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IMPACT EVALUATION OF THE USAID IUWASH TANGGUH ACTIVITY

BASELINE EVALUATION REPORT

November 2023

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Cover photo: A woman in front of a house in urban Indonesia washes clothing in a bucket with soapy water. Photo taken by Dede Suryadi Munajat for USAID.

ABSTRACT

This report characterizes the baseline status of outcomes of interest to the United States Agency for International Development's (USAID's) Indonesia Urban Resilient Water, Sanitation, and Hygiene (IUWASH Tangguh) Activity. Our mixed-methods, quasi-experimental baseline evaluation focuses on household water security and city-wide water service resilience in 31 of IUWASH Tangguh's partner cities and districts across North Sumatra, Banten, West Java, Central Java, East Java, and South Sulawesi.

Households in IUWASH Tangguh's community intervention sites report very few disruptions to the availability of their main sources of water, 85 percent of which are improved, on-premises, and available when needed. Though households' most common primary sources of drinking water are kiosks and bottled water, households use low-cost piped sources, boreholes, or protected wells to meet the bulk of their water needs. Kiosks and bottled water are normally purchased in small amounts and used exclusively for drinking, since they are much more expensive. The median household in these areas collects 181 liters of water per capita per day, which local and international standards consider sufficient to meet all household needs, though 14 percent of households fall short of Indonesia's minimum 60 liters per capita per day standard. A little over one-third of households spend more than four percent of their monthly income on water, an amount the Government of Indonesia (GOI) considers unaffordable. Based on *E. coli* tests administered at the point of consumption, 39 percent of households had drinking water that was contaminated with *E. coli*. We also administered *E. coli* tests directly at drinking water sources (prior to any household treatment for consumption) and found that protected wells were by far the most frequently contaminated (94 percent of households), while water kiosks, boreholes, and piped sources were contaminated at similar frequencies (39–45 percent of households). Though household water security is quite strong on balance, 72 percent of households fall short of at least one GOI standard for water services. Affordability and quality are the most common shortcomings.

Based on structured, expert review of strategic planning documents, interviews with *Perusahaan Daerah Air Minum* (local water utility; PDAM) and local government personnel, and review of secondary data, we find that neither PDAMs nor local governments have strongly institutionalized, evidence-based practices of risk identification, understanding, and mitigation, though they are anecdotally aware of hazards that pose risks to their water services. Prevailing formats for city-wide strategic planning documents very rarely include risk analysis. Good practices in evidence-based risk analysis are starting to emerge in PDAM water safety plans (RPAMs), but these are not yet informed by localized climate projections and are only used by PDAMs in 38 percent of IUWASH Tangguh partner cities and districts. This leaves cities and districts vulnerable to disruptions that hazards might cause to their water services. Local government budgets are more likely than PDAM budgets to include dedicated, protected funds for risk mitigation and disaster response and recovery. For their part, personnel within PDAMs and Bappedas assert that hazards rarely cause serious disruptions to their water services and express confidence that their institutions are well-prepared to confront such hazards in the future.

We make recommendations for IUWASH Tangguh on how to promote household water security and city-wide water service resilience based on these findings. Chief among our recommendations for improving household water security is supporting PDAMs to improve water quality at the point of distribution (i.e., the household meter). For city-wide water service resilience, we recommend vastly expanding the use of RPAMs among PDAMs, and advocating to revise standard local government master planning documents to include analysis of risks that hazards pose to water services.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

AMDK	*Air Minum Dalam Kemasan* (Packaged Water)
ANCOVA	Analysis of Covariance
B(B)WS	*Balai (Besa)r Wilayah Sungai* (Agency of River Area)
BLUD	*Badan Layanan Umum Daerah* (Regional Public Service Agency)
BMKG	*Badan Meteorologi Klimatologi dan Geofisika* (Meteorology, Climatology, and Geophysical Agency)
BPBD	*Badan Nasional Penanggulangan Bencana* (Provincial Disaster Management Agency)
CI	Community Intervention
DAMIU	*Depot Air Minum Isi Ulang* (Drinking Water Refill Depot)
DID	Difference-In-Difference
DKI	*Daerah Khusus Ibukota* (Special Capital Region)
EDR	Evaluation Design Report
EQ	Evaluation Question
EWS	Early Warning System
GOI	Government of Indonesia
HWISE	Household Water Insecurity Experiences
IDR	Indonesian Rupiah
IE	Impact Evaluation
IUWASH PLUS	*IUWASH Penyehatan Lingkungan untuk Semua* (IUWASH Environmental Health for All)
IUWASH Tangguh	Indonesia Urban Resilient Water, Sanitation, and Hygiene Tangguh
JMP	Joint Monitoring Programme
KII	Key Informant Interview
LG	Local Government
lpcpd	Liters of Water per Capita per Day
MDE	Minimum Detectable Effect
ml	Milliliters
NORC	NORC at the University of Chicago
PDAM	Perusahaan Daerah Air Minum (Local Water Utility)

PE	Performance Evaluation
PJT	*Perum Jasa Tirta* (River Basin Bulk Water Supply Corporation)
PUPR	Kementerian Pekerjaan Umum Dan Perumahan Rakyat (Ministry of Public Works and Housing)
QE	Quasi-Experiment
RISPAM	*Rencana Induk Sistem Penyediaan Air Minum* (Water Supply System Master Plan)
ROE	Return on Equity
RPAM	*Rencana Pengamanan Air Minum* (Drinking Water Safeguard Plan)
RPJMN	*Rencana Pembangunan Jangka Menengah Nasional* (National Medium-Term Development Plan)
RW	*Rukun Warga* (Sub-Neighborhood Administrative Unit)
SBC	Social and Behavior Change
SDG	Sustainable Development Goal
TBD	To Be Determined
UN	United Nations
UPTD	*Unit Pelaksana Teknis Daerah* (Regional Technical Implementation Unit)
URBAN WASH	Urban Resilience by Building and Applying New Evidence in WASH
USAID	United States Agency for International Development
USAID/RFS	USAID's Bureau for Resilience and Food Security
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization
WRM	Water Resource Management

EXECUTIVE SUMMARY

EVALUATION PURPOSE AND EVALUATION QUESTIONS

The United States Agency for International Development's (USAID's) Indonesia Mission (USAID/Indonesia) contracted the Urban Resilience by Building Partnerships and Applying New Evidence in Water, Sanitation, and Hygiene (URBAN WASH) program to conduct an impact evaluation (IE) of the Indonesia Urban Resilient Water, Sanitation, and Hygiene Tangguh (IUWASH Tangguh) Activity. The primary purpose of the IE is to generate recommendations for improving the Activity's effectiveness, identify lessons learned for similar future programming, and assess the feasibility of scaling up the Activity to additional geographic regions and populations. The IE has three guiding evaluation questions (EQs), two of which are included within the scope of the baseline study:

EQ1: How has household water security in the targeted areas changed as a result of the interventions?

EQ3: How has city-wide water service resilience changed as a result of the interventions?

IUWASH TANGGUH BACKGROUND

IUWASH Tangguh provides technical assistance to water, sanitation, and hygiene (WASH) institutions to promote access to safely managed WASH in Indonesia's vulnerable urban areas and strengthen climate-resilient WASH services and water resources management (WRM). The $44.1 million Activity does this through four objectives: (1) strengthened WASH and WRM sector governance and financing; (2) increased access to poor-inclusive, climate-resilient, safely managed drinking water and sanitation services; (3) improved WRM to support resilient drinking water services; and (4) increased adoption of behaviors and improved women's participation and leadership roles that contribute to improvement in WASH and WRM.

IUWASH Tangguh pursues activities within each objective at multiple levels, from the national and provincial level down to the city/district and even neighborhood level. As such, IUWASH Tangguh intends to make certain impacts on safely managed WASH and climate-resilient WASH and WRM services at a city-wide scale, though particular neighborhoods where it has intensive community interventions (CIs) should experience larger improvements in household water security.

EVALUATION DESIGN, METHODS, AND LIMITATIONS

URBAN WASH employed a mixed-methods, quasi-experimental design for the IE baseline. The design included two household-level quasi-experiments (QEs) focused on household water security in response to EQ1 and one city/district-level QE focused on resilient water service delivery for EQ3. Each component of this design drew its sample from the same set of treatment and comparison cities and districts, all within the same six provinces. Figure 1 illustrates this design, with gray, double-sided arrows representing each of the three QEs. The top arrow, and first QE, compares IUWASH Tangguh partner cities and districts with statistically matched comparison cities and districts. The bottom-right arrow, and second QE, compares households in IUWASH Tangguh's CI neighborhoods with households in statistically matched neighborhoods in non-CI neighborhoods within treatment cities and districts. Finally, the bottom-left arrow, and third QE, compares the households in non-CI neighborhoods with households from statistically matched neighborhoods in comparison cities and districts.

We mostly observe balance between matched quasi-experimental groups, though some significant differences between the groups remain. For EQ3, treatment cities and districts (*kota* and *kabupaten*)

have *Perusahaan Daerah Air Minum* (Local Water Utilities; PDAMs) with larger annual production volumes of water than comparison cities and districts. For EQ1, households in CI neighborhoods have fewer assets and lower overall monthly expenditure than households in matched non-CI neighborhoods. Also, households in non-CI treatment neighborhoods are more likely to use packaged water, less likely to have a woman head of household, and more likely to demonstrate safe water storage than comparison households.

