeline, and build a consensual agreement on actions for the pilot phase. Parallel stakeholder consultations should be conducted to secure buy-in, align priorities, and refine the NWSIP design. Sectoral roundtables on key issues such as PPPs in distribution, cost recovery, and PDAM consolidation will help ensure operational realism and consensus.

MOF could consider follow-up technical assistance for a detailed design of NWSIP operational guidelines, covering eligibility criteria, fund flow mechanisms, performance monitoring, model contracts, and procurement templates, drawing on multi-disciplinary expertise and leveraging development partner support. In tandem, MOF could work with MPW and MOHA to identify and assess at least three to five pilot PDAMs based on transparent readiness indicators, integrate results into budget cycles for fiscal support, and finalise the governance and capitalisation plan for a non-lapsable public fund to channel GOI and external financing. Establishing a dedicated TA facility, issuing guidance on innovative financing tools (land value capture, earmarked fees, carbon credits), and launching a joint communication strategy with MPW and other ministries are other actions that will help signal early commitment, build investor confidence and provide early momentum to deliver on the proposed transformation agenda.

Annexure I Summary of proceedings of FGD meetings

Date :Tuesday, 16 September and Wednesday, 17 September 2025
Time :Day 1 - 09:00-15:30 – Day 2 - 09-12:30
Format :Focus Group Discussion at Ashley Hotel Tanah Abang
Participants :The list of participating stakeholders is as follows:

1. KIAT
2. MOF – Directorate of Government Support and Infrastructure Financing Management
3. MOF – Directorate of Fiscal Balance
4. MPW – Directorate of Water
5. MPW – Directorate of Infrastructure
6. PT IIF
7. PT SMI
8. PT IIGF
9. Perpamsi
10. PDAM – West Lombok West Lombok
11. PDAM – Bandung District
12. PDAM – Semarang City
13. PDAM – Bogor
14. PDAM – Jakarta
15. PricewaterhouseCoopers
16. World Bank
17. Asian Development Bank

Meeting purpose

The Kemitraan Indonesia Australia untuk Infrastruktur (KIAT) is supporting the Ministry of Finance (MOF), Government of Indonesia (GOI) in formulating a Policy Paper on funding and financing of public–private partnerships (PPPs) in piped water supply.

The findings and recommendations contained in this Policy Paper were deliberated with diverse set of stakeholders comprising GOI stakeholders, sub national governments, PDAMs, development partners and financiers, through three separate focus group discussions (FGDs) organised by KIAT and MOF in September 2025.

Session 1 covered inputs from MPW including representatives from Directorate General of Infrastructure Financing (DGIF) and Cipta Karya, Ministry of Home Affairs (MOHA) and select LGs. Session 2 involved deliberations with different directorates within MOF. Session 3 had participation from PDAMs from Jakarta, Bogor, Semarang, Lombok, and Bandung; representatives from PERPAMSI; GOI financing entities including PT SMI, PT IIF, PT PII (IIGF), and INA, and multilateral agencies including the World Bank and Asian Development Bank. The FGD meetings were well attended and had participation of over 80 senior dignitaries and officials.

The objective of these FGDs was to validate findings with stakeholders and to elicit their inputs and guidance on the proposed transformation agenda outlined in this Policy Paper. Inputs received from stakeholders thus have since been reflected in the Paper. The proceedings of these FGD meetings are summarised below.

Presentation of findings and recommendations of the Policy Paper

KIAT Consultant, Anand Madhavan, presented a summary of the draft policy paper. The presentation covered the context, scope and approach of the policy paper; the findings and observations of the constraints and diagnostic analysis; and the transformation pillars, actions and roadmap of the strategic action agenda.

