IJPD The Indonesian Journal of Planning and Development

P-ISSN: 2087-9733 E-ISSN: 2442-983X

Journal Homepage: http://ejournal2.undip.ac.id/index.php/ijpd

Volume 10 No 2, October 2025, 106-113

https://doi.org/10.14710/ijpd.10.2.106-113

OPEN ACCESS

Community Perception of Water Distributive Justice: The Case of Lebak Siliwangi, Bandung

Submitted: 10 February 2025
Accepted: 5 February 2026
Available Online: 5 February 2026

Aulia Irina Septiani [1], Maria Dolorosa Bhebhe [2], Ghina Amalia [3], M. Afif Hidayat [4], Imam Abdullah Bashir [5]

[1,2,3,4,5]*School of Architecture, Planning, and Policy Development (SAPPD), Bandung Institute of Technology, Bandung, Indonesia*
auliairina2@gmail.com

Abstract

Access to clean water in urban areas is generally higher than in rural areas. However, clean water services are not always optimal or in accordance with established standards. Fair water distribution is essential to ensure that clean water is provided to the community in line with the principles of quality, quantity, continuity, accessibility, and affordability, both from formal and informal sources, and for different community groups, including marginalized and low-income households. This study aims to examine community perceptions regarding the fairness of clean water service distribution in Lebak Siliwangi Village, Bandung City. A qualitative descriptive approach was employed, using data obtained through observations, interviews, and literature review. The findings reveal that significant gaps remain in water service distribution. Water source from Local Water Supply Utility (PDAM) generally provides better service but does not reach all community groups equally. Meanwhile, informal sources cover wider areas but face persistent challenges related to quality, quantity, and continuity. Community perceptions indicate that tariffs in some areas are still considered disproportionate to service quality, particularly for households with greater water needs. These results suggest that optimizing distribution networks, monitoring water quality, improving infrastructure, and encouraging community participation are key strategies to ensure inclusive and equitable clean water services.

Keywords: *Clean Water Distribution, Community Perception, Justice*

1. Introduction

Rapid urbanization leads to overcrowding in urban areas, along with environmental challenges such as water quality degradation, soil degradation, and air pollution (Liang et al., 2019). According to the United Nations (UN), more than 50% of the world's population now lives in urban areas, and this number is predicted to increase in the coming decades. This rapid urbanization has a significant impact on the availability of natural resources, one of which is clean water (UNDESA, 2018). Rapid urbanization can exacerbate the imbalance between water supply-demand and increase the risk of water shortages in underdeveloped areas (Heidari et al., 2021).

Water availability is an important factor in meeting the basic needs of urban communities. As the population increases, the demand for clean water also increases. Access to clean water is one of the Sustainable Development Goals (SDGs) that the UN also recognizes as a human right essential to the health, dignity and well-being of every human being (UNESCO, 2019). Ensuring equitable access to water and sanitation contributes to improved living standards, promotes social cohesion, and benefits investment, economic growth and sustainable development (United-Nations, 2012). Access to clean water is critical in supporting poverty alleviation and socio-economic development (Cetrulo et al., 2020), as well as for realizing human well-being, including public health, gender equality and women's empowerment, and economic development (Dickin & Gabrielsson, 2023).

Urban areas have higher levels of access to clean water compared to rural areas. However, there is no guarantee that services will optimally meet service standards (Bain et al., 2014). To provide clean water, the distribution network system is very important. The system distributes clean water from the treatment

How to Cite:
Septiani, A. I., Bhebhe, M. D., Amalia, G., Hidayat, M. A., & Bashir, I. A. (2026). Community Perception of Water Distributive Justice: The Case of Lebak Siliwangi, Bandung. *The Indonesian Journal of Planning and Development, 10*(2), 106-113. https://doi.org/10.14710/ijpd.10.2.106-113

plant to the community with the desired quality, quantity and continuity as well as sufficient pressure (Zamzami et al., 2018). World Health Organization (WHO) in the Guidelines for Drinking-water Quality (GDWQ) (2021) explains the importance of water services. Water services are not only related to quantity and equitable access; they must also meet the 4 principles (Quality, Quantity, Continuity, and Affordability). The unavailability of equitable and adequate water services can worsen social inequality and public health conditions (Ministry of Public Works and Housing, 2015).

