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A LEGAL AND POLICY REVIEW OF RURAL WATER SERVICES IN INDONESIA

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USAID Rural Evidence and Learning for Water (REAL-Water) is a five-year partnership that develops and evaluates strategies for expanding access to safe, equitable, and sustainable rural water services. REAL-Water supports policymakers, development partners, and service providers to make strategic decisions and implement best practices for water management through implementation research. It also ensures coordination with USAID programs contributing to the water, sanitation, and hygiene (WASH) and water resources management (WRM) knowledge base, in alignment with the USAID Water for the World Implementation Research Agenda. For further information about this and other aspects of the project, as well as to access our knowledge products, please visit globalwaters.org/real-water.

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ACRONYMS

ADD	*Alokasi Dana Desa* (Allocation of Village Fund)
APBD	*Anggaran Pendapatan dan Belanja Daerah* (Regional Government Budget)
APBDes	*Anggaran Pendapatan dan Belanja Desa* (Village Budget)
APBN	*Anggaran Pendapatan dan Belanja Negara* (State Budget)
Bappeda	*Badan Perencanaan Pembangunan Daerah* (Regional Development Planning Agency)
Bappenas	*Badan Perencanaan Pembangunan Nasional* (Ministry of National Development Planning/National Development Planning Agency)
BPS	*Badan Pusat Statistik* (Central Bureau of Statistics)
BUMD	*Badan Usaha Milik Daerah* (Regionally owned enterprise)
BUMDes	*Badan Usaha Milik Desa* (Village owned enterprise)
BUMN	*Badan Usaha Milik Negara* (State-owned enterprise)
CBO	Community-Based Organization
DAK	*Dana Alokasi Khusus* (Special Allocation Funds)
Dinas Kesehatan	Health Agency
Dinas PU	Public Works Agency
DPMD	*Dinas Pemberdayaan Masyarakat dan Desa* (Community and Village Development Agency)
GDP	Gross Domestic Product
GR	Government Regulation
IUWASH PLUS	USAID Indonesia Water, Sanitation, and Hygiene Activity
JAKSTRADA SPAM	*Kebijakan dan Strategi Daerah. Penyelenggaraan Sistem Penyediaan Air Minum* (Regional Policy and Strategy for Drinking Water Supply System Development)
KPSPAM	*Kelompok Pengelola Sistem Penyediaan Air Minum* (CBO Manager of Drinking Water System)
KSNP SPAM	*Kebijakan dan Strategis Nasional Pengembangan Sistem Penyediaan Air Minum* (National Policy and Strategy for Drinking Water Supply System Development)
LKD	*Lembaga Kemasyarakatan Desa* (Village Community Institution)
MoEMR	Ministry of Energy and Mineral Resources
MoF	Ministry of Finance
MoH	Ministry of Health
MoHA	Ministry of Home Affairs
MoPWH	Ministry of Public Works and Housing
MoV	Ministry of Village, Development of Disadvantaged Regions, and Transmigration
NSPK	*Norma Standar Prosedur dan Kriteria* (Standards, Norms, Procedures, and Criteria)
PAMSIMAS	*Penyediaan Air Minum dan Sanitasi Berbasis Masyarakat* (Community-Based Drinking Water Supply and Sanitation Program)
PDAM	*Perusahaan Daerah Air Minum* (Regional Drinking Water Utility)

Pokja PPAS	*Kelompok Kerja Bidang Perumahan, Permukiman, Air Minum, dan Sanitasi* (Pokja) (Working Group on Housing, Settlements, Drinking Water and Sanitation) (Pokja)
PPKD	*Pejabat Pengelola Keuangan Daerah* (Budget User Authority)
PWH	Public Works and Housing
RISPAM	*Rencana Induk Sistem Penyediaan Air Minum* (Drinking Water Supply System Master Plan)
RKP Desa	*Rencana Kerja Pemerintah Desa* (Village Work Plan)
RPAM	*Rencana Pengamanan Air Minum* (Drinking Water Safety Plan)
RPJMD	*Rencana Pembangunan Jangka Menengah Daerah* (Regional Medium-Term Development Plan)
RPJMDes	*Rencana Pembangunan Jangka Menengah Desa* (Village Medium-Term Development Plan)
RPJMN	*Rencana Pembangunan Jangka Menengah Nasional* (National Medium-Term Development Plan)
SDG	Sustainable Development Goal
SKAMRT	*Studi Kualitas Air Minum Rumah Tangga* (Drinking Water Quality Study)
SKPD	*Satuan Kerja Perangkat Daerah* (Regional Work Unit)
SPAM	*Sistem Penyediaan Air Minum* (Drinking Water Supply System)
SPM	*Standar Pelayanan Minimal* (Minimum Service Standards)
TDS	Total Dissolved Solids
UNICEF	United Nations Children's Fund
UPT	*Unit Pelaksana Teknik* (National-level Technical Implementation Unit)
UPTD	*Unit Pelaksana Teknik Daerah* (Regional-level Technical Implementation Unit)
WHO	World Health Organization

EXECUTIVE SUMMARY

The Government of Indonesia has set ambitious targets for access to adequate drinking water[1] and safely managed drinking water[2] as outlined in the National Medium-Term Development Plan (RPJMN) 2020–2024. While there has been progress, significant gaps remain between rural and urban areas. Rural areas continue to face challenges in achieving equitable access to safe drinking water infrastructure and services. According to the World Health Organization/United Nations Children's Fund (WHO/UNICEF) Joint Monitoring Programme, 88 percent of the population in rural areas have services that meet the criteria for "at least basic" supply, but only 24 percent meet the criteria for "safely managed" water supply.[3]

An important aspect to expanding and sustaining rural water services is the legal basis and institutional framework. This document provides a review of Indonesia's legal and policy framework governing rural water supply in Indonesia, covering key legislation, institutional roles, and important future directions.

As an essential service, the provision of drinking water is a "mandatory-concurrent" affair. This means local governments must prioritize its implementation (city, regency, and province[4]) and meet the minimum coverage targets as determined by the central government. Local governments can set regional policies aligned to national policies. Village governments also have responsibility to support implementation of drinking water supply in their localities.

In rural water provision in Indonesia, community-based organizations (CBOs) play a crucial role. The Community-Based Water Policy issued by Indonesia's Ministry and National Development Planning (Bappenas) initiated the concept of community-based water management in 2003. Indonesia's flagship rural water supply program, Community-Based Drinking Water Supply and Sanitation Program (PAMSIMAS) adopted this model, where communities are involved actively from implementation through ongoing operation and maintenance. The PAMSIMAS program provides drinking water access to

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1 *Akses air minum layak* (improved water) definition as stated by the Central Bureau of Statistics (BPS): "Since 2019, the concept used refers to the SDG [Sustainable Development Goal] metadata, where a household is considered to have access to improved water (akses air minum layak) if the primary source of drinking water used is piped water, protected water, or rainwater. Protected water sources include boreholes/pumps, protected wells, and protected springs. For households that use packaged drinking water, they are categorized as having access to improved drinking water if the water source used for bathing/washing comes from piped water, boreholes/pumps, protected wells, protected springs, or rainwater."

2 *Akses air minum aman* (safely managed drinking water) as defined in the Metadata *Indikator Air Minum* by the Ministry of National Development Planning/National Development Planning Agency (Bappenas); Working Group on Housing, Settlements, Drinking Water, and Sanitation (Pokja PPAS); and USAID Indonesia Water, Sanitation, and Hygiene (IUWASH PLUS): "Households using improved drinking water sources should have the source located on premises (inside or in the yard of the house), available whenever needed, and meet drinking water quality standards as stipulated in Minister of Health Regulation No. 492 of 2010. In line with SDG requirements and considering Indonesia's readiness, the measurement of safe water access prioritizes physical parameters (odor, color, total dissolved solids (TDS), turbidity, taste, and temperature), biological parameters (E. coli bacteria and total coliform), and chemical parameters (nitrate, nitrite, and arsenic)." However, now drinking water quality standards refer to Minister of Health Regulation No. 2/2023.

3 The WHO/UNICEF Joint Monitoring Programme defines safely managed water services as "drinking water from an improved water source that is accessible on premises, available when needed and free from faecal and priority chemical contamination," and basic water waters services as "drinking water from an improved source, provided collection time is not more than 30 minutes for a roundtrip including queuing."

4 The provincial government is responsible for providing bulk water supply infrastructure that crosses city/regency boundaries.

over 35,000 villages in Indonesia, and it builds on previous rural water supply development programs that started as far back as 1993.

At the national level, there is no primary legislation that specifically governs water services in Indonesia. Water Law 2019 focuses on water resources management. As such, regulation of water services is currently only under a secondary legislation rather than a specific act. On a positive note, Water Law 2019 prioritizes water for minimum daily basic needs, including drinking water, ahead of other purposes. However, based on Water Law 2019, the legal position of CBOs in accessing water resources for rural water supply is not clear. The Ministry of Health regulates drinking water quality standards and requires providers to conduct water quality testing; however, in practice CBOs are often not able to adhere to this due to financial and logistical challenges.

To ensure the sustainability of rural drinking water services in Indonesia, it is imperative to address significant gaps identified in the current institutional framework. Key policy issues and corresponding recommendations are as follows:

- Current policies and financing mechanisms predominantly focus on new infrastructure development over post-construction support of existing infrastructure. Shifting the focus to include post-construction support is essential to ensure service reliability and longevity of existing water infrastructure.