Figure 1. Visualization of Three Quasi-Experiments

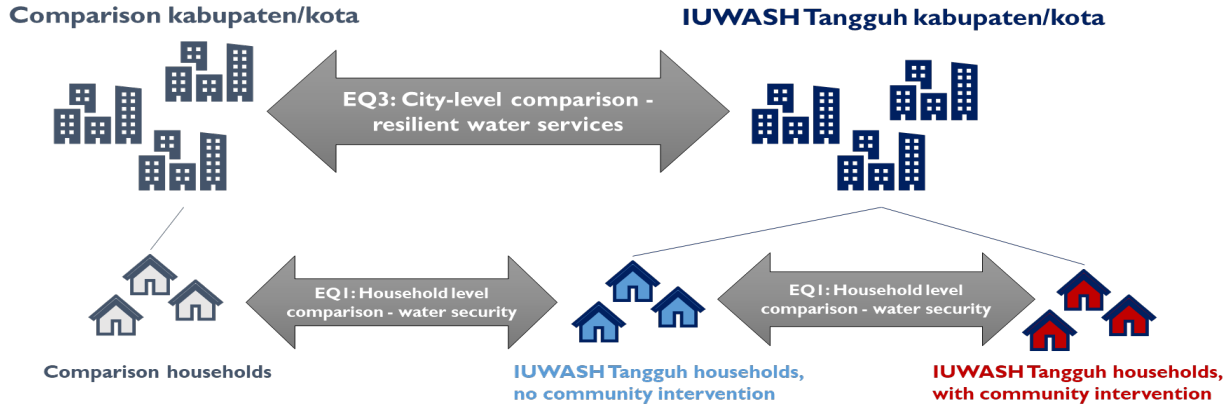


Table 1 summarizes the IE sampling design. This sample includes all treatment cities and districts eligible for the study and their statistically matched comparison cities and districts. It also includes a randomly sampled set of households from each of the CI neighborhoods eligible for the study, along with a randomly sampled set of households from statistically matched neighborhoods who do not receive CIs in treatment cities and districts and neighborhoods in comparison cities and districts. A random subset of households received water quality tests.

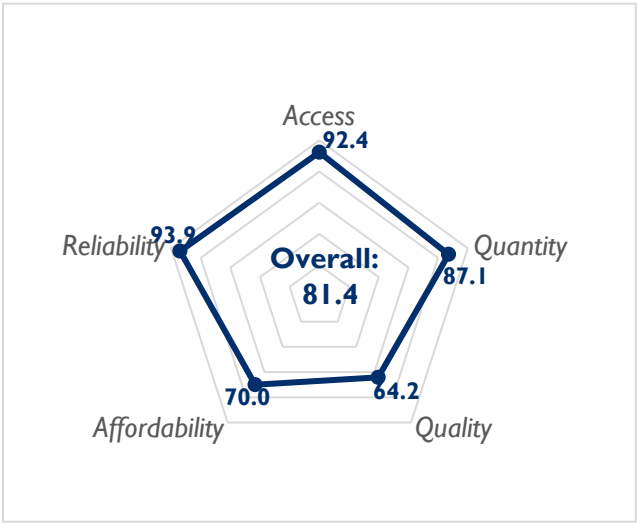
Table 1. Sampling Design Summary

	Treatment		Comparison	Total
PDAM Interviews	31		31	62
Bappeda Interviews	31		31	62
	T, CI	**T, Non-CI**	**Comparison**	**Total**
Household Interviews	531	585	558	1,674
"Point of Consumption" *E. coli* Tests	295	325	310	930
"Point of Collection" *E. coli* Tests	287	309	300	896

HOUSEHOLD WATER SECURITY (EQ1) FINDINGS AND CONCLUSIONS

URBAN WASH constructed an index with values ranging from 0–100, which represents whether indicators associated with access, reliability, quantity, affordability, and quality of household water services achieve Government of Indonesia (GOI) and international standards for household water security.[1] On this index, we find an average score in IUWASH Tangguh's CI areas of 81.4, signaling strong baseline household water security. However, 72 percent of households fell short of GOI and international standards on at least one of the five dimensions.

Figure 2. Household Water Security Index Scores in CI Areas, by Dimension and Overall



Access. We find that 85 percent of households in CI areas have access to an improved source of water that is on premises and available when needed over the past 30 days. Households that fall short of this standard normally do so because their main source of water is not always available when needed. Households report using between one and five water sources, though 82 percent of households use two or fewer. Households most often use piped water, boreholes, protected wells, kiosks, and packaged water. Though kiosks (32 percent of households) and packaged water (20 percent) are the most common main sources of drinking water, these are very rarely used for purposes outside of drinking and cooking.[2] Instead, households commonly pair these with either a piped source, borehole, or protected well to use for other purposes.

Reliability. Only eight percent of households in CI areas experienced a disruption to the pressure or quantity of water available from their main water source within the seven days prior to their interview. Households using piped sources reported an average of 21.7 hours per day of service over the same period. Virtually all households store water, often in large volumes, which suggests households still safeguard against the possibility of disruptions to their water services.

Quantity. The average household in CI areas collects 265 liters of water per capita per day (lpcpd), and the median household collects 181 lpcpd. Though this average far exceeds even the highest standards for water collection to promote well-being, 14 percent collect under the GOI's minimum standard of 60 lpcpd. Households collect the bulk of their water from boreholes, protected wells, or piped sources. The median household that uses one of these sources collects between 157 lpcpd (piped) and 192 lpcpd (borehole) from the source. Meanwhile, the median household that uses a kiosk or packaged water source collects between one lpcpd (bottled water) and two lpcpd (kiosk).

Affordability. On average, households in CI areas spend 112,107 Indonesian rupiah (IDR) per month on water. The average household spends 4.4 percent of total monthly expenditure on water, which is above the GOI's 4.0 percent affordability standard. About 37.5 percent of households spend over 4.0

[1] See Table 20 in Annex IIII for a summary of these standards, described in greater detail in the Evaluation Design Report.

[2] Water sources typically referred to in Indonesia as "drinking water refill depots" or "Depot Air Minum Isi Ulang" (DAMIU) are referred to as "kiosk" sources in this report. Water sources typically referred to as "water in packaging" or "air minum dalam kemasan" (AMDK) are referred to as "packaged" sources throughout this report, including bottled and sachet water.

percent of their total monthly expenditure on water, and 20.0 percent spend over 6.0 percent of their total monthly expenditure on water. There are vast discrepancies in cost between water sources. Factoring in the volume of water households collect from these sources, the average household who uses each source spends 81,169 IDR per month from a piped source, 3,429 IDR per month from a borehole, 300 IDR per month from a protected well, 73,908 IDR per month from a kiosk, and 159,590 IDR per month from bottled water.[3] These sums buy hundreds of lpcpd of water from piped sources, wells, and boreholes, but only a few lpcpd from kiosks and bottled water.

Quality. About 60.7 percent of households had no *E. coli* detected at the point of consumption in IUWASH Tangguh CI areas. Meanwhile, 51.4 percent of households had no *E. coli* detected at the point of collection, signaling an improvement in water quality from the source to the glass. This improvement reflects strong water treatment practices from households, about 77 percent of which report regularly treating their water prior to drinking. However, among samples where water was contaminated at the point of consumption, nearly two-thirds had a most probable number of *E. coli* over 100 parts per 100 milliliters. This degree of contamination is unsafe even for washing or bathing. From tests taken directly at the source of water, we confirmed an absence of *E. coli* at a similar frequency (between 55 percent and 61 percent of the time) for samples taken from kiosks, piped sources, and boreholes. However, only six percent of "point of collection" tests taken directly from protected wells demonstrated an absence of *E. coli*. Households whose main source of drinking water was a borehole, piped source, or well almost always reported treating their water prior to drinking. On the other hand, only 36 percent of households whose main source of drinking water was bottled and 49 percent of those whose main source was a kiosk normally treat their water prior to drinking. Boiling is by far the most common water treatment method.

Table 2. Samples with E. coli Absent at Point of Collection and Point of Consumption, by Source

Source for Drinking Water	Point of Collection	Point of Consumption
Protected Well	6.2%	59.3%
Water Kiosk	55.1%	58.4%
Piped source on premises	59.1%	53.3%
Borehole	60.9%	74.1%
Bottled water*	N/A	67.7%

*Bottled water not tested at point of collection

CITY-WIDE RESILIENT WATER SERVICES (EQ3) FINDINGS AND CONCLUSIONS

We assessed the resilience of city-wide water services by analyzing the presence of institutionalized practices for risk identification, understanding, mitigation, and avoidance in PDAMs and local government (LG) institutions. We find that neither set of institutions has strongly institutionalized practices that promote resilience, though water safety planning documents for PDAMs (*Rencana Pengamanan Air Minum* [Drinking Water Safeguard Plans; RPAMs]) more often include risk analysis than standard water safety planning documents for LGs (*Rencana Induk Sistem Penyediaan Air Minum* [Water Supply System Master Plans; RISPAMs]).

[3] Note these estimates include only the direct cost of purchasing water and any associated fees. They do not include indirect costs, such as the cost of electricity to operate a pump that draws water from a well or borehole.

PDAM Resilience. URBAN WASH reviewed business plans and RPAMs for each of the PDAMs included in the study. Business plans, which almost all PDAMs maintain, do not identify hazards to water services or analyze the risks these hazards pose. RPAMs, which only about 38 percent of PDAMs had in force at baseline, do include risk analysis. URBAN WASH's expert reviewers assessed that about one in four PDAMs in IUWASH Tangguh's partner cities and districts identify hazards to water services in these documents, and about half of these use high-quality evidence. However, none use localized climate projections to inform their analysis. Where RPAMs identified hazards to water services using high-quality evidence, they typically proceeded to use scenario analysis to promote understanding of the risks these posed. However, only one PDAM's RPAM included plans for risk avoidance or mitigation actions complete with indicators and timeframes for implementation. According to survey respondents, only 13 percent of PDAMs have funds allocated in their budgets for risk mitigation and avoidance and disaster response and recovery, which are protected exclusively for this purpose.

Meanwhile, 65 percent of PDAM respondents report that their PDAM uses real-time data to monitor bulk water quantity and quality. They mostly use PDAM master meters and laboratories to monitor the quantity and quality of water abstracted. Most PDAMs have idle capacity according to secondary data, which indicates a capacity to increase production if needed to promote resilience, but only 36 percent report providing over 16 hours per day of piped water service. About 87 percent of PDAMs are financially healthy according to the *Kementerian Pekerjaan Umum Dan Perumahan Rakyat* (Ministry of Public Works and Housing; PUPR), which should also promote resilience. From the perspective of personnel interviewed, 81 percent of PDAMs have adequate staff with the appropriate skills to reduce the incidence and duration of disruptions to water services from the most likely hazards they will face, and 58 percent have infrastructure that is specifically designed to withstand disruptions from the most common hazards that threaten their water services.