Key discussion points

General feedback and cross-cutting themes

1. **Need for a differentiated context-specific approach:** a one-size-fits-all model is unsuitable for Indonesia's diversity. MOF speakers stressed realistic, workable solutions over "best practices." The paper was seen as too general, with calls for closer MOF consultation. Smaller cities need subsidies, while larger ones should focus on governance. Regional contrasts—Jakarta's surplus vs. Semarang's compact geography—show how context shapes challenges and capacities.
2. **Emphasis on a holistic, "beyond project" perspective:** Speakers urged moving beyond fragmented, project-by-project approaches toward integrated planning. Water issues must link with housing and urban planning. The ADB representative stressed a "whole-of-value-chain" model, warning that current decision-making is too siloed.
3. **Political will as a critical success factor:** Technical and financial solutions matter less without political will. West Semarang succeeded due to strong mayoral and legislative support, while resistance to tariff hikes repeatedly blocked progress. Without political backing, even well-structured projects fail.
4. **Coordination and sequencing challenges in project development:** Coordination across government levels remains a major hurdle. LGs often lack clarity on ministry processes or sequencing, a common PPP and loan complaint. A new model aims for early-stage synergised funding, but rigid timelines, like requiring proposals four years before launch, may be unrealistic given delays and evolving challenges.
5. **Prioritising readiness and appropriate project selection:** Not all projects suit PPPs; readiness must guide selection. ADB advised assigning easier, commercially sound projects to PPPs while APBN funds harder ones. Weak PDAMs should remain under government responsibility. Better screening to match projects with PDAM capacity is a key institutional need.

Institutional limitations

Stakeholders confirmed that weaknesses at the PDAM level are a central obstacle to improving water services and implementing successful PPPs.

6. **PDAM capacity and performance:** Participants consistently highlighted that many PDAMs are financially and operationally weak. One speaker noted that some PDAMs classified as "healthy" are not strong in reality, suggesting that current assessment frameworks require better differentiation to reflect true capacity. A World Bank representative proposed grouping PDAMs into five categories—from "sustainably healthy" to "non-functional"—to tailor support. A representative from Pamjaya argued that the current fragmentation of PDAMs creates conflicts over shared raw water sources and that consolidation could reduce costs and improve governance.
7. **Customer perceptions and low uptake:** A significant challenge is the reluctance of households to connect to piped water, driven by a poor public image of PDAMs, a preference for groundwater, and perceptions of high costs. The Bogor PDAM noted that this reluctance persists even when connections are offered for free, a program they are running for 20,000 connections this year. Similarly, the Semarang PDAM achieved only 5,000 of the 10,000 connections forecast in its Feasibility Study (FS) due to over-optimistic projections. The Pamjaya director also cited low absorption and a weak willingness to connect as key challenges.
8. **Need for corporate reform:** Upgrading PDAMs to a more corporate Perseroda structure was proposed to professionalise operations and reduce political interference. Representatives from both Pamjaya and Semarang PDAM supported this, with the Semarang PDAM noting the Perseroda structure is more flexible than a Perumda, which requires excessive approvals from the governor and legislature. However, Pamjaya's representative cautioned that there can be a misperception of a Perseroda as privatisation.

Policy and Regulatory Gaps

FGD participants confirmed that policy gaps and weak enforcement create major risks for water PPPs.

9. **Tariff regulation and full cost recovery (FCR):** The issue of tariffs was described as the central barrier and a "go/no-go" issue for PPPs. Tariffs are highly politicised, and local governments are extremely resistant to increases. A speaker from the DPD noted that current tariffs are not based on full-cost recovery. This was echoed by PDAMs from Semarang, West Nusa Tenggara, and Bandung, who all cited political resistance to tariff hikes as a major obstacle. After 17 years without a change, a new tariff was finally signed in Jakarta, creating momentum for new investment for Pamjaya.
10. **Groundwater regulation:** The lack of effective regulation on groundwater extraction was repeatedly cited as a critical problem. Widespread reliance on groundwater discourages households from connecting to piped water networks, directly impacting PDAM revenues. To combat this, Pamjaya signed an MoU with the Jakarta attorney general to stop groundwater use, while the Semarang PDAM noted that tariff equalisation between groundwater and piped water helps encourage switching.
11. **Ambiguity in downstream PPPs:** Stakeholders noted regulatory ambiguity regarding the private sector's role in downstream distribution, which has led to a reliance on less-transparent B2B arrangements.

Issues in PPP arrangements

Discussions highlighted systemic flaws in how water PPPs are prepared, structured, and implemented.