- There is an absence of primary legislation (*undang-undang*) on water services. The Water Law of 2019 primarily focuses on water resources management rather than water services governance, and it therefore does not address the rights and responsibilities of drinking water providers and service standards adequately. In the absence of dedicated legislation, there is not a nationally recognized drinking water service standard nor overlap of service areas between different providers. A dedicated water services law is essential to ensure reliable, sustainable water services.

- "Safe" drinking water remains a challenge. The Government of Indonesia has mandated drinking water providers implement water safety planning through Ministry of Health Regulation; however, the current regulatory framework on drinking water has yet to incorporate incentives, disincentives, and enforcement mechanisms toward water providers. Without adequate intervention, it would be difficult for CBOs to meet the capacity required to implement water safety plans.

- Policies on water licensing complicate the involvement of CBOs in water service provision. The current legal framework exclusively grants "water use permits for drinking water" to state-owned enterprises (BUMNs), regionally owned enterprises (BUMDs), and village-owned enterprises (BUMDes), excluding other community-based entities such as cooperatives, associations, and foundations. This limits the legal security of CBOs, making them susceptible to competing claims over water resources, thereby affecting their long-term sustainability and ability to serve rural populations effectively.

- Improvements include needed policies and regulations on regency and village government support to CBOs. This could include updating the 2003 policy, which emphasizes community empowerment to a policy that more strongly emphasizes government's role to provide technical

support and access to resources to community managers, since current external support to CBOs is limited in practice. In addition, it would ideally include revised regulations that facilitate more streamlined processes for technical assistance, monitoring, and capacity-building support to CBOs. Current financing mechanisms for rural water supply systems have significant inadequacies. Updates to policy and regulations are necessary to support more responsiveness to urgent needs from disasters and infrastructure failures, and processes to streamline to avoid bureaucratic delays; this includes review of the currently stringent funding criteria.

- Institutional forms of CBOs introduce additional unresolved complexities in current policy and regulations. Different legal forms of CBOs, including BUMDes, village community institutions (LKD), cooperatives, and associations, each have different constraints to CBO operations and support that guidelines and regulations need to address more fully. For example, the legal personality of CBOs determines asset ownership; CBOs can only own assets if it is a legal entity. Regulations also need to support asset management to be transparent, catalogued, and monitored to prevent future conflicts concerning ownership of land and assets.

- Among other roles, district governments should maintain oversight of the level of cooperation between CBOs and village governments for enhancing service delivery and sustainability. A collaborative approach can support CBOs to receive the necessary support and resources for professionalization and effective community engagement in water management.

Addressing these gaps is vital to achieving Indonesia's goals for rural drinking water provision. By updating policies, enhancing regulatory frameworks, improving financing mechanisms, articulating government's roles more clearly, and fostering stronger partnerships with CBOs, Indonesia can ensure more equitable and sustained access to safe and reliable drinking water in rural areas.

1.0 INTRODUCTION

This review provides an overview of the legal and policy framework governing rural water supply in Indonesia. Sections 2, 3, and 4 describe the national-level institutional framework, including for water resource allocation, water services, and drinking water standards. Rural water supply service provision is primarily community based, and discussion of this model is in Sections 5 and 6, including roles allocated to central, provincial, regency/district and village governments. The document concludes in Section 7 with a summary of key policy and regulatory gaps.

2.0 RURAL WATER SECTOR OVERVIEW

The Indonesian government, through the National Medium-Term Development Plan (RPJMN) 2020-2024, set ambitious targets to improve access to drinking water and sanitation. These targets include achieving 100 percent access to (improved) drinking water (*akses air minum layak*)[5], including 15 percent access to safely managed drinking water (*akses air minum aman*), and 30 percent access to piped drinking water by 2024 (Bappenas 2020).

Despite these goals, current availability and water quality are key concerns, especially in rural areas of Indonesia, where according to global monitoring, access to safely managed and to piped water is low (24 percent and 14 percent respectively) (see Table 1). Similar figures are available from the Central Bureau of Statistics (BPS-Statistics) Indonesia, which in 2023 notes that 86 percent of households in rural areas have access to adequate drinking water, compared to 96 percent of households in urban areas (BPS-Statistics 2023). According to the 2020 Drinking Water Quality Study (SKAMRT), the proportion of safe drinking water (measured by parameters such as total dissolved solids (TDS), *E. coli*, pH, nitrate, and nitrite) in urban areas (15.1 percent) is higher compared to rural areas (8.3 percent) (Irianto et.al. 2020).

TABLE 1. KEY INDICATORS FOR RURAL WATER SUPPLY IN INDONESIA (2022)

DEMOGRAPHIC	
% of total population in rural areas	42%
Rural population - total	115.9 million
Rural population growth (% per annum)	-0.88%
DRINKING WATER ACCESS	
% rural population with safely managed water	24%
% rural population with at least basic water	88%
% rural population with piped water	14%

[5] The government considers a household to have access to adequate water *(akses air minum layak)* if their primary drinking water source is piped water, protected water, or rainwater. Protected water includes boreholes/pumps, protected wells, and protected springs. For households that use bottled water as their drinking water source, the government categorizes them as having access to improved water if the water source for bathing/washing comes from piped water, boreholes/ pumps, protected wells, protected springs, and rainwater.

TABLE 1. KEY INDICATORS FOR RURAL WATER SUPPLY IN INDONESIA (2022)

SOCIO-ECONOMIC STATUS	
Income status	Lower Middle Income
GDP per capita	USD 4,788
Human Development Index	0.71 (rank 112)
Gender Development Index	0.94
% rural population with access to electricity	98%

Data sources: World Bank Development Indicators, WHO/UNICEF Joint Monitoring Programme, UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water, United Nations Development Programme Human Development Reports

Two primary models provide rural water services to Indonesia: self-supply and community-based management. Self-supply remains the most common model. Survey data from 2017 suggest around 37 percent of rural households self-supply their drinking water, most commonly from on-premises groundwater sources (12 percent boreholes, 16 percent protected wells, 5 percent unprotected wells) and to a lesser extent on-premises rainwater collection (3 percent) (BKKBN et al. 2018). According to estimates from the World Health Organization/United Nations Children's Fund (WHO/UNICEF) Joint Monitoring Programme, in 2022 around 14 percent of the rural population obtained drinking water from piped systems, which communities typically manage. A further 18 percent of the rural population source their drinking water from communal water points, such as wells and boreholes. For community-managed services, community-based organizations (CBOs) play an important role in service provision, for both piped and communal water points. Initiated in 2003, the Ministry of National Development Planning (Bappenas) established a community management approach with the 2003 Water Policy (Bappenas 2003). Since that time, there has been no update to policies guiding rural water supply. The true reliance on both community-managed systems and self-supply is greater than these numbers suggest, however. In 2020, more than one-fifth of the rural population used packaged water (refill, bottled water) as their main drinking water source (BPS-Statistics Indonesia, 2021), with most of these packaged water users relying on either community-managed or self-supplied water for other domestic purposes (BKKBN et al. 2018).

3.0 OVERARCHING LEGAL FRAMEWORK

The Water Resources Law 17/2019 is the main legal framework governing water in Indonesia. Due to political economy reasons related to private sector participation and the commodification of water, there have been significant changes in the legal framework governing water resources and water supply. A Constitutional Court decision in 2015 invalidated Water Law 2004. Following this, the government reinstated Law No. 11 of 1974, but subsequently replaced it with Law No. 17 of 2019 on Water Resources, which dictates stronger control of the state in water resources and higher involvement of state/region/village-owned enterprises. All primary legislation from Law 11/74 and Law 7/2004 to the existing Law 17/2019 primarily focus on water resources and do not specifically govern water services.

Water resources: Water Law 2019 regulates water resources management and a few provisions on water services as last amended by Government Regulation (GR) in Lieu of Law No. 2 of 2022 ("Water Law 2019 as amended").[6] The Water Law 2019 as amended grants authority for water resources management to the national government, and/or provincial government and city/regency government, in accordance with the regulations set by central government, reflecting the state's control over water resources. The state is also responsible for ensuring that people have access to the minimum daily basic needs for water (60 liters per person per day). The law includes general provisions on the role of village governments to support higher levels of government in water resources management and encourages initiatives and participation from local communities.

Water services: There is no primary legislation (*undang-undang*) that specifically governs water services in Indonesia. Water Law 2019 as amended includes only eight provisions related to water services: six concerning the government's authority in creating policies and strategies for drinking water supply systems, and two related to water use licenses. It does not regulate normative content such as service standards. Water Law 2019 also regulates sanitation, but inadequately, mentioning it only once in the context of water conservation, not as a service. Therefore, GR No. 122 of 2015 on the Drinking Water Supply System (GR 122/2015) currently regulates water services but only under a secondary legislation, not under specific legislation as happens in other Southeast Asian countries such as Singapore and Malaysia.

GR 122/2015 outlines the types of drinking water supply systems; the responsibilities of central, provincial, regency/city, and village governments in implementing drinking water supply systems; and drinking water service providers (*penyelenggara*). GR 122/2015 briefly mentions wastewater services.

Service providers of drinking water supply system stipulated in GR 122/2015 include state-owned enterprises (BUMNs), regionally owned enterprises (BUMDs), technical implementation units at the national government level (UPTs), regional technical implementation units at provincial or city/regency levels (UPTDs), community groups (*kelompok masyarakat*), and enterprises (*badan usaha*) (Government of Indonesia 2015, Article 42). Enterprises may provide drinking water for their own daily needs in areas BUMNs, BUMDs, UPTs, and UPTDs do not cover (Government of Indonesia 2015, Article 52). Similarly, community groups may provide water services to areas outside BUMN, BUMD, and UPT/UPTD service areas (Government of Indonesia 2015, Article 49).