Local Government Resilience. Among the RISPAMs reviewed in IUWASH Tangguh's partner cities and districts, none engaged in risk analysis which identified, used scenario analysis to understand, or defined actions to mitigate or avoid hazards that pose risks to water services. Nonetheless, 48 percent of cities and districts monitored real-time data on the quantity and quality of water available in bulk water sources, mostly using the same data sources that PDAMs cited. Also, 26 percent of cities and districts had protected budgets for risk mitigation and avoidance and disaster response and recovery—about twice the number of PDAMs that achieved this resilience standard. LGs have an important role in independent water quality monitoring, which promotes resilience by monitoring possible disruptions to water quality at the point of use. About 36 percent of cities and districts reported independently testing chemical, microbiological, and physical parameters of water at the point of use for PDAM, community-based, and private water users, as applicable. Nearly all cities independently tested at least one type of water quality parameter for PDAM users, and most tested all three for domestic PDAM users. They test water quality less commonly for other types of water users.

CROSS-CUTTING GENDER FINDINGS AND CONCLUSIONS

PDAM and Bappeda respondents report that, though women often participate in WASH institutions, they are much more likely to participate in LG institutions or in non-technical roles within PDAMs than in technical roles. Respondents estimated that only six percent of technical roles (e.g., engineers, operators, lab technicians) were filled by women in IUWASH Tangguh's partner PDAMs. Some respondents reported negative stereotypes regarding women's suitability for technical roles.

RECOMMENDATIONS

URBAN WASH makes the following recommendations to promote achievement of IUWASH Tangguh's intended impacts over the course of activity implementation:

Recommendations to promote household water security

- Prioritize improved water quality at the point of delivery as a main focus of interventions to improve PDAM operational performance;
- Incorporate information about water quality into social and behavior change (SBC) campaigns that highlight the cost advantages of consuming piped water over kiosk and bottled water;
- In SBC activities, continue to emphasize water treatment and safe storage practices;
- Assess opportunities to reduce connection costs and motivate households to connect to PDAMs; and
- While promoting access to piped water networks, consider how best to incentivize households to switch to piped water when households report alternative water sources provide equal or higher quality water services.

Recommendations to promote city-wide water service resilience

- Vastly expand the use of RPAMs among PDAMs and advocate to revise standard RISPAM guidelines to include risk analysis;
- Assist PDAMs and LGs to improve data sources used to monitor risks and bulk water availability;
- When working with LGs, consider exploring opportunities to improve risk identification, risk understanding, and risk mitigation for groundwater sources; and
- Improve coordination between cities and provincial institutions for improved WRM and resilience.

Cross-cutting gender recommendations

- Disaggregate performance monitoring indicators such that they monitor how many women participate in PDAMs by the types of roles they occupy (i.e., technical versus non-technical);
- Partner with PDAMs to understand and break down gender norms and stereotypes regarding women's suitability for technical roles;
- Highlight women who have succeeded in technical roles for PDAMs to motivate more women to pursue technical roles; and
- Promote opportunities for women to pursue education, certifications, and/or licenses to perform technical roles in PDAMs.

1.0 EVALUATION PURPOSE AND EVALUATION QUESTIONS

1.1 EVALUATION PURPOSE AND INTENDED AUDIENCE

In February 2022, United States Agency for International Development (USAID)/Indonesia submitted a request through the Bureau of Resilience and Food Security (USAID/RFS) to the USAID Urban Resilience by Building Partnerships and Applying New Evidence in Water, Sanitation, and Hygiene (URBAN WASH) Activity to conduct an impact evaluation (IE) of the Indonesia Urban Resilient Water, Sanitation, and Hygiene Tangguh (IUWASH Tangguh) Activity. The purpose of this IE is to assess the impact of IUWASH Tangguh's interventions on desired higher order impacts, including household water security and city-wide water service resilience. Evidence regarding the Activity's effectiveness and the explanatory factors underlying this evidence are critical to support USAID/Indonesia as it partners with the Government of Indonesia (GOI) to achieve sustainable development goals (SDGs) for universal access to safely managed water and sanitation services by 2030.

The primary audience of the IE is USAID/Indonesia. USAID/Indonesia expects the evaluation to generate recommendations for improving the activity's effectiveness, identify lessons learned for similar future programming, and assess the feasibility of scaling up interventions to additional geographic regions and populations. USAID/Indonesia's Intermediate Result 3.2 posits that increased access to safely managed drinking water services and improved urban resilience to disaster will contribute to strengthening urban environmental management.[4] The IE will provide evidence to quantify IUWASH Tangguh's contribution to these intermediate results and support USAID/Indonesia's learning as it continues to partner with the GOI to pursue its SDGs. Another primary audience for IE findings is IUWASH Tangguh, who can use IE findings to inform adaptive management and increased effectiveness.

Table 3. Intended Evaluation Audience(s) and Use(s)

Audience	Actor(s)	Key Use(s)
Primary	USAID/Indonesia	Improve effectiveness, identify lessons learned, and assess the feasibility of scaling interventions.
	IUWASH Tangguh	Promote learning for adaptive management of the Activity and any follow-ons.
Secondary	GOI	Provide evidence regarding the current state of household water security and climate-resilient water, sanitation, and hygiene (WASH) and water resource management (WRM) throughout Indonesia, plus considerations for GOI adopting and scaling successful strategies to promote these.
	Other USAID operating units (e.g., USAID/RFS, USAID/Asia)	Generate evidence that might support USAID assistance in the water sector in other geographies.
Tertiary	Other WASH and WRM sector project implementers and researchers	Contribute to expanded sector knowledge base within Indonesia and internationally.

[4] USAID. 2020. "Country Development Cooperation Strategy Indonesia 2020–2025." Accessed February 24, 2021. https://www.usaid.gov/indonesia/cdcs.

Secondary intended evaluation audiences include the GOI and other operating units within USAID. Within the GOI, the Ministry of Development Planning (Bappenas), the PUPR, the Ministry of Health, and local governments (LGs) throughout Indonesia should find the evaluation particularly useful. Bappenas is a particularly important evidence user, given its coordinating role in strategic planning to accomplish the SDGs, but each of these stakeholders has a role in promoting household water security and resilient urban water services in Indonesia. USAID's Asia Bureau (USAID/Asia) and USAID/RFS each have an interest in learning from the IUWASH Tangguh approach and promoting cross-pollination with other geographies where similar USAID programming may occur.

Finally, the IE will benefit Indonesian and international WASH and WRM project implementers and research organizations. Should USAID pursue any follow-on programs to IUWASH Tangguh, these could incorporate lessons learned from the IE in future theories of change and/or results frameworks. Meanwhile, evaluation findings could be shared with local and international academic or practitioner organizations to contribute to expanding the sector-wide evidence base, especially with the support of URBAN WASH's ongoing role in driving sector-wide learning.

1.2 EVALUATION QUESTIONS

The guiding evaluation questions (EQs) are enumerated below. Note that the second EQ will rely entirely on performance evaluation (PE) methods implemented at endline data collection within the scope of the broader IE. As such, there are no findings, conclusions, or recommendations related to EQ2 in this baseline report.[5]

- **EQ1:** How has household water security in the targeted areas changed as a result of the interventions?
- **EQ2:** How have urban water utilities (*Perusahaan Daerah Air Minum* [PDAM] in Bahasa Indonesia) participating in IUWASH Tangguh and their LG counterparts changed WRM policies and practices in response to the Activity? What implications, if any, does this have for the quantity and quality (i.e., availability) of their bulk water supply?
- **EQ3:** How has city-wide water service resilience changed as a result of the interventions?

1.3 KEY DEFINITIONS

For the purposes of this study, "household water security" refers to the minimum level of water services required for household well-being. The study operationalizes this definition by combining the SDG standard indicator for access to water services (i.e., "safely managed water services") with the GOI's minimum standards for water services. Safely managed water services, as defined by the World Health Organization (WHO) and United Nations Children's Fund Joint Monitoring Programme (JMP), constitute access to an improved water source that is located on the household premises, available when needed, and free of fecal and priority chemical contamination.[6] Beginning with the 2015–2019 National Medium-Term Development Plan (*Rencana Pembangunan Jangka Menengah Nasional*; RPJMN),

[5] See URBAN WASH's Evaluation Design Report (EDR) for additional detail on the decision to withhold EQ2 from the baseline phase of the study.

[6] "Improved" sources are potentially capable of delivering safe water by nature of their design and construction. They include piped water, boreholes or tubewells, protected dug wells, protected springs, and rainwater. The JMP also considers packaged and delivered water to be improved sources, though GOI assesses secondary sources to determine access to safely managed water when primary sources are packaged or delivered water. "Available when needed" refers to the last 30 days according to the JMP, though the GOI requires availability over the past year. (World Health Organization and United Nations Children's Fund. 2017. "Safely Managed Drinking Water: Thematic Report on Drinking Water 2017." https://apps.who.int/iris/handle/10665/325897.)

the GOI set a standard that water services should meet minimum standards for quantity, quality, continuity, and affordability.[7] As elaborated further in the methodology section, this study operationalizes a definition of household water security that combines these two standards.

Meanwhile, this IE defines resilience of city-wide water service as reducing the incidence and duration of disruptions to water services caused by shocks and stressors. Increasing resilience requires promoting the ability to address and reduce risk and increasing adaptive capacity on the part of institutions responsible for water service provision at the city or district level. Given the challenging nature of directly observing disruptions to water services with a sufficient frequency to detect program impacts, the evaluation largely focuses on identifying, understanding, and mitigating risks to water services as evidence of improved water service resilience. The specific measures underlying this definition are elaborated further in the methodology section.