Previous research has shown that distributive injustice accounts for most inequalities in water services. Distributive injustice includes water quality that does not meet safe drinking water standards and the inability to utilize municipal services. Previous research (Suhartini & Jones, 2023) has examined the water supply, wastewater, and sanitation systems in Lebak Siliwangi and Tamansari villages, focusing on the role of community self-organization in providing basic services. Therefore, research on equity in the distribution of water services is very important to be further explored. This s explores the fair distribution of clean water services in Lebak Siliwangi Village based on community perceptions.

This study aims to explore the justice of clean water distribution based on community perceptions. To achieve this goal, the objectives of this study are: 1) To identify the types of clean water service infrastructure in Lebak Siliwangi Urban Village, 2) To identify community perceptions regarding the fairness of clean water service distribution in Lebak Siliwangi Village based on indicators of quality, quantity, continuity, accessibility, and tariff affordability. This study was conducted in Kelurahan Lebak Siliwangi, Coblong Subdistrict, Bandung City. The total population of Lebak Siliwangi Urban Village was 4,084 people, consisting 2,071 male and 2,013 female population. This village covers an area of 1.00 km² and is divided into 6 *Rukun Warga* (RW) and 23 *Rukun Tetangga* (RT). This study focuses on four RWs: RW 05, 06, 07, and 08 in Lebak Siliwangi Village.

Although Lebak Siliwangi is in an urban area, it has informal settlement characteristics. From these characteristics, Lebak Siliwangi can be referred to as *Kampung-Kota*. In Indonesia, *kampung* is a term for a rural settlement system. In the urban context, *kampung* refers to a traditional settlement with an organic spatial layout, reflecting the adaptation of local communities to limited resources and formal systems. It is often defined as a place for low-income groups to build communities that prioritize social solidarity (Jones, 2017). These settlements are generally self-built with irregular physical characteristics and flexible local rules, allowing residents to customize spaces independently as needed, although they often do not meet formal urban planning standards (Suhartini & Jones, 2020).

These characteristics reflect the history, ability, and independence of its residents in forming unique and diverse settlement patterns (Setiawan, 2010). In addition to the physical aspects, villages have a complex and dynamic social system due to the diversity of the residents' backgrounds, often inhabited by marginalized people. The village also functions as a dynamic economic center, with around 80% of dwellings used for home-based enterprises, indicating its important role in the structure of urban life (Setiawan, 2010).

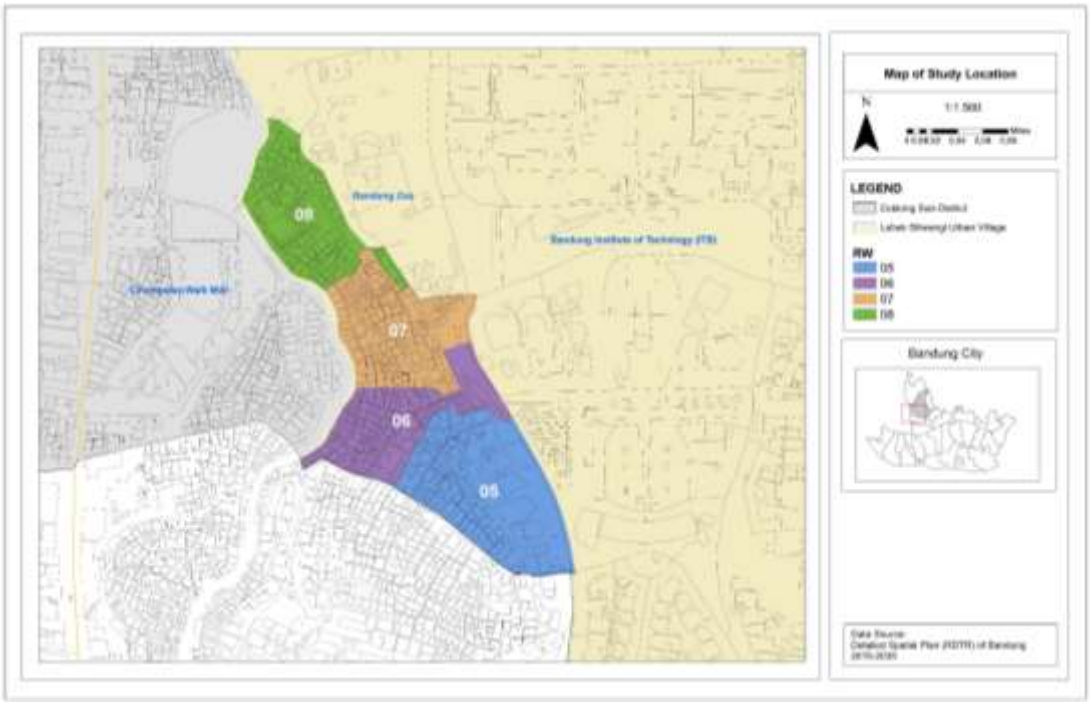


Figure 1. Map of Study Location
Source: Bandung City Spatial Plan 2015–2035, processed by the author

2. Literature Review

2.1 Equity and Justice Theory

The terms of equality, justice, or equity have been defined in several ways and evolved over time.