[6] The Job Creation Law 2020 partially amended Water Law 2019. However, GR in Lieu of Law No. 2 of 2022 subsequently revoked the Job Creation Law 2020, hereby impacting amendments it had made to the Water Law 2019.

Various ministries regulate different aspects of rural water services in accordance with their tasks and functions. The national government, provincial governments, local governments, and village governments also share responsibilities for rural water services. Subsequent sections further explain this and Figure 1 (see Section 5) summarizes the stakeholder mapping, with further details provided in Annex 1.

Water allocation prioritization: Provisions for water allocation in Water Law 2019 as amended prioritize drinking water for minimum daily basic needs ahead of other purposes; however, the position of CBOs in accessing water resources for rural water supply is not clear. Table 2 presents the order of priority for water allocation under Water Law 2019 as amended (Al'Afghani 2022).

TABLE 2. PROVISIONS FOR WATER ALLOCATION PRIORITIES IN WATER LAW 2019

ORDER	USAGE		LICENSING	ARTICLES
1	Minimum daily basic needs	Daily basic needs (e.g., worship purposes, drinking, cooking, cleaning, washing).	Not required	Art. 8 (2)(a)
2		Daily basic needs for groups that require large amounts of water.[7]	Required	Art. 45 (1)(a)
3		Daily basic needs that alter the natural condition of water sources.[8]	Required	Art. 45 (1)(a)
4	People's farming	People's farming within an existing irrigation system	Not required	Art. 8 (2)(b)
5		People's farming outside an existing irrigation system	Required	Art. 45 (1)(b)
6	Daily basic needs through the drinking water supply system	Daily basic needs through the drinking water supply system[9]	Required	Art. 8 (2)(c) and Art. 49 (3)(d) Art. 50
7		Non-commercial activities for public interest	Required	Art. 49 (3) e
8		The use of water for commercial needs by BUMN (state-owned enterprise), BUMD (regionally owned enterprise), or BUMDes (village-owned enterprise)	Required	Art. 49 (3) f
9		The use of water for commercial needs by the private sector or individuals.	Required	Art. 49 (3) g

7 In Article 38 para (3) of Ministry of Public Works and Housing (MoPWH) Regulation No. 2 of 2024 on Procedure for Licensing for Water Resources Use and Approval for Water Resources Use, the needs of groups requiring a large amount of water refers to the usage, which a. Exceeds the basic daily needs for 150 (one hundred and fifty) people from 1 (one) extraction point; or b. More than 60 (sixty) liters per person per day.

8 In Article 38 para (2) of MoPWH Regulation No. 2 of 2024 on Procedure for Licensing for Water Resources Use and Approval for Water Resources Use, fulfillment of daily needs through altering water source (*sumber air*) can take the form of raising or lowering the water source.

9 Refers to the regional drinking water utility (PDAM). This differentiates from number 1 (the first priority), which covers only if they are taken directly from the source.

Water Law 2019 does not define the position of CBOs as the main providers of rural drinking water supply services clearly. Article 50 of Water Law 2019 as amended prescribes that only BUMNs, BUMDs, or village-owned enterprises (BUMDes) can receive a utilization permit for "drinking water" for daily needs (Government of Indonesia 2019).[10] This prohibits private actors, including community groups, from obtaining such a permit. Community groups (such as associations, cooperatives, and foundations) may still access utilization permits under Article 45 paragraph (1), which allows permits to fulfill "water for daily basic needs." Article 50 is a *lex specialis* rule that specifically regulates drinking water, while Article 45 paragraph (1) is a general norm regulating "water" for daily basic needs. This means that if the product is "drinking water," the provision under Article 50 shall apply, restricting actors other than BUMNs, BUMDs, and BUMDes from obtaining a permit.

It seems that the construction of Article 50 was to reflect the six principles of water governance,[11] which provides strict conditions for water commercialization, including for drinking water, even though in practice non-BUMN, BUMD, and BUMDes actors also provide drinking water supply (Al'Afghani and Bisariyadi 2021). This discrepancy may create legal uncertainty for community groups (potential for sanctions such as imprisonment and fines) that provide water services (Al'Afghani and Bisariyadi 2021). This legal uncertainty arises because on the one hand, Article 70 and Article 73 impose sanctions (imprisonment and fines) for anyone intentionally or negligently using water resources without the required business licensing, which could potentially apply to a community group. However, on the other hand, a community group might also qualify under Article 45 as they use the water for daily needs.

Water abstraction license: GR 122/2015 specifically states that when community groups use large volumes of water[12] or alter the natural conditions of water sources[13] to fulfill their "drinking water" needs, they must obtain a relevant water utilization permit. Article 18 paragraph (2) of Ministry of Public Works and Housing (MoPWH) Regulation 2016, the implementing regulation of GR 122/2015, further specifies this permit as a *"Izin Pengusahaan Sumber Daya Air"* (water commercialization permit) (MoPWH 2016, Article 18). According to MoPWH Regulation 2016, this permit is for abstracting surface water for drinking water business purposes (*kegiatan usaha air minum*) (MoPWH 2016, Article 1 number 20). MoPWH Regulation 2016 does not regulate further on this permit, but according to GR 121 of 2015 on Water Resources Commercialization (GR 121/2015), only BUMNs, BUMDs, BUMDes, business entities, cooperatives, or individuals may receive *Izin Pengusahaan Sumber Daya Air*. This means that CBOs apart from these forms, such as associations or foundations, may not obtain this license.

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[10] Article 50: "*Izin penggunaan Sumber Daya Air untuk kebutuhan usaha dengan menggunakan Air dan Daya Air sebagai materi sebagaimana, dimaksud dalam Pasal 49 ayat (1) huruf b yang menghasilkan produk berupa Air minum untuk kebutuhan pokok sehari-hari diberikan kepada badan usaha milik negara, badan usaha milik daerah, atau badan usaha milik desa penyelenggara Sistem Penyediaan Air Minum*." English translation: Permit to use Water Resources for commercial purposes using water and water power as material as referred to in Article 49 paragraph (1) letter b, which produces drinking water for basic daily needs, can only be granted to state-owned enterprises, regional-owned enterprises, or village-owned enterprises that operate Drinking Water Supply Systems.

[11] The Constitutional Court developed the six principles of water governance in its Decision No. 85/PUU-XI/2013. The principles emphasize human rights to water and its protection, state control over water resources, prioritization of water commercialization permits for BUMNs or BUMDs, and granting of permits to private enterprises only under strict conditions.

[12] Requiring large quantities of water refers to the use of water that exceeds the daily basic needs for 150 people from one extraction point or more than 60 liters per person per day.

[13] Altering the natural condition of water sources can involve raising or lowering the water source.

However, MoPWH Regulation No. 2 of 2024 on the Procedure for Water Resources Use Permit and Approval for Water Resource Use, stipulates that the fulfillment of daily water needs using large volumes of water or altering the natural conditions of water sources for non-commercial purposes requires a different type of permit known as *Persetujuan Penggunaan Sumber Daya Air* (Approval for Water Resources Use: for surface water). This provision applies to "water" in general, and not specifically to "drinking water." Community groups and legal entities may receive approval, thus this permit is more suitable for CBOs.

In addition, if a community management group uses groundwater to meet daily water needs, using groundwater of at least 100 cubic meters per month per family, or exceeding 100 cubic meters per month per group, they must obtain the *Persetujuan Penggunaan Air Tanah* (Approval for Groundwater Use) from the Ministry of Energy and Mineral Resources (Ministry of Energy and Mineral Resources. 2023).

Drinking water standards: Recently, the Government of Indonesia issued GR No. 28 of 2024 (GR 28/2024), an omnibus-style regulation that governs a broad spectrum of health-related matters, including environmental health. GR 28/2024 repeals several previous government regulations, including GR 66 of 2014 on Environmental Health.

Previously, GR 66 of 2014 outlined the types of water subject to specific standards and health requirements: 1. drinking water, 2. water for hygiene and sanitation, and 3. water for swimming pools, Solus Per Aqua, and public baths. Ministry of Health (MoH) Regulation No. 2 of 2023 further elaborated these standards and health requirements. These regulations made a clear distinction between drinking water and water for hygiene and sanitation. The MoH Regulation No. 2 of 2023 defined drinking water as water that has undergone treatment or is untreated but meets health standards and is safe for direct consumption (MoH 2023, Article 1 Paragraph 4). On the other hand, the regulation defined water for hygiene and sanitation as water used for personal and/or household hygiene purposes (MoH 2023, Article 1 Paragraph 5).

However, the newly enacted GR 28/2024 only addresses two categories of water: 1. drinking water, and 2. water for swimming pools, wellness centers with bathing facilities, and public baths. Notably, GR 28/2024 does not mention water for hygiene and sanitation.

Although GR 28/2024 revoked GR 66 of 2014, its implementing regulations, including MoH Regulation No. 2 of 2023, remain in force if they do not conflict with the provisions of GR 28/2024. Consequently, the parameters for drinking water standards continue to refer to MoH Regulation No. 2 of 2023 until the MoH revises it.

The parameters included in the drinking water quality standards encompass physical, microbiological, chemical, and radioactive elements—these parameters apply universally to urban/rural areas (MoH 2023, Article 5 paragraph 2). According to this regulation, all "producers, providers, and undertakers" of drinking water must also comply with environmental standards such as protection of water sources from contaminations as well as proper treatment, storage, and distribution of drinking water. In terms of oversight, expectations are that the service provider conducts monitoring internally, and the health agency (*Dinas Kesehatan*) externally at the city/regency level or provincial level, or other institutions as appropriate. As part of internal supervision, the provider conducts regular testing of drinking water quality using rapid field-testing equipment or accredited laboratories under the MoH (see Annex 3 for

relevant parameters) (MoH 2023, Annex). The service provider should report the result of this internal monitoring to the *Dinas Kesehatan* every six months. In practice, CBOs meet challenges in conducting internal monitoring, both due to financial requirements as well as logistical challenges in accessing laboratories.