[7] These are referred to as the "4K" principles for their Bahasa Indonesia translation: Kuantitas, Kualitas, Kontinuitas, and Keterjangkauan. Specific standards include a minimum water supply of 60 lpcpd, which is free from priority fecal and chemical contamination and available 24 hours per day, at a cost of no more than four percent of total household income. "Presidential Regulation of The Republic of Indonesia Number 2 of 2015 About Medium-Term Development Plan (RPJMN) 2015–2019"

2.0 IUWASH TANGGUH BACKGROUND

2.1 IUWASH TANGGUH ACTIVITY BACKGROUND

USAID IUWASH Tangguh seeks to advance Indonesia's development goals in increasing access to safely managed WASH in vulnerable urban areas and strengthening climate-resilient WASH services and WRM. The approximately $44.1 million Activity—implemented by DAI with a period of performance from April 4, 2022, to April 3, 2027—is a successor to the USAID IUWASH and IUWASH *Penyehatan Lingkungan untuk Semua* (IUWASH Environmental Health for All; IUWASH PLUS) activities. These activities were also implemented by DAI from 2011–2022. The IUWASH Tangguh team will provide technical assistance to the GOI, private sector, and civil society stakeholders to achieve four objectives, shown in Figure 3.[8]

Figure 3. IUWASH Tangguh Objectives

IUWASH Tangguh interventions operate at the national, provincial, and local levels in 38 cities and districts in 10 USAID priority provinces.[9] The Activity will pursue improvements to governance and the enabling environment at each of the national, provincial, and local (i.e., city/district) levels. In partnership with LGs and PDAMs, IUWASH Tangguh will use diagnostic tools to assess shortcomings in governance and utility performance relevant to WASH and WRM in each city and district. The activity will tailor interventions in each location to the diagnosed shortcomings, as appropriate to relevant stakeholders' baseline capabilities and interests. Select cities and districts will receive "full support" for safely managed drinking water supply, safely managed sanitation, and climate-resilient WRM interventions. Others—depending on capacity, resources, or needs—may only receive a subset of this support.[10]

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8 DAI Global, LLC, 2022. "USAID/Indonesia Urban Resilient, Sanitation, and Hygiene (IUWASH Tangguh): Project Year 1 Work Plan" (USAID/Indonesia, July 2, 2022).

9 Note that the districts included among IUWASH Tangguh's implementation sites are "*kabupaten*." *Kabupaten* is sometimes translated to English as "regency" instead of "district." The evaluation team uses the term "districts" in this report to mirror IUWASH Tangguh's language. Cities ("*kota*") and districts ("*kabupaten*") are at an equivalent administrative level in Indonesia, though cities are larger and more densely populated than districts.

10 See Annex VI: Additional Background Information.

2.2 ACTIVITY THEORY OF CHANGE, RESULTS FRAMEWORK, AND KEY CAUSAL PATHWAYS

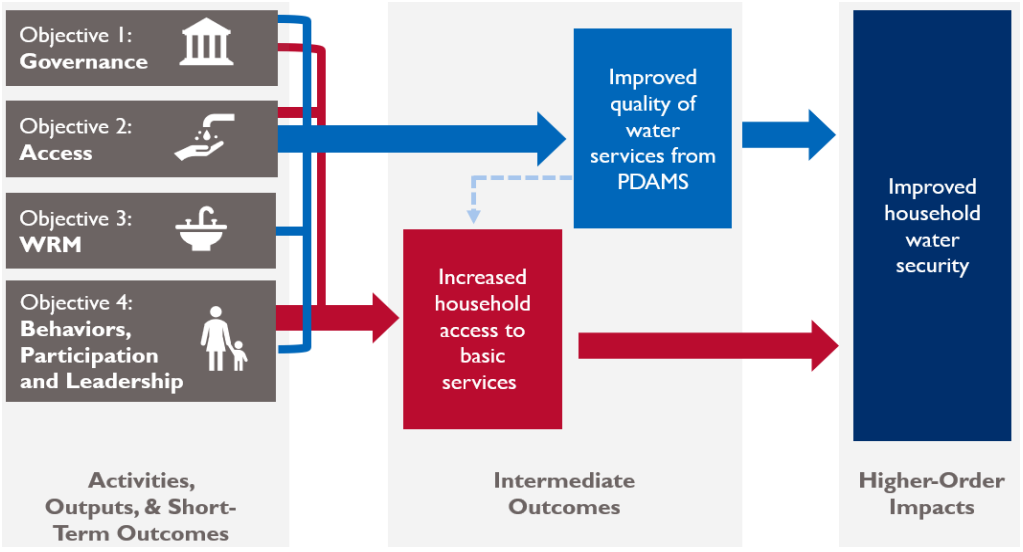
IUWASH Tangguh's theory of change is:

> IF WASH and WRM governance and financing are strengthened; AND access to poor-inclusive, climate resilient, safely managed drinking water and sanitation services are increased; AND WRM supporting climate-resilient drinking water services are improved; AND adoption of behaviors and women's participation and leadership roles are increased, THEN Indonesia's environmental sustainability and Urban Environmental Management will be strengthened.

IUWASH Tangguh's Results Framework (see Figure 29, presented in Annex VI due to its large size) operationalizes this theory of change with interventions and outputs from each of the Activity's four objectives contributing to anticipated outcomes and impacts. These ultimately seek to increase household access to safely managed WASH services and strengthen the climate resilience of WASH services. During evaluation co-design, URBAN WASH collaborated with USAID and IUWASH Tangguh to elaborate the critical causal pathways that could link Activity outputs to the ultimate goals of increased household water security and climate-resilient city-wide water service.

For household water security, as depicted in Figure 4, there were two hypothesized key causal pathways. The first is by improving the quantity, quality, reliability, and/or affordability of water services for households that are already connected to PDAM piped networks (i.e., "improved quality of water services from PDAMs"). This is largely accomplished through improvements to PDAMs' financial, operational, technical, and administrative performance and improvements in the legal and regulatory environment in which they operate. The second pathway is promoting access to piped PDAM water for households that do not currently have it (i.e., "increased access to basic water services"). The latter pathway improves household water security under the assumption that piped PDAM water is closer and provides more reliable, abundant, affordable, and/or higher quality water than alternative sources. This is largely accomplished through social and behavior change (SBC) interventions that increase willingness to pay for piped water and connect to PDAM networks coupled with support to mobilize investment for PDAMs to expand their networks to enable new households to connect.

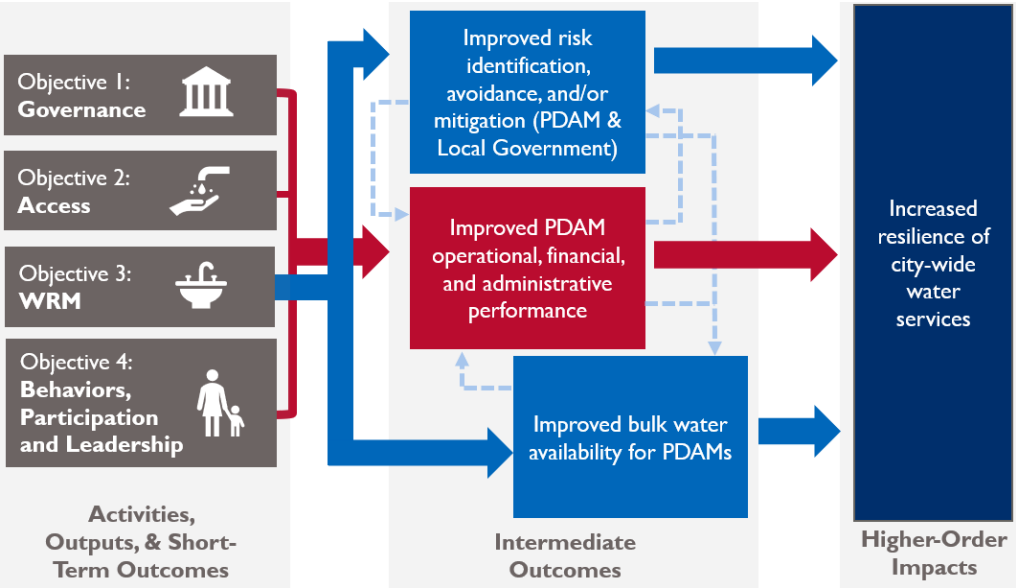
Figure 4. Causal Pathways for Improved Household Water Security



The first causal pathway could influence the second (i.e., that improving the quality of water services could also entice more households to connect to PDAMs). Each of these causal pathways should occur within the entire PDAM service area where IUWASH Tangguh is operating, though particularly large changes are expected in "community intervention" (CI) neighborhoods where IUWASH Tangguh implements intensive SBC efforts and targets concentrated improvements in PDAM performance.[11]

For city-wide resilient water services, as depicted in Figure 5, there were three hypothesized key causal pathways. The first, which applies both to PDAMs and LGs, is improved risk identification, avoidance, and/or mitigation.[12] This causal pathway is expected to occur when climate vulnerability assessments and other inputs help assure that the most likely and severe hazards to water services are known and incorporated in strategic and operational plans for water services, with sufficiently resourced mitigating or avoidance actions in place that are proportional to the risk. Two additional causal pathways related only to PDAMs are improved operational, financial, and administrative performance and improved bulk water availability. These latter two improve resilience by increasing the baseline level of water service prior to a disruption, which may then avoid disruption or reduce its duration when hazards to water services occur. All three of these causal pathways are mutually reinforcing.

Figure 5. Causal Pathways for City-Wide Resilient Water Services



For additional details regarding the contribution of specific activities within IUWASH Tangguh to these causal pathways and regarding IUWASH Tangguh's interactions with various institutions responsible for water service provision in Indonesia, see URBAN WASH's EDR.

[11] We use "neighborhoods" in this report in place of the Indonesian term *kelurahan*. Kelurahan represent the smallest official administrative division in urban Indonesia.