It began with the theory of John Locke (1632 -1704) who put forward the theory of justice in liberalism, stating that every individual has the freedom to determine himself and utilize what he has without having to depend on others' will. John Locke's theory was later responded to by a social philosopher, Karl Marx. Justice in Marxism is not about the extent to which resources should be equalized, but rather the form in which that equalization should occur. From the weaknesses of John Locke's and Karl Marx's theories, John Rawls later developed a theory of justice in 1971, accommodating basic freedoms and securing social equality in the book "A Theory of Justice". Rawls proposed two principles of justice. The principle of fair equality of principle and the principle of social and economic inequalities. These two principles are intended to regulate how rights and obligations are applied, how social and economic benefits are distributed, and how to organize society fairly (Alwino, 2017).

In general, justice has two main dimensions: horizontal equity (equality) and vertical equity (fairness). Horizontal equity involves the equitable distribution of resources, regardless of differences in people's needs, abilities or capabilities. However, vertical equity correlates with justice where resources are distributed according to people's needs (Seyedrezaei et al., 2023). Water justice can be divided into distributive justice (justice in water quantity and quality), procedural justice (justice in the process of water supply and distribution), and interactional justice (justice in the relationship between water sellers and buyers) (Beresford et al., 2024). In this study, the justice to be analyzed is related to distribution justice. Equity in water distribution refers not only to the amount of water available, but also to how the service is distributed fairly, meeting people's needs proportionally and avoiding discrimination based on social or geographic status. This equitable distribution of benefits emphasizes the principle that all people, without exception, should have access to clean water that meets their needs. Fair distribution is particularly important in the context of urban and rural water services, especially in the presence of social and economic inequalities. The following is a summary of theories related to the concept of justice from several literatures:

Table 1: Summary of Justice Theory

Theory	Definition	Reference
Vertical Equity	Resources are distributed according to the needs of the community, oriented towards fairness, and attentive to priority needy groups.	(Hartwig et al., 2022; Seyedrezaei et al., 2023)
Social Equity/Justice	Resources, opportunities, benefits, and burdens are allocated equitably to all groups in society.	(Gurney et al., 2021; Seyedrezaei et al., 2023)
Just City	Cities with public investments and regulations that produce equitable outcomes and prioritize the distribution of benefits to marginalized groups.	(Seyedrezaei et al., 2023)
Distributional Equity	Equitable access to goods and infrastructure, environmental facilities, services, and economic opportunities.	(Meerow et al., 2019)
Environmental Justice	Equitable distribution of environmental impacts and access to natural resources, including water, based on equity across social groups.	(Deitz et al., 2020)
Non-discrimination and Equality	Water can be enjoyed by men and women without discrimination	(Kayser et al., 2013)
Water Distributive Justice	Equitable access and distribution of water in both quantity and quality.	(Beresford et al., 2024)

Source: Literature Review, 2025

Based on the summary of the theories presented in the table above, this study adopts the concept of distributive equity (Meerow et al., 2019) with a specific focus on water distributive justice (Beresford et al., 2024). According to Beresford et al. (2024), water is a vital natural resource that must be managed fairly, equally, and inclusively to meet the needs of all people, particularly marginalized and low-income groups.

The indicators of distributive justice relevant to this study include four key dimensions. The first is water access, which emphasizes how fairly water is distributed across different communities, with particular concern for vulnerable populations. The second is water price, which highlights the fairness of tariffs, especially the significant differences between users of piped water and those who depend on informal water providers. The third is water quality, which refers to the assurance that water is safe for consumption and acknowledges disparities between formal and informal sources. Finally, the fourth is prioritization of vulnerable groups, which stresses the importance of giving priority to marginalized households through subsidies or other needs-based mechanisms.

.