Water safety plan (*Rencana Pengamanan Air Minum* [RPAM]): MoH Regulation 2/2023 requires water service providers to develop drinking water safety plans (RPAMs). The RPAM serves as a comprehensive risk management framework that encompasses the entire drinking water supply chain, aiming to ensure safe drinking water access and enhance public health. In addition, MoPWH also issued Circular No. 56/SE/DC/2023, which provides technical instructions for implementing the RPAM, including for community groups with piped water systems.

The Government of Indonesia has also issued the Roadmap for the Expansion of the Implementation of the Drinking Water Safety Plan (RPAM) 2021–2025, which outlines the strategy for implementing RPAM in regencies and cities. The implementation of RPAM begins with BUMDs and RPAMs for other drinking water service providers, including CBO managers of drinking water systems (KPSPAMs), will follow.

The current MoH Regulation sets drinking water quality standards and supervision but lacks provisions for addressing the complexities of water safety planning, such as incentives, enforcement mechanisms, and cross-sectoral coordination (Al'Afghani, 2019). A higher-level legal framework, either through a comprehensive water services law or significant updates to GR 122/2015, is necessary to ensure these provisions for water safety planning (Al'Afghani, 2019).

4.0 RURAL WATER SUPPLY DEVELOPMENT

To improve rural drinking water services, the Indonesian government has conducted several programs. The first was Water Supply and Sanitation for Low Income Countries (WSLIC [1993–1999] and WSLIC II [2000–2009]). More recent programs include the Community-Based Drinking Water Supply and Sanitation Program (PAMSIMAS) and Drinking Water Supply System (SPAM *Padat Karya Perdesaan*). PAMSIMAS is the largest rural water services program in Indonesia. It adopts a community-based approach in rural water provision, involving communities in the decision-making process during planning, implementation, and operations and maintenance. PAMSIMAS began in 2008 and continued through three phases: PAMSIMAS I (2008–2012), PAMSIMAS II (2013–2015), and PAMSIMAS III (2016–2021). Now, PAMSIMAS is evolving into a new concept called PAMSSANIMAS.[14] This new initiative aims to increase the coverage of rural residents accessing adequate, safe, and sustainable drinking water; sanitation; and waste management services; where previously it focused on improving access to sustainable drinking water and sanitation services in rural and peri-urban areas.

SPAM *Padat Karya Perdesaan* was a MoPWH program from 2018 to 2021. MoPWH implemented this program in areas with a high rate of stunting, which was outside the scope of the PAMSIMAS program (Liputan.co.id. 2019, MoPWH/Directorate General Cipta Karya 2021). SPAM *Padat Karya Perdesaan* used a community engagement approach, community initiatives, community self-reliance, community capacity building; and involved low-income communities in the implementation of drinking water infrastructure development (MoPWH/Directorate General Cipta Karya 2021). The target locations are rural areas that a PDAM did not cover (Bappeda Sleman 2021, Antara News 2022).

[14] Bappenas, Concept Note Pamssanimas: Penyediaan Layanan Air Minum, Air Limbah Domestik, Dan Persampahan Rumah Tangga Perdesaan Berbasis Masyarakat.

5.0 INSTITUTIONAL ARRANGEMENTS FOR RURAL WATER SUPPLY

Figure 1 and Annex 1 present an overview of roles of central government ministries and other levels of government. Subsequent sections elaborate these roles.

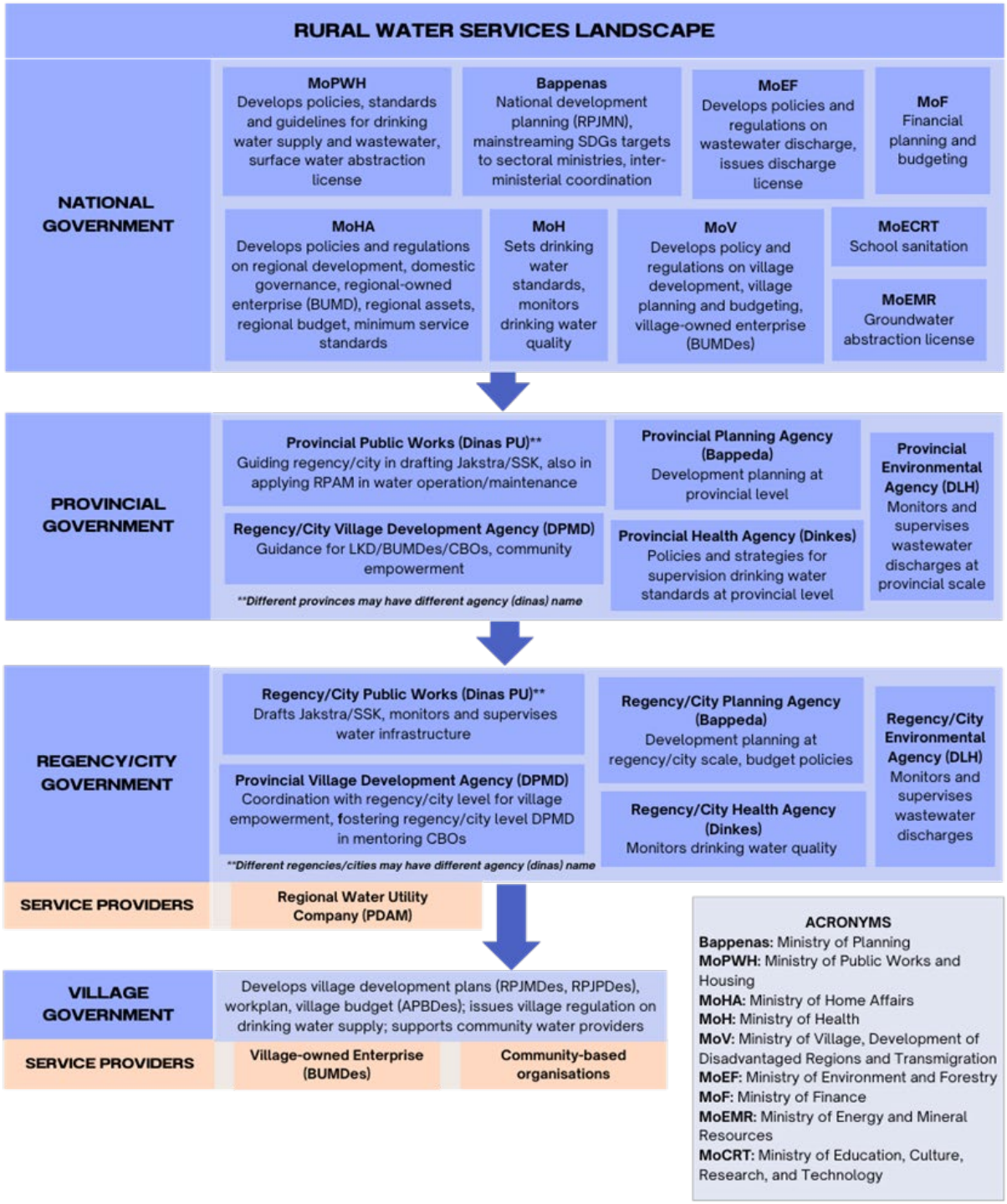

FIGURE 1. STAKEHOLDER DIAGRAM FOR RURAL WATER SUPPLY IN INDONESIA

5.1 ROLES OF CENTRAL, PROVINCIAL AND REGENCY/CITY GOVERNMENT

Law No. 23 of 2014 on regional government within Indonesia's regional autonomy framework categorizes the provision of drinking water and sanitation services as a basic service-mandatory-concurrent affair. In this context, "mandatory" means that it is obligatory or compulsory. A "concurrent affair" is a shared responsibility between central, provincial, and regency/city government. In concurrent affairs, the central government holds the authority to establish norms, standards, procedures, and criteria (NSPK) and provides supervision and guidance to provincial and city/regency governments. Provincial and regency/city governments can also set regional policies but must adhere to the NSPK set by the central government. As a mandatory matter that relates to basic service, provincial, city, or regency governments must prioritize the implementation of drinking water supply and ensure it meets the minimum service standards (SPM) as determined by the central government.

Attachment C of Law No. 23 of 2014 on regional government outlines the division of roles of each level of government in relation to drinking water provision. The central government is responsible for enacting the development of drinking water supply systems nationally and managing the systems for inter-provincial locations and national strategic interest. Provincial governments are responsible for the management and development of drinking water systems in inter-regency/city locations, while regency/city governments are responsible for the management and development of the systems within their respective areas. Law No. 23 of 2014 does not specifically outline responsibilities for rural water supply nor define the role of village government.

Water Law 2019 also stipulates the roles of the central, provincial, and regency/city governments in drinking water provision. Each level of government is responsible for managing and developing drinking water supply systems, similar to those defined in Law No. 23 of 2014. They can also enact drinking water supply policies in the national, provincial, and regency/city levels.

GR 122/2015 provides more detail on the responsibilities of central, provincial, and regency/city governments. Central government develops and enacts national policies and strategies for drinking water supply systems (KSNP SPAM) every five years, outlining the vision and mission of drinking water system implementation, strategic issues and challenges, policies, and strategies for effective implementation, and an actionable plan. KSNP SPAM must align with the RPJMN. Provincial government and regency/city governments also enact provincial and regency/city strategies and policies (JAKSTRADA SPAM), which must align with the KSNP SPAM.