[12] Urban areas of Indonesia can have multiple water service providers, including PDAMs (piped utilities), community-based water supply systems, private water suppliers, and public water suppliers (e.g., *Unit Pelaksana Teknis Daerah* [Regional Technical Implementation Unit; UPTD] or *Badan Layanan Umum Daerah* [Regional Public Service Agency; BLUD]). City and district governments are ultimately accountable for water service provision within their administrative boundaries, with contributions from various line agencies to water service oversight. Strategic planning for city-wide water service provision occurs within each city or district's Bappeda, though PDAMs have their own strategic plans. IUWASH Tangguh partners mostly with PDAMs as catalysts for improved water service provision, though it also collaborates with local governments.

3.0 EVALUATION METHODS AND LIMITATIONS

URBAN WASH's EDR includes a detailed description of the evaluation design. We briefly summarize the design in this section and update key aspects based on baseline data collection and analysis. Readers should reference the EDR and annexes to this report for more detailed methodological information.[13]

3.1 EVALUATION DESIGN SUMMARY

URBAN WASH employed a mixed-methods, quasi-experimental design for the IE baseline. The design included two household-level quasi-experiments (QEs) focused on household water security in response to EQ1 and one city/district-level QE focused on resilient water service delivery for EQ3. Each component of this design drew its sample from the same set of treatment and comparison cities and districts, described later in this section. URBAN WASH's design will also rely on complementary thematic analysis of endline qualitative interviews with institutional personnel to help explain and contextualize quantitative IE results from the QEs. The endline evaluation will include a cost analysis to identify the unit cost of impacts based on overall activity costs.

Within the broader IE, URBAN WASH will use PE methods in response to EQ2, which will combine longitudinal analysis of administrative data on bulk water availability for PDAMs in treatment areas and thematic analysis of qualitative interviews with institutional personnel regarding changes in WRM practices perceived to result from the IUWASH Tangguh intervention. We summarize these methods below, though there will be no discussion of EQ2 findings in this report. Table 4 summarizes URBAN WASH's evaluation design.

Table 4. Evaluation Design Summary Matrix

Identification Strategy	Planned Analyses	Indicator(s)†	Key Data Source(s)*
EQ1: Household Water Security *(Household-Level)*			
Statistical matching at city/district and neighborhood levels for: 1. Households in CI neighborhoods compared to households in non-CI neighborhoods, all in treatment cities/districts 2. Households in non-CI neighborhoods in treatment cities/districts compared to households in similar neighborhoods in comparison cities/districts	• Difference-in-difference (DID) or analysis of covariance (ANCOVA) (IE analysis) • Thematic analysis (explanatory qualitative analysis) • Cost analysis	Custom Index comprising: 1. Access to improved source on premises 2. Days per most recent week where main water source was disrupted 3. Liters per capita per day of water collection 4. Percent of total household expenditure spent on water 5. Presence/absence of *E. Coli* at point of consumption	• Household survey, with integrated water quality testing • Key informant interviews (KIIs) with institutional personnel • IUWASH Tangguh cost data

[13] See URBAN WASH's EDR on the Development Experience Clearinghouse: https://pdf.usaid.gov/pdf_docs/PA02171F.pdf.

Identification Strategy	Planned Analyses	Indicator(s)†	Key Data Source(s)*
EQ2: WRM and Bulk Water Availability *(City/District-Level)*			
N/A	• Longitudinal data analysis (quantitative) • Thematic analysis (qualitative)	Bulk water availability indicators (to be determined)	• PDAM management information system data on bulk water availability • KIIs with institutional personnel
EQ3: City-Wide Water Service Resilience *(City/district-level)*			
Statistically matched treatment and comparison cities and districts	• DID or ANCOVA (IE analysis) • Thematic analysis (explanatory qualitative analysis) • Cost analysis	1. Custom resilience Index comprising: 2. Risk identification 3. Risk understanding 4. Risk data use 5. Planning for risk mitigation 6. Finance for risk mitigation 7. Other indicators specific to PDAMs and LGs	• PDAM survey • Bappeda survey • Document review • PUPR annual PDAM performance data • KIIs with institutional personnel • IUWASH Tangguh cost data

*Throughout the evaluation, URBAN WASH will rely on IUWASH Tangguh Activity monitoring and evaluation data and secondary datasets from GOI sources, where available, to support explanatory analysis.

† See Annex III for detailed definitions and description of key outcome indicators.

3.2 METHODS FOR SELECTING THE COMPARISON GROUP AND BASELINE BALANCE

URBAN WASH selected its comparison groups for this study in two stages. First, we used statistical matching techniques to select a set of 31 comparison cities and districts that were the most similar to 31 treatment cities and districts considering a set of observable characteristics related to selection for the IUWASH Tangguh and outcomes of interest to the study.[14] [15] This first stage approximates the city/district-level site selection for IUWASH Tangguh and yields a similar set of comparison cities/districts. The full set of treatment and comparison cities and districts included in the study is presented in Table III-5, located in Annex III.

Second, we used statistical matching techniques to select two sets of neighborhoods that were similar on observable characteristics related to selection for IUWASH Tangguh interventions and household

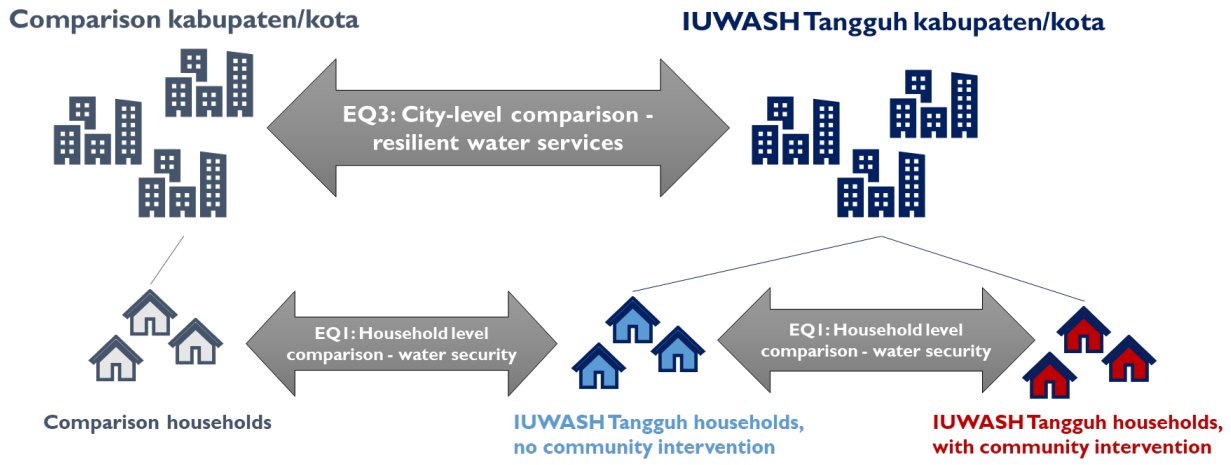
[14] The final matching model applied a genetic matching algorithm without replacement using the "MatchIt" R package with an exact match on urban area classification (i.e., city/district) and distance (Mahalanobis) matching for all other characteristics. Data used for matching came from IUWASH Tangguh's site selection dataset, the 2020 Ministry of Public Works and Housing PDAM Performance dataset and World Bank records. Annex 3.1 of the EDR includes a full description of the city/district-level matching methodology, variables, and results.

[15] This selection includes all IUWASH Tangguh's treatment sites from the Banten, East Java, Central Java, West Java, South Sulawesi, and North Sumatra provinces and excludes its treatment sites from *Daerah Khusus Ibukota* (Special Capital Region; DKI) Jakarta, Papua, East Nusa Tenggara, and West Kalimantan, which do not have reasonably similar cities or districts to serve as comparisons for the evaluation.

water security outcomes.[16] The first set of neighborhoods includes neighborhoods most similar to IUWASH Tangguh's initial set of CI neighborhoods, which fall within the same city/district. In other words, it establishes a set of approximately similar neighborhoods that participate in IUWASH Tangguh's city-district-level interventions but do not initially participate in community-level interventions. The second set of neighborhoods includes neighborhoods most similar to the non-CI neighborhoods in the selected comparison cities or districts. In other words, it approximates the neighborhoods that might have been selected as CI neighborhoods if their city had participated in IUWASH Tangguh. These neighborhoods have no participation in IUWASH Tangguh, whether at the community or city/district level.

These matching procedures yield the comparison groups for the study's three QEs, as visualized in Figure 6. The comparison of statistically matched treatment cities and districts (dark blue) to comparison cities and districts (dark gray) yields the city-level QE for EQ3 on city-wide water service resilience. The comparison of statistically matched CI neighborhoods (red) and non-CI neighborhoods (light blue), each within IUWASH Tangguh partner sites, yields the first QE for EQ1. This QE will determine the effect of the full IUWASH Tangguh intervention relative to the effect of the city/district-level IUWASH Tangguh intervention alone. Finally, the comparison of the statistically matched non-CI neighborhoods in treatment sites (light blue) with the no-treatment neighborhoods (light gray) in comparison sites yields the second QE. This QE will determine the effect of the city/district-level IUWASH Tangguh intervention relative to no intervention.[17]

Figure 6. Visualization of Three Quasi-Experiments



Following baseline data collection, we assess the balance of treatment and comparison groups for each of the three QEs on measures from the survey instruments. We find that our statistical matching methods succeeded in generating treatment and comparison groups that are broadly comparable on pre-intervention outcomes of interest and other variables, which relate both to site selection and

[16] The final matching model applied a genetic matching algorithm without replacement using the "MatchIt" R package with an exact match on city/district (for the community intervention quasi-experiment) or paired comparison city/district (for the PDAM service area quasi experiment) and distance (Mahalanobis) matching for all other characteristics. Data used for matching came from the 2021 BPS Village Potential Statistics dataset on kelurahan-level characteristics. See Annex 3 for more detail on this matching exercise, which occurred after the final EDR and is thus not described in that document.

[17] In Annex III and in the EDR, we refer to the first QE as the "incremental CI QE" since it yields the incremental effect of community interventions compared to PDAM service area interventions alone. We refer to the second QE as the "PDAM service area QE," since it yields the effect of the PDAM service area-wide intervention relative to no intervention.

outcomes. Table III-1, Table III-2, Table III-3, and Table III-4 in Annex III present the full results of balance testing, comparing treatment and comparison group means for each of the study's three QEs.