2.2 Clean Water Service Indicators

Water is a basic human need and right that is as important as air. It directly or indirectly plays a central role in all aspects of life and daily activities. Every person requires access to clean water services in adequate quantities for essential purposes such as drinking, cooking, personal hygiene, and sanitation, without posing health risks (Dinka, 2018). Raw water sources for clean water can consider all local potential surface water and groundwater located in the area or around the planning area, which can be sourced from surface water (lakes, rivers, reservoirs, seas, swamps), groundwater basins (springs, shallow ground wells, deep ground wells) and/or rainwater that meets certain quality standards (Triatmadja, 2019).

In efforts to provide clean water, the distribution network system is a critical component, as it functions to deliver water to households with sufficient quality, quantity, continuity, and pressure (Gottipati & Nanduri, 2014; Novita & Marsono, 2019). To assess the adequacy of water services, the International Water and Sanitation Centre (IRC) developed a five-tier domestic service framework in 2008 and 2009. This framework evaluates service levels using several indicators: quantity, quality, continuity and reliability, accessibility, and affordability (Kayser et al., 2013):

Quantity refers to the sufficiency of water available for personal and household needs, including drinking, sanitation, food preparation, and hygiene. *Quality* requires that water be safe for consumption, free from microorganisms, harmful chemicals, or radiological hazards, as measured against national or local standards. *Continuity* reflects the stability of water availability, usually assessed in terms of service hours per day, while *reliability* considers the system's resilience against unplanned interruptions such as breakdowns or power outages. *Accessibility* measures the time and distance needed to obtain water, ensuring that all groups, including children, the elderly, and persons with disabilities, can reach water sources without difficulty. *Affordability* relates to the ability and willingness of households to pay for water, influenced not only by the cost itself but also by service quality, continuity, and location.

In Indonesia, the Drinking Water Supply System (*Sistem Penyediaan Air Minum* or SPAM) is regulated under the Ministry of Public Works and Public Housing Regulation No. 27/PRT/M/2016. Service levels are classified based on access, location, coverage, and technical standards. From an access perspective, optimal service is defined as 24-hour water availability that meets quality, quantity, and continuity standards. Basic service provides minimum user needs but may have time or quantity limitations, while limited service falls short of these minimum standards. In terms of location, services may be delivered either through piped networks directly to households or through non-piped distribution systems such as hydrants and kiosks. Coverage is categorized as high when reaching 100 percent of the population, medium when reaching between 70 and 80 percent, and low when below 70 percent. Technical standards specify that water must meet quality standards, with a minimum daily quantity of 60–120 liters per person depending on area classification, continuous supply ideally available for 24 hours, and affordable costs in line with principles of social and economic justice. These indicators provide the foundation for assessing the fairness of clean water service distribution in this study, focusing on availability, safety, continuity, accessibility, and affordability across different community groups.

In this study, the assessment of water quality is primarily based on community perceptions and visual observations, rather than laboratory testing. While residents' experiences provide important insights into everyday water use and acceptability, this approach has clear limitations in determining whether the water fully meets national or WHO drinking water standards. Visual characteristics such as color, odor, and turbidity can indicate potential problems but cannot reliably detect chemical or microbiological contamination. Therefore, the findings related to water quality should be interpreted as indicative of perceived service conditions rather than a definitive measure of water safety. This limitation highlights the need for future studies that integrate household-level water sampling and laboratory analysis to strengthen the validity of assessments on water quality in *kampung–kota* settings.

Based on the previously explained theories, the variables used in this study related to clean water distribution justice are:

Table 2: Study Variables based on Theory

Water Distributive Justice (Beresford et al., 2024)	**Indicators**	**Definition (Kayser, 2013; Dinka, 2018)**
• Water distributed equitably, whether the water comes from formal or informal sources. • Water distributed equitably across different community groups, including marginalized and low-income groups.	Quantity	The availability and continuity of water for everyone to be used for personal and household purposes.
	Quality	The water required must be safe, in terms of physical, chemical, biological, and radiological hazards that threaten one's health.
	Continuity	The stability of water availability from piping or water sources which is usually assessed in hours per day of service.
	Accessibility	The amount of time and distance required to reach the water source.
	Affordability	The fees charged for obtaining drinking water should be affordable to all levels of society, in accordance with the principles of social and economic justice.