12. **Weak project preparation:** A major theme was the poor quality of project preparation, particularly FS. A World Bank speaker stated that FS are often superficial, designed to satisfy funder requirements rather than reflecting operational realities, and omit future risks like raw water availability or urban development. The West Nusa Tenggara PDAM noted its PPP FS has been stuck since 2016 because the water source is 45km away, making the business case unviable with current tariff schemes.
13. **Fragmented, upstream-focused approach:** Participants noted that the most challenging part of water service provision is downstream. Current KPBU PPPs have primarily focused on upstream (bulk water) components, leaving critical downstream issues like distribution networks and high NRW unaddressed. As the Bogor PDAM representative emphasised, integrated projects covering both upstream and downstream are needed to improve overall water quality and shift public perception.
14. **B2B arrangements:** While B2B structures have filled the void in the distribution component, they are often managed at the regional level with limited central oversight. Pamjaya, for example, operates mostly under B2B arrangements without government guarantees or VGF.

Fiscal gaps

Participants acknowledged that insufficient and poorly directed public funds are a major constraint on sector development.

15. **Insufficient and unconditional funding:** Public spending on water is inadequate to meet investment needs. One speaker noted that DAK (Special Allocation Fund) allocations for drinking water have fluctuated sharply in recent years. Another mentioned that special funds, like those from tobacco taxes (DPH-CHT), are tightly regulated and offer little flexibility for water investment. The cost of networks is very high, cited by the Bogor PDAM at IDR 10 million per connection, making free connection programs a major burden.
16. **Lack of performance incentives:** The World Bank's NUWSP project demonstrated that performance-based grants can successfully leverage non-public financing. The KIAT Performance-Based Grant (PBG) pilot also showed positive results in reducing NRW and improving operational ratios.

17. **Coordination and synergy challenges:** There is poor synchronisation between central and local governments in planning and financing projects, with LGs often unsure which ministry to approach first. A new model is reportedly being developed to encourage synergised funding, but concerns were raised that rigid timelines may not align with project realities.

Pillar I: A National Program

The proposal for a coordinated national program was supported by discussions emphasising the need for a holistic approach beyond project-by-project interventions.

18. **Stakeholder roles and coordination:** The proposed institutional framework, outlining roles for key ministries, aligns with stakeholder calls for better coordination and a clear program anchor. This addresses comments about existing fragmentation and confusion among LGs.

19. **Financing strategy:** The program's proposed financing strategy—which emphasises converging fiscal support and performance-linked grants—was well-received. The use of blended finance and performance-based incentives was seen as critical, drawing on lessons from successful pilot programs like the NUWSP and KIAT PBG.

Pillar II: Policy actions

Stakeholders strongly endorsed the need for the proposed policy and institutional reforms.

20. **Regulatory clarity for downstream PPPs:** There was consensus on the need to issue clear regulations to enable private participation in distribution, supported by model contracts and bidding documents to standardise the process.

21. **Enforcing tariff regulation:** Participants agreed that depoliticising tariffs is essential. The proposed use of the "Devolution Intercept"—whereby the central government could withhold fiscal transfers to non-compliant LGs—was presented as a tool to enforce existing regulations.

22. **PDAM consolidation:** The proposal for a phased roadmap for PDAM consolidation was supported as a way to build scale and improve governance. However, participants cautioned that securing political buy-in from local governments will be a major challenge.

Pillar III: PPP project structures

The proposed PPP structures were discussed as potential solutions to existing challenges.

23. **Structure A (PDAM conversion to Perseroda with external shareholders):** This model was seen as a way to professionalise PDAMs. One speaker noted the structure resembles a B2B arrangement, while another expressed concern that it could be misperceived as privatisation.

24. **Structure B (PPP DBFOT with equity participation by PDAM):** This model was also seen as a viable option. The ability for a PDAM to invest its own capital was questioned by one participant. However, the representative from Pamjaya explicitly supported the idea of PDAM equity participation in this structure.

25. **Structure C (Performance based contract):** This was identified as the most common existing model but was noted to be heavily reliant on the national budget, making it difficult to scale. ADB representative viewed Performance-Based Contracts (PBCs) as the most feasible model for improving private sector engagement and building PDAM capacity.