There are no significant differences at a 95 percent confidence level between treatment and comparison cities and districts on outcomes of interest to EQ3 (Table III-1), though PDAMs in treatment cities have significantly larger production volume per year than comparison cities according to 2021 data from the PUPR. Treatment cities and districts also have more people on average in the PDAM service area—a difference that approaches statistical significance (p=0.06)—which likely explains the difference in production volume (Table III-2).

There are some minor statistically significant differences related to household expenditure and assets between households in CI neighborhoods and households in matched non-CI neighborhoods within treatment cities and districts. Namely, households in CI neighborhoods have lower levels of overall household expenditure and have fewer assets than households in matched non-CI neighborhoods. They are equivalent on all other measures (Table III-3).

For our second household-level QE, households in non-CI treatment neighborhoods are significantly more likely to use packaged water, significantly less likely to have a woman head of household, and significantly more likely to have water storage containers which adhere with WHO best practices for safe water storage (e.g., covered, narrow mouth) than households in comparison neighborhoods within comparison cities and districts. They are equivalent on all other measures (Table III-4).

With so few significant pre-intervention differences between quasi-experimental groups, there are few rival explanations among observable characteristics of cities/districts, water service providers, neighborhoods, or households that might confound our estimation of effects from IUWASH Tangguh at the end of the study. This increases our confidence that any estimated treatment effects at endline are attributable to IUWASH Tangguh and not some alternative cause. Nonetheless, our endline analysis will assess the effect of the baseline differences that do exist on our results. For example, if wealth or expenditure is a significant predictor of household water security at endline, we will comment on any bias this introduces to our estimation of incremental impacts from the community interventions.

3.3 SAMPLING DESIGN SUMMARY

URBAN WASH's evaluation baseline ultimately implemented 62 interviews with PDAM officials, 62 interviews with Bappeda officials, 1,674 interviews with households, and 930 pairs of water quality tests with households.[18] This represents 100 percent fulfillment of the study's intended sampling design, described in the following sections. Interviews with PDAM officials, Bappeda officials, and households occurred between March 6 and April 14, 2023. Water quality testing, due to unexpected delays with the processing of materials through Customs, occurred between June 21 and July 7, 2023.

Table 5. Sampling Design Summary

	Treatment	Comparison	Total
PDAM Interviews	31	31	62
Bappeda Interviews	31	31	62

[18] Five households in each of the study's 186 participating neighborhoods were randomly selected to receive two *E. coli tests*. One test sampled for the most probable number of *E. coli* present in a glass of drinking water (i.e., "the point of consumption"). The second test sampled for the presence/absence of *E. coli* directly from the household's main source of drinking water (i.e., "the point of collection"). In 34 households, it was not feasible to conduct the point of collection test, either because they only used bottled water for drinking or because their main source was not available.

	Treatment, CI	Treatment, Non-CI	Comparison	Total
Household Interviews	531	585	558	1,674
"Point of Consumption" *E. coli* Tests	295	325	310	930
"Point of Collection" *E. coli* Tests	287	309	300	896

3.3.1 CITY/DISTRICT SAMPLING DESIGN

At the city/district-level, URBAN WASH sampled 100 percent of the 31 cities and districts partnering with IUWASH Tangguh for which comparison cities and districts could be found.[19] The comparison group includes the 31 cities and districts selected by URBAN WASH's genetic matching algorithm from within the same set of provinces as the treatment cities and districts. The result is equivalent to a one-stage trial design, with 62 cities/districts split evenly between treatment and comparison groups.

Within each city and district, URBAN WASH implemented one interview with a PDAM official and one interview with a Bappeda official. URBAN WASH specifically targeted Research and Development Managers for the PDAM interview and officials responsible for WRM for the Bappeda interview, though these individuals sometimes delegated someone else to participate in the interview and respondents frequently consulted colleagues throughout the interview based on the content of the questions. Assuming a one-stage trial design with a level of significance equal to 0.05, a panel autocorrelation of 0.66, an R^2 value (excluding panel autocorrelation) of 0.50, and power equal to 0.80, URBAN WASH's design is powered for the minimum detectable effects (MDEs) in the table below. In other words, it is 80 percent likely that the URBAN WASH sampling design would be able to detect an effect of this size or larger with a 95 percent degree of confidence, if indeed it occurs. These MDEs should be considered relative to the baseline value of each of these outcomes, presented in Table III-1 and discussed in more detail in Section 4.2 EQ3 (City-Wide Water Service Resilience) Findings.

Table 6. Baseline Power Analysis, City/District-Level Outcomes (EQ3)

Indicator/Standard *("Shorthand," Unit)*	MDE	
	PDAM	LG
Overall resilience index *(0–100)*	4.7	5.1
***Rencana Pengamanan Air Minum* (Drinking Water Safeguard Plan; RPAM)/*Rencana Induk Sistem Penyediaan Air Minum* (Water Supply System Master Plan; RISPAM) identifies hazards to water services based on localized climate projections** *("Risk identification," % cities/districts)*	To Be Determined (TBD)*	TBD*
RPAM/RISPAM incorporates scenarios <5 years old for hazards with instructions for use and intervals for updates <5 years *("Risk understanding," % cities/districts)*	9.7%	4.1%
Institution monitors real-time data for bulk water source quantity and quality *("Risk data use," % cities/districts)*	15.5%	16.4%
RPAM/RISPAM includes objectives and measures to prevent or mitigate risks to water services including indicators and timeframes *("Planning for risk mitigation," % cities/districts)*	4.1%	TBD*

[19] Seven other cities and districts were excluded from the study based on an absence of suitable comparison candidates, as described in the EDR.

Indicator/Standard *("Shorthand," Unit)*	MDE	
	PDAM	LG
Institution budget includes separate allocations for risk avoidance/ mitigation and disaster response/recovery that cannot be used for other purposes *("Finance for risk mitigation," % cities/districts)*	11.0%	15.5%
PDAM has idle capacity while maintaining at least 16 hours per day of water service *("PDAM operational performance," % cities/districts)*	15.9%	
PDAM PUPR financial score qualifies as "healthy" ("PDAM financial performance," % cities/districts)	11.6%	
PDAM interview respondent perceives staffing is adequate to maintain operational performance *("Staffing Adequacy," % cities/districts)*	13.0%	
PDAM interview respondent reports abstraction, treatment, transmission, and distribution infrastructure is designed to withstand disruptions from most likely hazards *("PDAM Infrastructure Safety," % cities/districts)*	16.4%	
Local government adheres to GOI regulations for independent water quality testing for PDAM, community, and private water service users *("Independent water quality testing," % cities/districts)*		15.9%

* "TBD" stands for "to be determined." In these cases, no city or district achieved this indicator at baseline. With no variation in outcomes for either group, it is not possible to calculate an MDE.

To offer practical examples to aid in the interpretation of Table 6, our study could confidently detect a program impact if the overall PDAM resilience index average for treatment cities and districts were to increase from the baseline average of 39.4 to at least 44.7, assuming the comparison cities and districts had the same average baseline score but an endline score of 40.0. For another example, our study could confidently detect a program impact if the percent of LGs achieving the finance for risk mitigation standard were to increase from the baseline average of 26 percent to at least 45 percent, assuming the percent of comparison LGs achieving this standard was the same at baseline and the number of comparison LGs achieving this standard at endline was 30.5 percent.

3.3.2 HOUSEHOLD SAMPLING DESIGN

URBAN WASH's intended sampling design envisioned drawing the household sample from two CI neighborhoods in each of the 31 treatment cities and districts, two non-CI neighborhoods in each of the treatment cities and districts, and two neighborhoods in the 31 comparison cities and districts. However, three CI neighborhoods were ultimately excluded from the study because IUWASH Tangguh does not intend to pursue water supply interventions in those neighborhoods. These could not be replaced with other CI neighborhoods, given that IUWASH Tangguh had only selected 62 total CI neighborhoods prior to the evaluation baseline. We thus replaced the three ineligible CI neighborhoods with three neighborhoods in the treatment non-CI group, to retain the originally intended number of 186 total neighborhoods in the study (59 CI neighborhoods, 65 non-CI treatment neighborhoods, 62 no-treatment neighborhoods). As described previously, the non-CI treatment and no-treatment neighborhoods were selected by URBAN WASH's genetic matching algorithms.

The household sample frame was thus the population of households that reside within the 186 neighborhoods selected for inclusion in the study. Households from these neighborhoods were selected randomly to ensure representativeness within the sampling frame. Specifically, URBAN WASH randomly selected two *rukun warga* (a sub-neighborhood administrative unit; RW) from the list of all RWs present in each neighborhood and used systematic sampling (i.e., selecting every *n*th household, starting from the

Head of RW office) to choose which households to interview. In total, nine households were interviewed in each neighborhood, for a total 531 households in the CI group, 585 households in the non-CI treatment group, and 558 households in the no-treatment group. Within each of these households, the intended respondent was the household member most knowledgeable about the household's water supply and usage. URBAN WASH randomly selected a subset of five households in each neighborhood for water quality testing.[20]

The IE design relies on a panel sampling approach, wherein the same set of households are to be interviewed at baseline and endline. In such a design, there is inevitably a set of households that cannot be reached for a follow-up interview because they cannot be contacted or refuse to participate (i.e., attrition). We assume that the rate of attrition will be no greater than 12.5 percent (i.e., we will interview an average of eight households per neighborhood at endline).

The sample design described is equivalent to a multi-stage trial design (i.e., an intervention at the neighborhood level, with neighborhoods selected from within cities/districts). Assuming a design of this structure, a level of significance equal to 0.05, an R^2 value (excluding panel autocorrelation) of 0.50, a panel autocorrelation of 0.66, power equal to 0.80, and an attrition rate of 12.5 percent, URBAN WASH's design is powered for the MDEs in the table below.[21] These MDEs should be considered relative to the baseline value of each of these outcomes, presented in Table III-3 and Table III-4 and discussed in more detail in Section 4.1.