Additionally, the provincial government is responsible for preparing the RISPAM (SPAM Master Plan) for inter-regency and inter-city regions, whereas the regency and city governments prepared the RISPAM within their respective jurisdictions. The central government prepares the inter-provincial RISPAM. The RISPAM encompasses plans for water resources management, spatial planning, and policies and strategies for SPAM. It also considers geographical, social, economic, and cultural conditions, as well as development plans (Government of Indonesia 2015, Article 22).

The provincial government oversees SPAM through monitoring and evaluating city/regency-level performance and providing guidance to regency/city governments (Government of Indonesia 2015, Article 39). Regency/city governments are at the forefront of drinking water provision to the community. They are responsible for planning, developing, and supervising the implementation for SPAM

in their jurisdiction to meet the coverage target (SPM).[15] They are also responsible for monitoring and reporting on the quality and availability of drinking water. Additionally, regency government is responsible for the supervision and guidance of village government and community groups in the implementation of SPAM within its territory (Government of Indonesia 2015, Article 40).

Technical and financial support to community management: Regency government should provide technical and non-technical support and training for CBOs through the relevant local agencies, such as the Regional Development Planning Agency (Bappeda), Community and Village Development Agency (DPMD,) Public Works Agency (*Dinas PU*), Health Agency *(Dinas Kesehatan*), etc. (MoV [Ministry of Villages, Development of Disadvantaged Regions, and Transmigration] 2021a). They can also provide direct mentoring (*pembinaan*) or through the CBO association at the regency level (MoV 2021a). In practice, there is limited support in many locations (Al'Afghani, Kohlitz, and Willets 2019).

There are a variety of mechanisms for financial support to CBOs, but noting that in practice, CBOs do not often use them due to varied legal and other reasons. According to the GR 122/2015 and the 2016 MoPWH regulation, community groups may receive financing support (*dukungan pembiayaan*) for the implementation of drinking water supply system (*penyelenggaraan SPAM*) from the central government, provincial government, and/or city/regency government (Government of Indonesia 2015, Article 49; MoPWH 2016, Annex). This means CBOs can receive funding for the construction of new infrastructure, its expansion, and the management of existing infrastructure, including operation and maintenance, repairs, and capacity building (Government of Indonesia 2015, Article 1 number 7, 8. 9, Article 18, Article 26). Below is a description of the arrangements for (i) regional budget, (ii) grants, (iii) unforeseen expenditure, (iv) social assistance expenditure, and (v) goods and services expenditure.

(i) Regional budget: Regency or city governments can include post-construction activities in the regional planning budget (APBD). These activities can include operations and maintenance, repairs, and capacity building. The Annex of the Minister of Home Affairs (MoHA) Regulation No. 90 of 2019 (MoHA 2019) provides the code account for the "Management and Development of SPAM in the Regency or City Region" as follows in Table 3. This table provides examples of account codes that regency or city governments can use. However, previous research indicates that regency or city governments find it challenging to fund the maintenance, operations, and repairs of community-based water service assets because regency or city governments do not own the assets, despite having the financial capacity and willingness to support these activities (Al'Afghani, Kohlitz, and Willets 2019).

[15] Under Indonesian regulations, minimum service standards (*standar pelayanan minimal*) entail the coverage and targets for drinking water supply for provincial and regency/city governments to achieve, without specifying detailed service provider duties, exact procedures for managing service interruptions, compensation mechanisms, or complaint mechanisms for customers. This is quite different from minimum service standards commonly known in other jurisdictions, such as in England, Wales, and Victoria, where they establish detailed service conditions and standards for service providers, including specific provisions for handling disruptions, restoring service, and compensating customers if standards are not met.

TABLE 3: ACCOUNT CODES FOR SUPPORTING POST-CONSTRUCTION ACTIVITIES	
CODE	**MANAGEMENT AND DEVELOPMENT OF SPAM IN THE REGENCY/CITY REGION**
1.03.03.2.01.16	Operations and maintenance of SPAM in rural areas
1.03.03.2.01.08	Repairs of piped drinking water supply systems in rural areas
1.03.03.2.01.11	Fostering (*pembinaan*) and supervision for the implementation of SPAM by village government and community groups
01.03.03.2.01.14	Human resources development and institutional strengthening

(ii) Grants: Post-construction support to CBOs mostly occurs through a grant mechanism (*hibah*) through an account "grant expenditure" (*belanja hibah*). It is optional, not binding, and not meant for continuous funding unless determined otherwise. Recipients of grants must be legal entities, with MoHA Regulation 77/2020 specifically mentioning foundations and associations (*Perkumpulan*) as eligible community organizations (MoHA 2020). Cooperatives may also receive grants. As such, to qualify for a grant, CBOs must be a legal entity in the form of cooperative, foundation, or association (*Perkumpulan*).

Grants are part of the APBD and follow the regional budgeting process. A regulation issued by the local government head (governor/regent) details procedures for budgeting and implementation of the grant.

CBOs seeking a grant must submit a written proposal to the local government (provincial/regency). The subsequent year's APBD will include the proposal, which the relevant regional work unit (SKPD) will evaluate and verify. The local government budget team will then provide input to ensure that the proposal aligns with the region's priorities and financial capacity. The local government's budgeting documents will include allocation for the grant, submitted to the local parliament for approval. Considering the process, the grant scheme may not be suitable for urgent repairs, such as those needed in the event of a disaster.

(iii) Unforeseen expenditure: In the event of unanticipated emergencies, local governments may provide funding through a *Belanja Tidak Terduga* (unforeseen expenditure). Such emergencies include natural disasters, non-natural disasters, social disasters, as well as extraordinary events. Unforeseen expenditure for disaster response covers activities such as search and rescue operations; emergency aid; evacuation; provision of clean water and sanitation, food, clothing, and healthcare services; and temporary shelters. This expenditure is to fund emergencies for which the budget has not yet been allocated. If unforeseen expenditure is insufficient, the local government may use funds from rescheduling program achievements, activities, and sub-activities, as well as financing expenditures within the current fiscal year, and/or available cash reserves.

To be able to fund emergencies, the local government head declares an emergency response status for natural disasters, non-natural disasters, social disasters (including social conflicts), and extraordinary events according to laws and regulations. Based on this declaration and/or other relevant documents, the head of the relevant SKPD, in accordance with their duties and functions, submits a plan for

expenditure needs to the budget user authority (*Pejabat Pengelola Keuangan Daerah* [PPKD]) as the budget user.

(iv) Social assistance expenditure: In addition, an account called *Belanja Bantuan Sosial* (social assistance expenditure) may be applicable for communities impacted by natural disasters. This expenditure is for individuals, families, groups, and/or communities facing "social risks." MoHA regulation 77/2020 defines social risks as events or situations resulting from social, economic, or political crises, as well as natural phenomena or disasters, where the lack of social assistance could lead to further deterioration and prevent people from living under normal conditions. This assistance is temporary and not continuous, except in certain circumstances where provision continues until the recipients are free from social risks. It is also selective, meaning only those facing social risk may receive it. Budgeting for social assistance for which the government cannot plan in advance is allocated under the unforeseen expenditure account (*Belanja Tidak Terduga)*.

(v) Goods and services expenditure: The *Belanja Barang Dan Jasa* (goods and services expenditure) is for goods/services with a benefit value of less than 12 months, including those for delivery or sale to communities (*masyarakat*) or other parties. MoHA regulation 77/2020 does not specify further criteria for the communities, such as whether they are legal entities.

5.2 THE ROLE OF VILLAGE GOVERNMENT

In terms of responsibilities toward community groups such as CBOs managing rural water supply, village government has a supervisory role and is responsible to provide support for the development of SPAM at the community level (MoPWH 2023b, Government of Indonesia 2015, Article 41). Village governments can support CBOs by offering technical guidance and consultation, providing technical and program support, and conducting education and training programs (MoV 2021b). Village government also has the responsibility to provide guidance to the CBO in managing SPAM. The village government reports to the regency/city government concerning implementation of SPAM at the community level (Government of Indonesia 2015, Article 41).

More broadly, village governments are responsible for implementing village development to enhance villagers' quality of life, including provision of basic services, infrastructure development, and improved local economy potential. The Village Medium-Term Development Plan (RPJMDes), updated every eight years, and Village Work Plan (*RKP Desa*), valid for one year, outline priorities, programs, and activities for village development, which includes community participation during the *Musyawarah Desa* (village deliberation). These documents serve as the basis for drafting the village budget (APBDes). The village government and village consultative body discuss the APBDes, and upon agreement, the proposed plan will become a village regulation.

Villages have several sources of income, including the village fund (*dana desa*) and allocation of village fund (*Alokasi Dana Desa* [ADD]). The *Dana Desa*, sourced from the state budget (*Anggaran Pendapatan dan Belanja Negara* [APBN]), supports village development, community empowerment, and village governance, aligning with the village guideline for the village government in determining the direction of village development planning policies. According to Minister of Village Regulation No. 7 of 2023 on the Details of Village Fund Usage Priorities, the provision, maintenance, and development of safe drinking water and sanitation infrastructure are priorities for the use of *Dana Desa* to meet basic needs. Additionally, it prioritizes the development and capacity building of BUMDes, including business

development or units for drinking water management. During *Musyawarah Desa*, participants prioritize the activities for *Dana Desa* usage and incorporate them into the *RKP Desa*, which then guides the formulation of APBDes.