Source: Literature Review, 2025

3. Methods

3.1 Data Collection

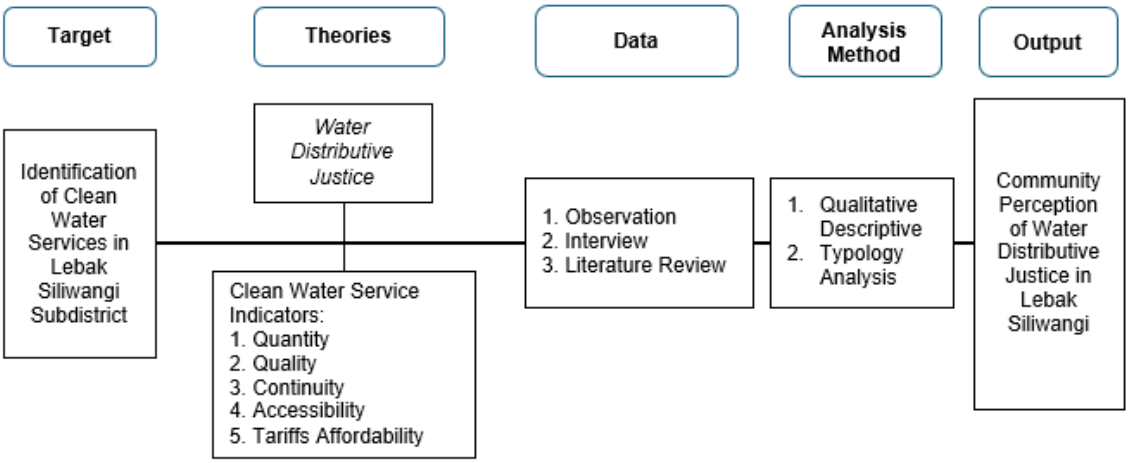
Data collection in this study was carried out through a combination of field observations, interviews, and literature review. Observations were conducted across several neighborhood units (*Rukun Warga*/RW) using random sampling, with the selection based on the types of infrastructure available, as infrastructure characteristics in each RW tend to be similar. The primary data obtained from these observations were complemented with interviews, which provided further insights into community experiences and perceptions regarding water distribution. In addition, secondary data were collected from previous studies that addressed

clean water services in Lebak Siliwangi Village, thereby providing broader context and supporting evidence for the field findings.

3.2 Analysis Method

The analysis employed a typology-based approach to classify different water service conditions across the study area. The construction of the typology followed three main stages. First, key service indicators, namely water source (formal/informal), quantity, continuity, accessibility, and affordability—were used as classification criteria based on the service framework proposed by Kayser et al. (2013) and national SPAM standards. Second, each RW (05, 06, 07, and 08) was examined through field observations and interview to identify dominant patterns of water provision, including dependence on Local Water Supply Utility, communal systems, or individual wells. Third, RWs with similar infrastructure characteristics and service experiences were grouped together to form distinct typological categories of water service provision.

This typology does not aim to rank neighborhoods, but rather to reveal structural patterns of water distribution and how different infrastructure arrangements shape community experiences. The classification is justified because water access in *kampung–kota* areas is not uniform; instead, it is shaped by a combination of physical infrastructure, local governance, and community self-organization. By comparing these typologies, the study can identify which configurations tend to produce more equitable or inequitable outcomes in terms of distributive justice.



4. Results

4.1 Identification of Clean Water Service Infrastructure Types

Clean water service infrastructure in Lebak Siliwangi Village can generally be classified into three categories: individual, communal, and government-managed systems. The individual system is the most common, applied in RW 05, 06, 07, and 08, where households provide their own groundwater sources to meet daily needs. This approach is considered more effective by some residents because it ensures direct control over availability. The communal system is implemented in RW 05 and RW 08, serving several households collectively. Managed by local community groups at the RW level, this system relies on groundwater distributed through piping. It has been in operation since 2017 as part of the Bandung City Urban Drinking Water Grant Program, supported by national funding. By 2019, a total of 72 families benefited from this communal infrastructure, which has been maintained in a structured and organized manner at the community level. The government-managed system, operated through Local Water Supply Utility in Indonesia named *Perusahaan Umum Daerah Air Minum* (PDAM), also serves households in RW 05, 06, and 07. Some residents rely on PDAM as their main source of water, while others combine it with individual systems to ensure continuity during service disruptions.