Table 7. Baseline Power Analysis, Household-Level Outcomes (EQ1)

Indicator *(Units)*	MDE	
	CI QE	SA QE
Household water security index - overall *(0-100)*	1.54	1.52
Access to an improved source of water on premises, available when needed *(% of households)*	4.47%	4.42%
Household water security sub-index: Access *(0-100)*	1.98	1.96
Days per week with disruption to normal water service *(days per week)*	-0.19	-0.19
Household water security sub-index: Reliability *(0-100)*	2.86	2.82
Quantity of water collected *(liters per capita per day)*	18.29	18.06
Household water security sub-index: Quantity *(0-100)*	3.13	3.09
Water expenditure *(Rupiah/month)*	-12,688	-12,524
Affordability Ratio (% of total monthly expenditure)	-0.44%	-0.44%
Household water security sub-index: Affordability *(0-100)*	3.77	3.73
Water with *E. coli* detected at point of consumption *(% of households)*	-4.70%	-4.64%
Household water security sub-index: Quality *(0-100)*	4.39	4.33

"CI" = Community Intervention; "SA"=Service Area; "QE"=Quasi-experiment

Note power was calculated assuming one-tailed test, and sign indicates the anticipated direction of the effect (e.g., IUWASH Tangguh intends to reduce the amount households spend on water, which is a negative effect).

[20] This reduced sample, aligned with best practices promoted by the WHO reflects that water quality is often very highly correlated within neighborhoods and thus fewer households are needed for a given degree of precision.

[21] The intra-cluster correlations for the first-stage clusters could be calculated from the baseline data and used in this *ex-post* power calculation. The average across impact indicators was 0.17 and they varied from 0.10 to 0.26.

To offer practical examples to aid in the interpretation of Table 7, our study could confidently detect a program impact if the overall household water security index average for households in CI neighborhoods were to increase the baseline average of 81.4 to at least 85.6, assuming the average score for households in treatment, non-CI neighborhoods had the same baseline average but an endline average of 84.0. For another example, our study could confidently detect a program impact if the average monthly expenditure on water for households in treatment, non-CI households were to decrease from the baseline average of about 142,000 Indonesian rupiah (IDR) to at most 115,000 IDR, assuming households in comparison neighborhoods had the same baseline average and an endline average of about 127,500 IDR.

3.4 ASSUMPTIONS AND LIMITATIONS

We summarize key assumptions and limitations that underlie this design below, which are expanded upon in greater detail in our EDR.

3.4.1 ASSUMPTIONS

URBAN WASH's IE design relies on an assumption of "parallel trends" between the treatment and comparison group to interpret causal results for each of its three QEs. This assumption requires that the treatment group would have experienced the same conditional trends in outcomes of interest as the comparison group if not for the intervention.[22] The success of our statistical matching methods in selecting the comparison groups that manifested very few statistically significant differences on observable characteristics from the respective treatment group should increase confidence that this assumption will hold. In other words, to whatever degree these characteristics influence outcomes of interest, their influence should influence all groups to the same extent.

At the evaluation endline, URBAN WASH will test and select the more appropriate analysis strategy between DID and ANCOVA.[23] ANCOVA analysis can sometimes increase statistical power relative to DID. However, it is only appropriate if required assumptions hold, particularly if autocorrelation is low. URBAN WASH will test autocorrelation as part of its decision process to determine which method to select for final IE analysis. If autocorrelation is not low enough, DID will be a more appropriate method.

A final assumption, specific to URBAN WASH's CI QE, is that the households in the CI and non-CI treatment groups will experience sufficiently different versions of IUWASH Tangguh's intervention to yield different results on outcomes of interest. IUWASH Tangguh intends to expand its community interventions beyond the set of 59 initial CI sites. It also cannot necessarily control accidental spillover of interventions between neighborhoods. As such, it is possible that by the endline data collection, some of the non-CI treatment neighborhoods will have received some, or all, of the community intervention. URBAN WASH will track this issue closely during implementation and update the endline evaluation design, if necessary, to reflect any spillover or contamination.

3.4.2 LIMITATIONS

There are six main limitations to URBAN WASH's proposed design. Four apply across all three of our planned QEs (city/district-level and household-level alike), and two apply exclusively for the city/district-level QE.

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[22] By "conditional" we mean once the other influences captured by the covariates (those accounted for by the R^2 in the power calculations, above) included in the attribution model.

[23] While both methods produce unbiased impact estimates, one can be more precise when relevant assumptions hold.

First, IUWASH Tangguh's plan to expand community interventions over the course of the activity risks introducing selection bias into the study's EQ1 quasi-experimental groups and/or reducing the planned QEs' statistical power. There are dozens and sometimes hundreds of neighborhoods available beyond the initial two selected in each city and district for community intervention, which suggests a reasonable likelihood that many of the study's selected non-CI neighborhoods will not receive interventions by the study's endline. Nevertheless, as more non-CI neighborhoods are selected to receive CI treatment, there is increasingly an argument that the remaining neighborhoods are dissimilar from the CI neighborhoods in some way. Likewise, fewer neighborhoods in the analysis decreases statistical precision in estimates of outcomes for the remaining non-CI neighborhoods. The increased size of the non-CI group relative to the CI group at baseline mitigates somewhat against the risk posed by this limitation. Even if substantial contamination and/or spillover comes to pass, it will still be possible to compare the CI group and no-treatment group to retain estimates of whole-of-intervention impacts.

Second, all three of URBAN WASH's planned QEs, as with all quasi-experimental designs employing statistical matching, are vulnerable to omitted- or unobserved variable bias. This means that, if a variable exists that explains both selection for treatment and outcomes of interest that is not among the variables measured in the study, the study may attribute impacts to IUWASH Tangguh that are truly caused by the unobserved variable. However, such a variable would also have to be uncorrelated with the observable variables we have already included in our analysis. It would also need to have a time-varying effect (i.e., exerting a different influence across groups on outcome indicators at baseline and endline). The risk of this threat to validity of our results is small.

Third, all three of URBAN WASH's planned QEs will estimate an average treatment effect for a highly complex and heterogeneous set of interventions. This means, while we can be confident detected effects are caused by IUWASH Tangguh, we will not have causal evidence regarding which aspects of IUWASH Tangguh contributed most to observed effects. As it stands, the proposed design chooses to isolate the local and neighborhood treatment effects from the national and provincial ones, which will apply equally across treatment and comparison groups and thus not appear in estimates of program impact. To facilitate learning and considerations for scaling the intervention in the future, URBAN WASH will employ attribution equations, qualitative data analysis, and consultations with its subject matter experts to attempt to characterize how different aspects of the intervention contribute to results observed.

Fourth, while the design for EQ1 will yield results applicable to neighborhoods in our treatment groups, these results will not necessarily apply for neighborhoods elsewhere in IUWASH Tangguh's partner sites that are different on some critical characteristic (e.g., neighborhoods with much higher baseline household water security). As such, it will be important to interpret the impact estimates yielded by the study appropriately—they are the impact of IUWASH Tangguh on a specific type of neighborhood and not the impact of the activity on its full population of participants.

Finally, two additional limitations apply exclusively to our city-level (EQ3) design. First, the city/district-level QE has high MDEs based on the small number of cities and districts that could be included in the study. This could result in a scenario where IUWASH Tangguh causes a practically meaningful effect on resilience, which is nonetheless too small for us to confidently detect with our sample. URBAN WASH will collect corroborating data from qualitative and/or secondary sources to strengthen the credibility of EQ3 IE findings in case quantitative results are inconclusive (i.e., if any effect is lower than the study's MDE). Second, quantitative measures of city-wide resilience are less established, and so of less certain reliability, than measures of household water security. The proposed resilience indicators are adapted loosely from the United Nations (UN) Sendai Framework for disaster risk reduction and modified during the evaluation co-design process. URBAN WASH hopes this evaluation contributes to sector-wide learning of how to assess resilience in the context of an IE.

4.0 FINDINGS AND CONCLUSIONS

This section presents findings and conclusions regarding household water security (EQ1) and city-wide water service resilience (EQ3). We broadly find that the baseline status of most dimensions of household water security is strong in IUWASH Tangguh's CI areas, though most households fall short of international and GOI standards on at least one dimension of water security. In turn, the baseline status of risk identification, risk understanding, and risk mitigation and avoidance procedures in PDAMs and LGs that might promote resilience is quite weak, with substantial room for improvement.

Throughout this section, we focus on the baseline status of outcomes of interest in the primary treatment groups for the study—namely, households in IUWASH Tangguh CI neighborhoods (for EQ1) and IUWASH Tangguh partner cities and districts (for EQ3). As established previously, we find the other quasi-experimental groups are balanced with the treatment groups on most observable characteristics, including all of the study's outcomes of interest. So, though the precise estimates of indicators discussed in this section would be different for those groups, the broad conclusions regarding household water security and city-wide water service resilience would be the same.[24] Focusing on IUWASH Tangguh's partner sites permits us to more precisely describe the situation IUWASH Tangguh confronts in its intervention areas and opportunities to achieve desired outcomes and impacts.

4.1 EQ1 (HOUSEHOLD WATER SECURITY) FINDINGS

Our study defines household water security as "reliable access to a quantity and quality of water sufficient to maintain well-being." This comprises:

- A source that is improved and **accessible;**
- From which water is **reliably** available;
- In the **quantity** needed to meet basic needs;
- With sufficient **quality** to pose no risk to the health of household members; and
- Whose cost is **affordable** in the context of household income and other expenditures required to meet basic needs.

All these conditions are necessary for a household to be water secure. For example, a household cannot maintain their well-being if their water is unsafe to drink, even if it is reliable, affordable, accessible, and available in sufficient quantity. By the same token, a household whose water is safe to drink cannot maintain their well-being if it is unaffordable and/or unavailable in sufficient quantities.

At baseline, we find that the average household scores strongly on our multi-dimensional household water security index. However, most households fall short of international and GOI standards on at least one dimension of household water security and thus have water services insufficient to maintain their well-being. Households are furthest from achieving GOI standards for quality and affordability. In each of the sections that follow, we offer a summary of how we measure each concept before

[24] The baseline status for key outcome and explanatory variables for all quasi-experimental groups is available to review in the balance tables (Table III-3 and Table III-4) presented in Annex III.