The ADD is a financial resource provided by the regency or city government's APBD. At least 10 percent of the balancing funds received by the region, after deducting the specific allocation funds (DAK), are allocated to villages. ADD is allocated to support village governance, development, community empowerment, disaster management, emergency management, and urgent village matters. Village governments can use ADD for repairing village public facilities, purchasing building materials, paying construction worker wages, as well as other costs related to village development as agreed upon in the *Musyawarah Desa* (Brebes Regency 2019).

When water infrastructure assets are village assets, the village government has a significant responsibility to ensure their proper maintenance, allocated in the APBDes. CBOs may also receive APBDes funding for tasks such as replacing pipes if the infrastructure is a registered village asset.

6.0 Community-based management model

The 2003 National Policy issued by Bappenas (Bappenas 2003) initiated the concept of a community-based approach in water services, suggesting the involvement of rural communities in all stages of the decision-making process for new rural water supply systems—from planning to operations and maintenance. The Community-Based Drinking Water Supply and Sanitation Program (PAMSIMAS) and SPAM *Padat Karya Perdesaan* adopted the approach. In PAMSIMAS, the CBO that manages the provision of a drinking water system is a *Kelompok Pengelola Sistem Penyediaan Air Minum* (KPSPAM).

"Community" is one of the drinking water providers recognized under GR 122/2015 (Government of Indonesia 2015, Article 42). Communities may not provide drinking water supply to fulfil their own needs when a PDAM does not cover the area. The term "coverage," however, is open to interpretation and can have different meanings (Al'Afghani and Bisariyadi 2021). First, it may indicate that a PDAM is not in the area, hence outside of their jurisdiction. Second, it could mean that while a PDAM exists, the area lacks connected pipelines, thus falling within the service jurisdiction but outside the pipeline coverage. Third, it could mean that a PDAM is present and has connected pipelines, but no water is flowing.

Fee collection: Pursuant to GR 122/2015, financial contributions (*iuran*) for the community group's service are based on mutual agreement within the community and managed by the community management group (KPSPAMs). Under the PAMSIMAS Technical Guidance 2023 PT-08, the operational, maintenance, depreciation, and development (*pengembangan*) costs are the basis of the fees. The technical guidance also encourages the application of a progressive tariff system based on consumption to ensure fairness (MoPWH 2023b). A *Surat Keputusan* (Decision Letter) from the village head or a village regulation should incorporate the fee amounts, fee collection process, water utilization, and sanctions for users.

Operation and maintenance: GR 122/2015 provides that operations and maintenance include routine programs and activities for operating, observing (*mengamati*), suspending service, and maintaining SPAM facilities. Repairs include periodic or occasional repairs to SPAM facilities. Drinking water service

providers must notify communities if the repairs will disrupt the service delivery. GR 122/2015 briefly mentions "financing support" (*dukungan pembiayaan*) for community management groups but does not elaborate on it.

6.1 INSTITUTIONAL FORMS OF COMMUNITY-BASED RURAL WATER SERVICE PROVIDERS

CBO institutional forms: As stated in PAMSIMAS Technical Guidance 2023 PT-08 for SPAM Management and Sustainability (MoPWH 2023b), KPSPAMs established in 2023 onward should take the form of LKDs, while those established prior to the issuance of the Technical Guidance (2008–2022) could choose the form based on community consensus, including:

1. Associations with legal entities and non-legal entities (*Perkumpulan berbadan hukum/tidak berbadan hukum*),
2. Cooperatives,
3. Foundations,
4. BUMDes, and
5. LKDs.

These different forms have varied characteristics in terms of legalization, decision-making authority, and access to financial support (see Table 4).

TABLE 4. INSTITUTIONAL FORMS FOR CBOS AND THEIR RELEVANT CHARACTERISTICS (MOPWH 2023, MINSTER OF LAW AND HUMAN RIGHTS 2019)

FORMS	ORIENTATION	LEGALIZATION	HIGHEST DECISION-MAKING AUTHORITY	INDEPENDENT OF VILLAGE GOVERNMENT	ACCESS TO APBDES
Association (registered)	Non profit	Approval by Minister of Law and Human Rights	Rapat Umum Anggota (general meeting of members)	Yes	As a third party in village cooperation
Cooperatives	Profit	Approval by Minister of Law and Human Rights	Rapat Umum Anggota (general meeting of members)	Yes	As a third party in village cooperation
Foundation	Non profit	Approval by Minister of Law and Human Rights	Pembina (governing board)	Yes	As a third party in village cooperation
BUMDes (village owned corporation)	Profit	Village regulation and village head decision	Village deliberation	Depending on the arrangement at the village level	Possible through village investment in the BUMDes (assets and accounts separated from village)
***Lembaga Kemasyarakatan Desa*/LKD (village community institutions)**	Non profit	Village regulation and village head decision	Village deliberation	No	Possible through various means of allocation mechanisms, this type has the widest access to APBDes (village budget) as it is a part of the village structure

According to the recent PAMSSANIMAS documents, KPSPAM under the PAMSSANIMAS program also have a choice, and can be structured as independent entities, including associations *(perkumpulan*), cooperatives, and foundations, or they integrated into village structures, taking the form of LKD or BUMDes (Bappenas n.d., 2023).[16] Although the documents provide flexibility in the institutional forms that KPSPAM can adopt, there appears to be a preference for the LKD/BUMDes model (Bappenas n.d., 2023).

For CBOs established in 2009-2022, and for CBOs PAMSSANIMAS will establish, considerations such as funding access, independence, and permit processes are relevant to consider in the choice of institutional form. BUMDes and LKD, being indirectly and directly a part of the village structure, may benefit from easier access to village funding, but lack independence due to interventions by village heads and other interference from village politics, while those outside of village structure such as associations and cooperatives may have greater autonomy but encounter difficulties in securing financial support from village government. Communities must consider these factors carefully in selecting the most appropriate institutional form that aligns with their goals and circumstances.

Implications for asset management: The legal status of CBOs impacts asset ownership significantly, especially concerning land for water infrastructure. According to the latest PAMSIMAS Technical Guidance 2024 PT-04 for Environment and Social Security, the land can be available for use through a permit to use (*Izin Pakai*) or a land grant (*hibah tanah*) (MoPWH 2024c). *Hibah Tanah* involves the transfer of ownership from lands owned by an individual to other parties (could be the CBO or the village government). Land deed officials (*Pejabat Pembuat Akta Tanah*) should execute this legally (Government of Indonesia 1998). Similar to the previous 2023 Technical Guidance PT-04, in terms of transfer of asset (land) through *hibah tanah*, PAMSIMAS Technical Guidance 2024 PT-04 seems to lean toward village governments owning the land (MoPWH 2023c, 39, MoPWH 2024c, 39). The manual included a standard *hibah tanah* (grant) form but does not stipulate the proper process for actual title transfer.

Further, the PAMSIMAS 2023 Technical Guidance PT-03 on the Implementation at Community Level provided options for the transfer of asset ownership of water infrastructure (e.g., pipes). One option was to transfer the infrastructure to the village government while KPSPAM managed its operations. Another option was for both the infrastructure and its management to transfer to KPSPAM (MoPWH 2023a, 69-70). When the infrastructure is transferred to the village government and integrated as a village asset, it can be allocated in the village budget (APBDes) for maintenance as it is the village government's responsibility to secure and maintain village assets (MoHA 2016). If the infrastructure transfers to KPSPAM, as an organization they need to have legal status.

However, the latest PAMSIMAS Technical Guidance PT-03 on Implementation at Community Level issued in 2024 (MoPWH 2024b) marks a significant policy shift by removing the option for infrastructure transfer to KPSPAMS. Under this new guidance, water infrastructure must be transferred exclusively to village governments, with KPSPAMS only serving in an operational management capacity.

[16] Concept Note PAMSSANIMAS Penyediaan Layanan Air Minum, Air Limbah Domestik, dan Persampahan Rumah Tangga Perdesaan Berbasis Masyarakat

Under the PAMSSANIMAS policy paper, the water infrastructure asset will become the village government asset. However, community consensus will decide on the manager of the infrastructure during the *Musyawarah Desa*. On the other hand, PAMSIMAS asset ownership (constructed between 2008-2022) may reside with the village government, community, or both village government and community as joint assets.

7. 0 KEY POLICY AND REGULATORY ISSUES AND GAPS

The overall policy approach and financing for rural water supply focuses on construction and not on maintenance and operation. As noted earlier, there is no adequate legal foundation or institutional framework to sustain rural water supply as a service after building PAMSIMAS or other community-managed facilities. There are no national policies or regulations as to which agency or mechanisms (at the regency/city level) is responsible to step in and maintain service delivery when CBOs are unable to discharge their functions—despite the legal requirement under the regional government law for regency/city government to provide drinking water as essential service. The new Bappenas policy in 2024 (Bappenas 2023, Bappenas n.d.) on PAMSSANIMAS looks toward new projects and the approach to building new schemes, and not in supporting ongoing management and sustainability of existing schemes. However, the inclination of PAMSIMAS guidance in the last few years and the new PAMSSANIMAS concept note is to place the burden of responsibility on village government through the formation of CBOs as LKDs. Below is a discussion of the key related issues and gaps.

7.1 LACK OF SERVICE DELIVERY LEGAL FRAMEWORK

Absence of a water services law: The current Water Law 2019 in Indonesia primarily focuses on water resources management rather than the specific governance of water services. Water services governance involves managing water supply and sanitation infrastructure, the rights and responsibilities of drinking water providers, as well as the roles of local government, which is different from water resources law (Al'Afghani 2009). A dedicated water services law in Indonesia can achieve key objectives. First, it would help achieve economies of scale and scope and improve service delivery in water utilities. Second, by setting clear standards, it would guarantee customer rights and ensure access to safe, reliable, and affordable water services. Third, such a law is crucial for regulating water utilities through benchmarking and promoting best practices. Fourth, it would support the diverse water service provision models in Indonesia by providing a regulatory framework for both community-based management and urban utilities. Fifth, a dedicated law would establish clearer roles and responsibilities for different levels of government in rural water supply, ensuring service delivery. Finally, such a law would be essential for guaranteeing sanitation as both a service and a human right, something currently overlooked in current laws and regulations.