Summary and key takeaways

Overall stakeholders concurred with findings from constraints analysis and their thematic grouping and validated the same with very useful anecdotes and experience sharing. The proposed transformation agenda organised under three pillars also received positive response. Stakeholders emphasised the criticality of addressing the policy and institutional actions and the importance of securing buy-in among LGs and political stakeholders. They also reiterated the criticality of coordination across diverse stakeholders and concurred with the needed for a national programmatic

thrust to realise the targets envisioned under GOI's development plans Overall, participants also advocated that PPP structures ought to be tailored based on the technical imperatives (water source, customer demand), status of PDAMs capacity and commitment at the level of LG leadership.

Key takeaways from the discussions are summarised below.

Constraints analysis

Stakeholders concurred with constraints analysis and the thematic grouping. Experience and anecdotes shared validated findings. Key messages are summarised below:

The financial health of and funds available with PDAMs is constrained, with the notable exceptions of Jakarta and Bogor which have internal accruals and raised borrowings.

Tariff revisions are infrequent and often resisted by governors and mayors despite contractual obligations. PDAM Semarang mentioned that the tariff hike will take place after 14 years subject to the approval of the new mayor. PAM Jaya shared that phased tariff adjustments work, when combined with blended finance, LG commitment, and PDAM management capacity.

Ramp up of connections often does not mirror projections during feasibility stage. PDAM Semarang shared experience from the West Semarang SPAM PPP where consumers have not connected due to delayed project implementation. PDAM Semarang achieved domestic connections target by expanding coverage beyond the original West Semarang service area.

There is a need for extensive public communication, enforcement of groundwater extraction, water quality improvements, detections of leaks and illegal connections. PDAM representatives confirmed that groundwater use is rampant even where piped water supply connections are provided and emphasised need for monitoring water usage.

Private investors and financiers stressed the need for scale and a predictable project pipeline supported by timely approvals and clear risk allocation. Lenders highlighted gaps in downstream infrastructure and uncertainty in water offtake as key risks.

MDBs recommended realistic PDAM and project selection. They advocated pilot performance-based contracts initially and reaffirmed that water PPPs are not just a technical issue but a political, institutional challenge requiring coordinated reform.

Transformation agenda

The need for a **National Program** to incentivise institutional strengthening of PDAMs and to encourage private and commercial finance in downstream distribution was acknowledged. Stakeholders expressed concern about the recent trend towards a reduction in APBN fiscal transfers. Recommendations for an increase in APBN and APBD outlay for water, converged financing covering both PPP and non-PPP instruments, and channelling the proceeding through a non-lapsable fund structure were welcomed. Stakeholders reinforced the need for practical phasing of actions, careful selection of LGs and PDAMs for demonstration PPP projects to ensure that the pilot phase of the program is set up for success. In addition, MOF highlighted the National Program should allow for customising solutions depending upon the diverse needs of PDAMs. The unhealthy PDAMs are the most in need of improvement, but most financing facilities do not risk lending to such PDAMs.

There was concurrence on the proposed **Policy Actions**, many of which the PDAMs felt are not within their authority and require broader GOI support, including (i) Streamlining SIPA rights. Often this takes a long time and needs multiple approvals, (ii) Enforcement of cost recovery regulation, (iii) Better enforcement of groundwater regulation and (iv) Enabling regulations for PPPs in distribution. **Institutional actions** proposed including upgrade of PDAMs to Perseroda, consolidation of PDAMs and the need for a digital PDAM information platform, also received positive response from stakeholders

The proposed **PPPs structures** for downstream distribution were deliberated extensively. *First,* broadening PDAM shareholding to induct external investors in Structure A was welcomed. PAM Jaya though felt that this structure would not be of interest to them as they are performing well as a Perumda. However, in the context of their plans for an Initial Public Offer, they may adopt this migration. Second, Concern around potential conflict of interest from mixed shareholding in project SPV (as proposed in Structure B) was deliberated extensively. However, it was explained that the regulatory actions and safeguards proposed in the Policy paper address the conflict of interest issue, preserve the public character of the PDAM with adequate corporate governance and oversight, which align the public and private interests. Multilateral agencies strongly advocated adoption of PBCs to enhance efficiency and quality of service. The PPP structures proposed in the Paper can help to broad-base private sector participation while ensuring that the relatively larger PDAMs adopt the other mixed shareholding structures (Structures A and B).

Next steps

KIAT will reflect the inputs and guidance into the policy paper and finalise the same. Policy paper is scheduled for submission in November 2025.