Figure 3. Observation Results
Source: Field observation, 2025

4.2 Community Perceptions of Justice in Clean Water Service Distribution in Lebak Siliwangi

Community perceptions of fairness in water service distribution were assessed based on five indicators: quantity, quality, continuity, accessibility, and affordability. In terms of quantity, residents of RW 05 reported that water availability generally met their needs, while those in RW 06 and RW 07 experienced shortages during the dry season or when technical issues occurred. Similarly, RW 08 households faced reduced supply in dry periods, indicating that water availability remains vulnerable to seasonal changes and infrastructure limitations. Water quality was mostly considered acceptable in RW 05, 06, and 08, where the water appeared colorless, tasteless, and odorless. However, residents of RW 07 often reported cloudy and foul-smelling water during the rainy season. It should also be noted that the current study only assessed water quality visually, as laboratory testing for chemical and biological parameters was not conducted. With regard to continuity, households in RW 05 and RW 06 reported relatively stable supply, although occasional disruptions occurred due to equipment breakdowns. In RW 07, PDAM supply often declined in the dry season, while RW 08's communal system faced interruptions when technical failures occurred. Accessibility also varied across the study area. Households in RW 05 and RW 08, which relied on communal systems, enjoyed more direct access to water sources. In contrast, some households in RW 06 and RW 07 faced limitations, especially those depending solely on PDAM connections. Finally, perceptions of affordability differed between communities. In RW 05 and RW 08, most residents considered water tariffs affordable and appropriate. Conversely, in RW 06 and RW 07, residents expressed dissatisfaction, viewing tariffs as too high relative to the quality and stability of the services, particularly for business owners such as boarding houses, food stalls, and laundry services.

5. Discussion

The findings of this study show that water service distribution in Lebak Siliwangi Village is characterized by significant disparities across neighborhoods. PDAM, as the formal provider, generally offers better service quality and continuity, particularly in RW 05, where residents reported stable supply and acceptable tariffs. However, coverage remains limited, and in areas such as RW 07, the service was inconsistent, with reduced flow during the dry season and declining water quality during the rainy season. As a result, residents often turned to informal sources, such as wells, to meet their needs.

Informal sources, including individual and communal wells, provide wider coverage and serve as an essential complement to PDAM. Nevertheless, these systems face persistent challenges. Groundwater availability decreases during the dry season, while equipment failures and power outages disrupt continuity. In RW 08, residents also reported sediment and discoloration during the rainy season, undermining perceptions of safety. Although the communal system has been well managed since its establishment, technical vulnerabilities still hinder its reliability.

Community perceptions of fairness reflect these realities. Residents in RW 05 and RW 08 generally felt more satisfied with their water services, citing stability of flow, reasonable tariffs, and ease of access. In contrast, dissatisfaction was more common in RW 06 and RW 07, where limited availability, unstable supply, and tariffs perceived as disproportionate to service quality led to a sense of distributive injustice. These perceptions indicate that distributive justice in water services remains uneven, particularly for households and small businesses with greater water demands.

Addressing these disparities requires attention to both infrastructure and governance. Expanding PDAM coverage to underserved areas such as RW 06 and RW 07 will reduce reliance on informal sources and

improve equity in access. Regular water quality monitoring, including laboratory testing, is necessary to ensure safety, especially in areas affected by seasonal changes. Infrastructure improvements, such as communal reservoirs and routine maintenance, will enhance continuity and reduce vulnerability to technical disruptions. Furthermore, accessibility can be strengthened through incentives for network expansion, while tariff structures should be reviewed to ensure proportionality between cost and service quality. Finally, community involvement remains crucial. Local participation in water management, supported by collaboration with PDAM and municipal authorities, can increase accountability, foster trust, and improve long-term sustainability.

In summary, while both formal and informal systems play an important role in providing water to residents of Lebak Siliwangi Village, neither fully guarantees fairness across all indicators. Bridging the service gaps requires integrated strategies that combine technical improvements, policy adjustments, and active community engagement to achieve more inclusive and equitable clean water distribution.

The findings have important implications for urban drinking water policy, particularly in *kampung–kota* areas where formal infrastructure coverage remains uneven. Rather than viewing informal water systems as merely temporary or inferior, municipal authorities should recognize them as integral components of the urban water landscape. Policies aimed at expanding PDAM services need to be accompanied by strategies that integrate existing communal and community-managed systems, rather than replacing them entirely.

For PDAM expansion, this study suggests that extending pipelines alone is insufficient if service reliability and tariff structures are not aligned with local socio-economic conditions. In areas such as RW 06 and RW 07, service improvements should prioritize consistent supply and transparent tariff schemes before large-scale network expansion. Additionally, collaborative governance models—where PDAM works together with community water managers—could enhance accountability, maintenance capacity, and trust between residents and formal providers.