Gaps in provision of external aggregated support: The current policy direction (from 2003) emphasizes community empowerment, without a corresponding emphasis on government roles to complement this. Currently, research has shown limited external support for CBOs to sustain services (Soeters et al. 2018). Many CBOs struggle to access necessary financial resources and technical expertise, leading to challenges in maintaining and improving water infrastructure (Al'Afghani, Kohlitz, and Willetts 2019). External support—such as from associations (Soeters et al. 2018), PDAM, or other entities (e.g., UPTDs)—is important to provide technical assistance, capacity building, resources for infrastructure development, collaboration opportunities, and advocacy for policies that benefit CBOs

and improve water management in rural areas. Other policy frameworks from the MoV (MoV 2021a) regarding rural water supply, recent PAMSIMAS guidelines, and the upcoming PAMSANIMAS policy appear to encourage village government to assume the burden of post construction.

Lack of effective financing policies and mechanisms for rural water services systems: Existing budget policies and mechanisms are often inadequate for addressing the urgent needs of rural water services systems, particularly in the aftermath of disasters or when facing critical infrastructure failures (Al'Afghani et al. 2024). Research has revealed lengthy bureaucratic processes and rigid funding criteria (MoHA 2020, Annex) can hinder the timely allocation of resources for major repairs, leading to prolonged service disruptions and exacerbating the vulnerabilities of rural communities (Al'Afghani et al. 2024). As such, reforming budget policies is necessary to expedite major repairs for rural water systems. Some key recommendations include:

1. Creating a dedicated budget line for rural water services emergency repairs within the APBD, ensuring that funds are readily available when needed;
2. Developing clear guidelines and criteria for accessing these emergency funds, with a focus on simplifying the application and approval processes for CBOs and local authorities;
3. Establishing a contingency fund or reserve mechanism that allows for the rapid disbursement of resources in the event of unforeseen disasters or critical infrastructure failures; and
4. Aligning these financing mechanisms with the broader goals of climate adaptation and disaster risk reduction, given the major impacts these have on rural water infrastructure (Al'Afghani et al. 2024).

7.2 CHALLENGES ADHERING TO DRINKING WATER QUALITY MONITORING REQUIREMENTS

CBO rural water providers, particularly those in remote locations, may have difficulties in accessing laboratory testing due to geographical distances and associated costs. As a result, ensuring water quality and meeting regulatory standards becomes more challenging, highlighting the need for support mechanisms and resources that address these specific barriers that CBOs face when operating in remote areas.

For this reason, a higher-level legal framework is crucial to support the MoH regulation 2023 on drinking water quality standards and supervision. This framework should include systems of incentives, such as prioritizing high-performing providers for infrastructure funding or public recognition, to encourage continuous improvement (Al'Afghani, 2019). Given their limited capacity, support for KPSPAMs should come through incentives that encourage compliance with water safety planning without imposing excessive costs. These could include technical assistance and capacity-building from government agencies or larger utilities, prioritization for infrastructure grants or financial aid for KPSPAMs meeting basic safety standards, and public recognition for high-performing KPSPAMs.

Additionally, the legal framework must ensure transparency. Water quality test results from internal and external monitoring should be publicly accessible through online platforms or notice boards, with both providers and local health authorities required to disclose annual water quality reports. The MoH should also publish national rankings of providers based on their compliance with water safety standards.

7.3 ISSUES ASSOCIATED WITH VILLAGE-LEVEL INSTITUTIONAL CONTEXT

Governance issues associated with selected institutional form of CBOs: Recent research reveals how governance modes for different legal forms of rural water services management each have different issues that need addressing to ensure that these institutions can support ongoing service delivery (Al'Afghani et al. 2024). For instance:

1. *BUMDES*: Comprehensive regulations are necessary to address funding, independence, and collaboration when integrating CBOs into BUMDes. It is crucial to establish a ring-fencing mechanism to protect the water management unit's funds from other BUMDes sub-units' use, and to ensure its operational autonomy through separate relationships.
2. *LKD*: Clear guidelines for formation and operation of LKD, as outlined in MoHA Regulation No. 18 of 2018, is important. Transparent financial management, autonomy, and collaboration with village governments is crucial.
3. *Cooperatives*: As for-profit entities, cooperatives require robust governance structures that align with village development goals. Establishing clear legal frameworks, financial management systems, and collaboration mechanisms to ensure their effective operation is important.
4. *Associations*: As non-profit entities, associations should prioritize inclusive governance models and community-focused objectives. They need to align their operations with the local legal framework and establishing transparent financial protocols and collaboration mechanisms with village governments.

Land and asset ownership issues for CBOs: Research has shown how challenges arise when CBO chiefs use personal funds to acquire land for water infrastructure, highlighting the need for transparency and accountability to prevent conflicts of interest and power imbalances (Al'Afghani et al. 2024). Creating a system to catalogue and monitor these purchases, and requiring CBO chiefs to disclose any land acquisitions related to their role is necessary. This information should be publicly accessible, and guidelines developed to ensure such purchases benefit the community rather than personal interests.

Relationship between CBOs and village governments: It is important to assess the quality of interactions and partnerships between CBOs and village governments in a participatory and inclusive manner, involving a wide range of stakeholders (Al'Afghani et al. 2024). A framework to evaluate the level of cooperation and autonomy between CBOs and village governments needs development, using key indicators such as the frequency and quality of communication, resource sharing, joint planning, and the effectiveness of conflict resolution mechanisms (Al'Afghani et al. 2024). Categorizing CBOs based on their organizational culture and asset ownership structure is important to provide tailored support for their professionalization.

7.4 WATER ALLOCATION, LICENSING FOR COMMUNITY GROUPS (BULK WATER SECURITY)

The current legal framework in Indonesia poses challenges for ensuring bulk water security for community-based water supply systems like PAMSIMAS. Law No. 17 of 2019 on Water Resources regulates granting of water use permits for drinking water strictly only to BUMN, BUMD, and BUMDes (Government of Indonesia 2019). This provision excludes effectively other community-based entities like

cooperatives, associations, and foundations from obtaining water abstraction licenses. This legal restriction threatens the sustainability and legal certainty of bulk water access for these community-managed systems (Al'Afghani and Bisariyadi 2021).

The limited recognition of community-based water providers in the legal framework has cascading effects. It leads to lack of clear asset ownership, difficulties in accessing funding, and regulatory ambiguity. Without licenses, the bulk water security of these community systems remains precarious. They are vulnerable to competing claims over water resources and changes in local land use.

Reforming the legal framework to accommodate the diversity of community-based water providers and ensuring their water security is a critical policy imperative. It is essential for sustainably expanding water access and realizing the potential of community-driven water initiatives. Failure to address this gap in the licensing framework perpetuates the vulnerability and marginalization of community-managed water systems.

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ANNEX 1: STAKEHOLDER ROLES IN RURAL WATER SUPPLY IN INDONESIA

INSTITUTIONS	ROLES AND RESPONSIBILITIES
NATIONAL LEVEL	
Bappenas (National Development Planning Agency)	Bappenas is responsible for policy development, national development planning, inter-ministerial coordination, and synchronization. Dir. of Housing and Settlement (Bappenas 2022) focuses on developing policies on housing settlement, including drinking water supply. Dir. of Water Resources (Bappenas 2022) focuses on water resources management policies.
Ministry of Public Works and Housing (MoPWH)	MoPWH is responsible for policy development, regulation, infrastructure, monitoring, and evaluation. Dir. of Drinking Water under Directorate General Cipta Karya (MoPWH 2020) focuses on policies and regulation and implementation on drinking water supply system. Dir. of Sanitation under Directorate General Cipta Karya focuses on policies and regulation on management of domestic wastewater, waste management, and environmental drainage. Dir. of Groundwater and Raw Water (MoPWH 2020) fosters (*membina*) the implementation of regulation on groundwater and raw water, including the facilities and infrastructure for conservation. Dir. General of Public Works Infrastructure and Housing is responsible for policy formulation, implementation, and regulation on infrastructure financing in the PWH sector.
Ministry of Health (MoH)	Dir. of Environmental Health is responsible for setting drinking water quality standard and monitoring.
Ministry of Home Affairs (MoHA)	MoHA is responsible for policies and regulations on regional development, regional autonomy, as well as domestic governance. Dir. General of Regional Development (The President of the Republic of Indonesia 2021) develops policies and regulations on governmental affairs and regional development, and service standards. Dir. of Regional Finance is responsible for regional budget and planning, management of BUMD (regionally owned enterprise), regional grant. Dir. of Village Government Oversight (Dir. Bina Pemdes) develops policies and regulations on village government administration, village asset, village finance.
Ministry of Village, Development of Disadvantaged Regions, and Transmigration (MoV)	Dir. General of Village and Rural Development (Ditjen PDP) develops policies and regulation on development of village and rural infrastructure, development of social, cultural and village environment, and facilitation of village fund utilization (MoV 2020). Dir. General of Economic Institutional Economic Development develops policies and regulation and oversight on village owned enterprise (BUMDes) development.
Ministry of Energy and Mineral Resources (MoEMR)	Centre for Groundwater and Environmental Geology, Geological Agency is responsible for groundwater management and monitoring, licensing of groundwater drilling and use, maintenance of groundwater database (Tarasinta et al. 2021).
Ministry of Environment and Forestry	Dir. Water Pollution Control is responsible for policies and regulation on wastewater discharges, water quality, issues discharge permit. Directorate General of Catchment Management and Forest Rehabilitation develops policies and regulations on catchment management, conservation of water and land.
Ministry of Finance	Ministry of Finance allocates funds from the national budget to support rural water supply projects.
Ministry of Education	Ministry of Education sets policies on school sanitation.
Pokja AMPL Nasional	*Pokja AMPL Nasional* formulates coordination, advocacy, and strategy.
PROVINCIAL LEVEL	
Bappeda Provinsi (Planning Agency)	Bappeda *Provinsi* manages development planning (RPJMD, RPJPD) at provincial level, sets target for water and sanitation, managing provincial APBD to support infrastructure.