More broadly, urban water policy in Bandung should move beyond a purely technical approach and adopt a justice-oriented framework that explicitly considers the needs of low-income households and small businesses in *kampung–kota*. This includes flexible service standards, targeted subsidies, and participatory planning mechanisms that allow residents to actively shape water infrastructure development in their neighborhoods.

6. Conclusion

Based on the theories and field findings regarding community perceptions of the fairness of clean water service distribution in Lebak Siliwangi Village, it can be concluded that the distribution of water services has not fully met the principle of distributive justice. Although water is provided through both formal and informal sources, these services have not reached all community groups equally, particularly marginalized and low-income residents.

In terms of quantity, the availability of water from both PDAM and non-PDAM sources are generally sufficient, but disruptions occur during the dry season or when technical problems arise. Water quality is physically acceptable in several RWs, yet seasonal changes, especially in the rainy season, reduce water clarity and odor, and chemical and biological quality remains uncertain due to the absence of laboratory testing. The continuity of PDAM services is relatively better, but many households that rely on communal or individual systems still face instability during equipment damage or power outages. Accessibility to water sources is unequal; some households enjoy direct connections while others must rely on more limited access. Likewise, the affordability of tariffs varies, with some residents considering rates fair, while others—particularly business owners—perceive costs as disproportionate to the quality and stability of services received.

This study has several limitations that should be acknowledged. First, the assessment of water quality relies on community perceptions and visual observations rather than laboratory testing, limiting the ability to draw definitive conclusions about water safety. Second, the typology analysis is based on a relatively small number of RWs and qualitative data, which may not capture all variations in water service conditions across Bandung. Third, the study focuses primarily on distributive justice and does not deeply examine procedural or interactional dimensions of water justice.

Future studies should incorporate laboratory-based water quality testing at household and communal system levels to strengthen empirical validity. Comparative studies across multiple *kampung–kota* areas in Bandung or other Indonesian cities will also be valuable to identify broader patterns of infrastructural inequality. In addition, further studies may explore governance dynamics between PDAM, local communities, and informal water providers to better understand how decision-making processes shape equitable water distribution.

References

Alwino, A. (2017). Diskursus Mengenai keadilan sosial: kajian teori keadilan dalam liberalisme Locke, Persamaan Marx, dan “Justice as Fairness” Rawls. *Melintas*, *32*(3), 309. https://doi.org/10.26593/mel.v32i3.2696.309-328

Bain, R. E. S., Wright, J. A., Christenson, E., & Bartram, J. K. (2014). Rural-Urban inequalities in post 2015 targets and indicators for drinking-water. *Science of the Total Environment*, *490*, 509–513. https://doi.org/10.1016/j.scitotenv.2014.05.007

Beresford, M., Brewis, A., Choudhary, N., Drew, G., Garcia, N. E., Garrick, D., Hossain, M. J., Lopez, E.,

Nébié, E. I., Pacheco-Vega, R., Roque, A., & Wutich, A. (2024). Justice and moral economies in modular, adaptive, and decentralized (MAD) water systems. *Water Security*, *21*(November 2022). https://doi.org/10.1016/j.wasec.2023.100148

Cetrulo, T. B., Marques, R. C., Malheiros, T. F., & Cetrulo, N. M. (2020). Monitoring inequality in water access: Challenges for the 2030 Agenda for Sustainable Development. *Science of the Total Environment*, *727*, 138746. https://doi.org/10.1016/j.scitotenv.2020.138746

Deitz, R. L., Hellerstein, L. H., St. George, S. M., Palazuelos, D., & Schimek, T. E. (2020). A qualitative study of social connectedness and its relationship to community health programs in rural Chiapas, Mexico. *BMC Public Health*, *20*(1), 1–10. https://doi.org/10.1186/s12889-020-09008-6

Dickin, S., & Gabrielsson, S. (2023). Inequalities in water , sanitation and hygiene : Challenges and opportunities for measurement and monitoring. *Water Security*, *20*(October), 100143. https://doi.org/10.1016/j.wasec.2023.100143

Dinka, M. O. (2018). Safe Drinking Water: Concepts, Benefits, Principles and Standards. *Intech*, *11*(tourism), 13. https://doi.org/http://dx.doi.org/10.5772/intechopen.71352