Dinas PU/PKP[17]	Dinas PU/PKP fosters (*membina*) regency/city in drafting JAKSTRADA/SSK, allocating *APBD provinsi*, guiding regency/city in applying RPAM in water operation/maintenance.
Community and village empowerment agency (DPMD)	DPMD provides capacity building to regency PMD officials, village heads, associations; Coordinating with regency PMD office in overseeing and fostering (*membina*) village governments.
Health Agency (Dinkes)	*Dinkes* determines policy and strategy for supervision of drinking water quality at provincial level.
REGENCY/CITY LEVEL	
Dinas PUPR (Housing and Settlement Agency)	*Dinas PUPR* sets rural drinking water and sanitation policy in JAKSTRADA and SSK, allocating regency/city APBD for community-based infrastructure, provides technical assistance (if needed), monitoring and supervision of water infrastructure operations, maintenance, expansion.
Bappeda (Planning agency)	Bappeda develops budget policies, coordinates with other local government agencies, sets targets for proper and safe drinking water and sanitation.
Village empowerment agency (DPMD)	DPMD fosters (*membina*) and capacity building for LKD and BUMdes, and CBO providers, community empowerment.
Health Agency	The Health Agency monitors drinking water quality and ensures safe drinking water supply, allocates APBD regency/city for water quality testing.
Environmental Agency	The Environmental Agency monitors and supervises wastewater discharges, provides recommendation for water discharges.
VILLAGE LEVEL	
Village government	Village government is responsible for inclusion of community-based drinking water in village policy documents (RPJMDes, *RKP Desa*, APBDes), formalization in village regulations, and technical assistance for CBO water providers.
Badan Permusyawaratan Desa (Village Consultative Body)	Badan Permusyawaratan Desa is responsible for discussing and agreeing on the draft village regulations with the village head, accommodating and channeling the aspirations of the village community, and supervising the performance of the village head.
SERVICE PROVIDERS	
Community-based organizations (CBOs)	CBOs include associations (*perkumpulan*), cooperatives, or foundations providing drinking water access in rural areas.
KPSPAM	KPSPAM is responsible for managing water supply systems developed through PAMSIMAS program and/or other community-based initiatives, established based on the consensus of village communities. KPSPAM is also known as KPSPAMS, BPSPAM, HIPPAM.
BUMDes	BUMDes are village-owned enterprises providing drinking water services to rural communities.
PDAM	PDAMs are regionally owned water utilities providing drinking water services.
ASSOCIATION	
Association for rural SPAM providers	Association is a forum for rural drinking water supply providers (PAMSIMAS and non-PAMSIMAS), which exists in regency, province, as well as national level. Association is responsible to provide capacity building for water supply providers, information sharing, manage KPSPAM performance data at village level.

[17] Local government agencies may have different names in different regions.

ANNEX 2: KEY LAWS AND REGULATIONS

LAWS AND REGULATIONS	CONTENT
Law No. 17 of 2019 on Water Resources (and its amendments)	Regulates water resources management, roles of central, provincial, regency/city, village government in water resources management, water resources permits, water resources conservation. It emphasizes on state's control over water resources.
Law No. 23 of 2014 on Local Government (and its amendments)	Regulates regional autonomy, government affairs (*urusan pemerintahan*), as well as competence of central, provincial, and regency/city government in drinking water supply system.
Law No. 6 of 2014 on Village (and its amendments)	Regulates village authority, rights and obligation of village and village communities, village finance and asset, village development, village-owned enterprise (BUMDes).
Government Regulation No. 122 of 2015 on Drinking Water Supply System	Regulates the types of drinking water supply services (piped and non-piped), drinking water supply system (SPAM) implementation which includes its development and management, planning documents for SPAM, responsibilities of central, provincial, regency/city, and village government in SPAM. It regulates 'community groups' in undertaking SPAM, albeit not in detail.
Government Regulation No. 12 of 2019 on Local Government Finance	Regulates the scope of regional finance, regional asset, regional budget (APBD), regional expenditure, regional finance management.
Government Regulation No. 2 of 2018 on Minimum Service Standards	Regulates the types of minimum service standards (MMS), such as MMS for public works which also includes the fulfillment of drinking water provision by provincial and regency/city government.
Government Regulation No. 28 of 2024 on the Implementing Regulation of Law No. 17 of 2023 on Health	Regulates a wide range of health-related matters, including environmental health. It stipulates that: (i) drinking water and (ii) water for swimming pool, solus per aqua are subject to standards and health requirements.
Government Regulation No. 11 of 2021 on Village-owned Enterprise (BUMDes)	Regulates establishment of BUMDes, asset, ownership, business unit, among others.
Minister of Public Works and Housing Regulation No. 27/PRT/M/2016 on Drinking Water Supply System Implementation	Implementing regulation of GR 122 of 2015. It regulates in more detail the provisions under GR 122 of 2015, such as community groups in undertaking drinking water supply system, planning documents such as the policy and strategy of drinking water supply (KNSP/JAKSTRA) and drinking water supply system master plan (RISPAM).
Minister of Public Works and Housing Regulation No. 2 of 2024 on Procedure for Water Resources Utilization Licensing and Approval for Water Resources Utilization	Stipulates the licensing requirement and procedure for *Izin Pengusahaan Sumber Daya Air* (Water Resources Commercial License) and Persetujuan Penggunaan Sumber Daya Air (Approval for Water Resources Utilization).
Minister of Home Affairs Regulation No. 77 of 2020 on the Technical Guidance for Local Government Finance	Implementing regulation of GR 12/2019. It provides more detail on regional finance, such as the types of regional expenditure including the use and requirements.
Minister of Home Affairs Regulation No. 59 of 2021 on Application of Minimum Service Standards	It further regulates minimum service standards as stipulated in GR 2/2018, including provincial and regency/city targets for drinking water.
Minister of Village and Disadvantage Regions No. 7 of 2023 on Village Fund Allocation for 2024	It outlines the activities prioritized for the use of village fund, the procedure for enacting village fund.
Minister of Health Regulation No. 2 of 2023 on Implementing Regulation of Government Regulation No. 66 of 2014 on Environmental Health	Provides the standards for drinking water quality, regulates the supervision and monitoring of drinking water standards.
Minister of Energy and Mineral Resources Decision No. 291.K/GL.01/MEM.G/2023 on Implementation Standard for Groundwater Use Approval as amended by Minister of Energy and Mineral Resources Decision No. 443.K/GL.01/MEM.G/2023	Provides the requirements and procedures for Groundwater Use Approval. Community groups can apply for this approval
Minister of Home Affairs Regulation No. 18 of 2018 on Village Community Institution and Customary Institution	Regulates the establishment of village community institution (LKD), as well as its tasks and functions.

ANNEX 3: MANDATORY PARAMETERS FOR DRINKING WATER TESTING

NO	PARAMETER	MAXIMUM CONCENTRATION	UNIT	METHODS
MICROBIOLOGICAL				
1	Escherichia coli	0	CFU /100ml	SNI /APHA
2	Total Coliform	0	CFU /100ml	SNI /APHA
PHYSICAL				
3	Temperature	Temperature ±3	°C	SNI /APHA
4	Total Dissolve Solid	<300	mg /L	SNI /APHA
5	Turbidity	<3	NTU	SNI or equivalent
6	Color	10	TCU	SNI /APHA
7	Odor	Odorless		APHA
CHEMICAL				
8	pH	6.5 - 8.5	-	SNI/APHA
9	Nitrate (as NO3) (dissolved)	20	mg/L	SNI/APHA
10	Nitrite (as NO2) (dissolved)	3	mg/L	SNI/APHA
11	Chromium valence 6 (Cr6+) (dissolved)	0.01	mg/L	SNI/APHA
12	Iron (Fe) (dissolved)	0.2	mg/L	SNI/APHA
13	Manganese (Mn) (dissolved)	0.1	mg/L	SNI/APHA
14	Residual chlorine (dissolved)	0.2-0.5 with 30 minutes contact time	mg/L	SNI/APHA
15	Arsenic (As) (dissolved)	0.01	mg/L	SNI/APHA
16	Cadmium (Cd) (dissolved)	0.003	mg/L	SNI/APHA
17	Lead (Pb) (dissolved)	0.01	mg/L	SNI/APHA
18	Fluoride (F) (dissolved)	1.5	mg/L	SNI/APHA
19	Aluminum (Al) (dissolved)	0.2	mg/L	SNI/APHA

SOURCE: ATTACHMENT OF MINISTER OF HEALTH REGULATION NO. 2 OF 2023 ON THE IMPLEMENTATION OF GOVERNMENT REGULATION NO. 66 ON ENVIRONMENTAL HEALTH