Gottipati, P. V. K. S. V., & Nanduri, U. V. (2014). Equity in water supply in intermittent water distribution networks. *Water and Environment Journal*, *28*(4), 509–515. https://doi.org/10.1111/wej.12065

Gurney, G. G., Mangubhai, S., Fox, M., Kiatkoski Kim, M., & Agrawal, A. (2021). Equity in environmental governance: perceived fairness of distributional justice principles in marine co-management. *Environmental Science and Policy*, *124*(September 2020), 23–32. https://doi.org/10.1016/j.envsci.2021.05.022

Hartwig, L. D., Jackson, S., Markham, F., & Osborne, N. (2022). Water colonialism and Indigenous water justice in south-eastern Australia. *International Journal of Water Resources Development*, *38*(1), 30–63. https://doi.org/10.1080/07900627.2020.1868980

Heidari, H., Arabi, M., Warziniack, T., & Sharvelle, S. (2021). *Effects of Urban Development Patterns on Municipal Water Shortage*. *3*(July), 1–11. https://doi.org/10.3389/frwa.2021.694817

Jones, P. (2017). Formalizing the informal: Understanding the position of informal settlements and slums in sustainable urbanization policies and strategies in Bandung, Indonesia. *Sustainability (Switzerland)*, *9*(8). https://doi.org/10.3390/su9081436

Kayser, G. L., Moriarty, P., Fonseca, C., & Bartram, J. (2013). Domestic Water Service Delivery Indicators and Frameworks for monitoring, Evaluation, Policy and Planning: A Review. *International Journal of Environmental Research and Public Health*, *10*(10), 4812–4835. https://doi.org/10.3390/ijerph10104812

Liang, L., Wang, Z., & Li, J. (2019). The effect of urbanization on environmental pollution in rapidly developing urban agglomerations. *Journal of Cleaner Production*, *237*, 117649. https://doi.org/10.1016/j.jclepro.2019.117649

Meerow, S., Pajouhesh, P., & Miller, T. R. (2019). Social Equity in Urban Resilience Planning. *Local Environment*, *24*(9), 793–808. https://doi.org/10.1080/13549839.2019.1645103

Ministry of Public Works and Housing (PUPR). (2015). Water Resources Management Strategy in Indonesia. Jakarta: Ministry of Public Works and Housing.

Ministry of Public Works and Housing (PUPR). (2016). Regulation of the Minister of Public Works and Housing No. 27/PRT/M/2016 on the Implementation of drinking water supply systems. Jakarta: Ministry of Public Works and Housing.

Novita, M. D., & Marsono, B. D. (2019). Perencanaan Sistem Distribusi Air Minum Kecamatan Arjasa Kabupaten Jember. *Jurnal Teknik ITS*, *8*(2). https://doi.org/10.12962/j23373539.v8i2.45518

Setiawan, B. (2010). *Kampung kota dan kota kampung: Tantangan perencanaan kota di Indonesia*. Universitas Gadjah Mada.

Seyedrezaei, M., Becerik-Gerber, B., Awada, M., Contreras, S., & Boeing, G. (2023). Equity in the built environment: A systematic review. *Building and Environment*, *245*, 110827. https://doi.org/10.1016/j.buildenv.2023.110827

Suhartini, N., & Jones, P. (2020). Better understanding self-organizing cities: A typology of order and rules in informal settlements. *Journal of Regional and City Planning*, *31*(3), 237–263. https://doi.org/10.5614/jpwk.2020.31.3.2

Suhartini, N., & Jones, P. (2023). Kampungs Lebak Siliwangi and Tamansari, Bandung. *Urban Book Series*, *May*, 119–135. https://doi.org/10.1007/978-3-031-22239-9_7

Triatmadja, R. (2019). *Teknik penyediaan air minum perpipaan*. Yogyakarta: UGM Press.

UNDESA. (2018). *2018 Revision of World Urbanization Prospects*. https://esa.un.org/unpd/wup/

UNESCO. (2019). *The United Nations World Water Development Report 2019: Leaving No One Behind*.

United-Nations. (2012). *No One Left Behind. Good Practices to Ensure Equitable Access to Water and Sanitation in the Pan-European Region*.

Zamzami, Z., Azmeri, A., & Syamsidik, S. (2018). Sistem Jaringan Distribusi Air Bersih PDAM Tirta Tawar Kabupaten Aceh Tengah. *Jurnal Arsip Rekayasa Sipil dan Perencanaan*, *1*(1), 132–141. https://doi.org/10.24815/jarsp.v1i1.10330