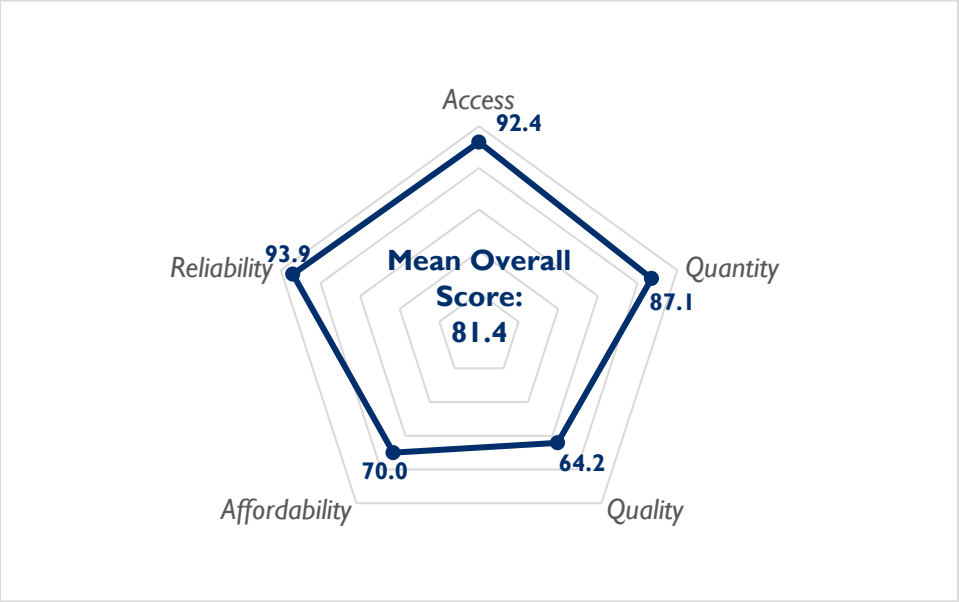
characterizing the baseline status of each dimension of household water security in IUWASH Tangguh's CI sites.[25]

4.1.1 OVERALL HOUSEHOLD WATER SECURITY

To reflect the multi-dimensional nature of household water security, we constructed an overall index with values ranging from 0–100 that scores each household's water security relative to GOI and international standards for access, quantity, quality, affordability, and reliability of the household's water services.[26] The index is an average of scores from 0–100 on each of the household water security dimensions.[27] For example, a household scoring 100 on quality, 90 on quantity, 100 on reliability, 60 on affordability, and 60 on access would have an overall household water security index score of 82.

The average overall household water security Index score in IUWASH Tangguh's CI areas is 81.4. Figure 7 displays the mean score on the sub-index for each of the household water security dimensions together with the mean overall score. As the chart depicts, the overall score reflects quite strong scores on the reliability, quantity, and access dimensions with lower scores on affordability and quality.

Figure 7. Radar Chart of Mean Household Water Security Index Scores, by Dimension and Overall.



Note that a strong baseline score on the IE's household water security index does not indicate the absence of household water security challenges. Rather, it represents a near-achievement of the GOI's standards for household water security. Full achievement of the GOI's standards, which is the salient

[25] Our analysis to generate descriptive statistics for EQ1 includes the application of sampling weights equal to the inverse probability of a household being selected given the size of the neighborhood within which it resides. This means that our indicator estimates consider households from larger neighborhoods more heavily than households from smaller neighborhoods to better represent the actual population of IUWASH Tangguh project participants.

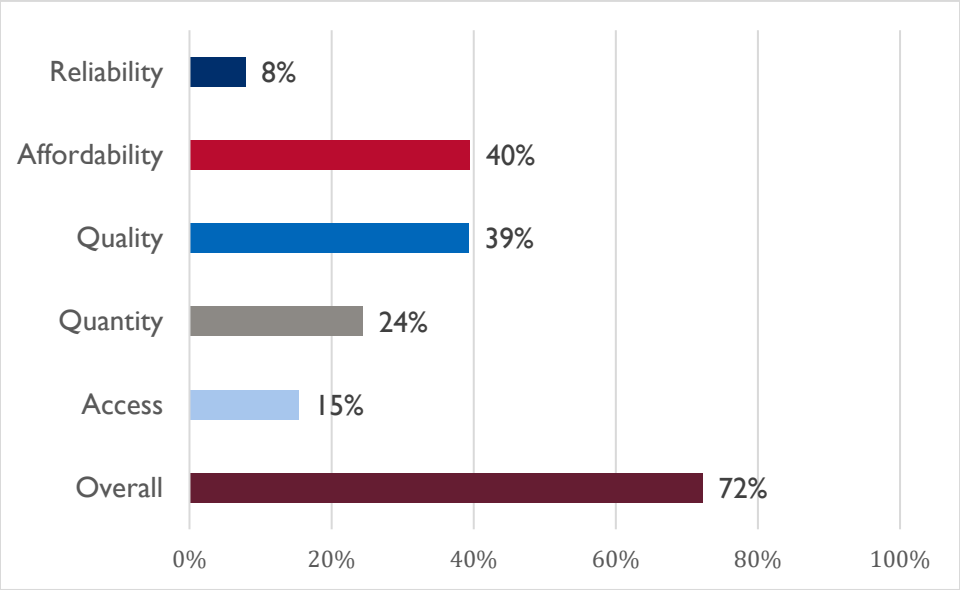
[26] Note that a "100/100" score does not reflect "perfect" household water security. It reflects achievement of relevant standards. There can be differences in water security among households who score 100. For example, a household who spends one percent of its monthly expenditure on water is more water-secure than one that spends 3.9 percent of its monthly expenditure on water, even if both meet the GOI standard for affordability and score 100 on our scale. Accordingly, we measure and characterize impact on each dimension of household water security in terms of its index score and its natural units.

[27] See Table 19 in Annex III for a full description of how the overall index and each sub-index is scored.

policy goal, would yield a score of 100 on the index for each household. Only 28 percent of households in CI areas meet this standard—meaning that nearly three in four households do not meet GOI standards for at least one dimension of their household water security as of the baseline.

Figure 8 breaks down which dimension(s) are most often responsible for a sub-100 score on the overall household water security index. Affordability and quality are the most common dimensions where households fall short of GOI standards, followed by quantity and access. Over one-quarter of households fall short of standards on more than one dimension. The discrepancy between average access and quantity scores, which are quite strong, and the percent of households that fall short of those standards, which is substantial, reflects that many households who fall short are close to the standard (e.g., having an improved source that is off premises but less than 30 minutes away, round trip).

Figure 8. Percent of Households with Sub-100 Scores, by Dimension of Household Water Security



Alternative, experience-based scale for characterizing household water security

Although our study focuses on a service-based characterization of household water security, our household survey also included a standard set of questions to calculate an experience-based household water security metric, the Household Water Insecurity Experiences (HWISE) scale.

The HWISE questionnaire asks households to rate how often they experienced 12 different types of water insecurity (e.g., going to sleep thirsty, not washing clothes, or feeling angry due to their water situation) over the past month. Households are assigned one point for experiences that occurred 1–2 times, two points for those that occurred 3–10 times, and three points for those that occurred over 10 times in the past month. Households with total scores greater than or equal to 12 points are considered water-insecure. By this metric, less than one percent of households are water-insecure in IUWASH Tangguh's CI areas.[28] Notably, the HWISE index does not include measures associated with affordability or quality, the two dimensions on which households score most poorly on our IE's custom household water security Index.

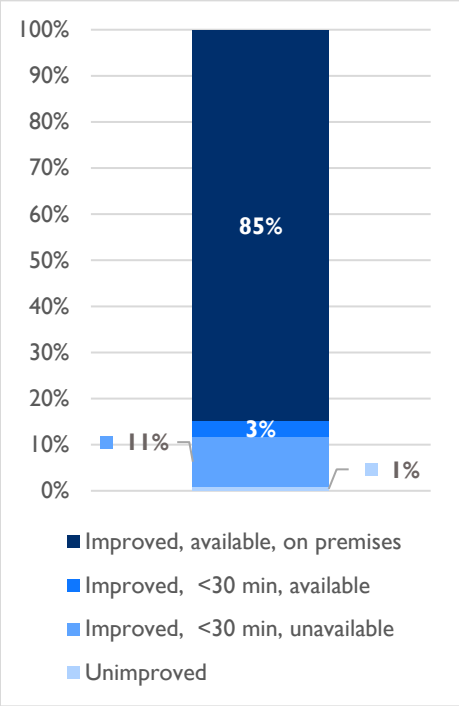
[28] The average HWISE score in CI neighborhoods was 0.63, equivalent to *never* experiencing more than 11 out of 12 items in the past month.

The ensuing sections explore each dimension of household water security in more detail, including potential explanatory factors for the observed state of each dimension.

4.1.2 ACCESS

Our IE uses an adapted version of the JMP service ladder to categorize household access to water—namely, it removes water quality as a requirement (since this is measured separately) and focuses exclusively on the remaining aspects of the service ladder. These include the classification (i.e., improved, unimproved, surface water), location, and availability of each household's main source of water.[29] A household ideally would have an improved source of water that is on premises and available when needed. Though access to such a source does not guarantee water security, it can facilitate many other aspects of household water security (e.g., by being designed to avoid contamination, permitting households to collect more water than they might be able to carry from off-premises, etc.).

Figure 9. Categories of Access to Water Sources, CI Areas



As discussed in the prior section and depicted in Figure 9, 15 percent of households have access to a main water source that is either unimproved, off premises, or unavailable when needed. Among these households, the most common problem (applicable to 73 percent of households with sub-optimal access) is that the source is not available when needed over the past thirty days.[30] Only four percent of all households in CI areas lack an improved source of water on premises.[31]

For households whose main drinking water source is off premises, it is normally very close by. Among households with an off premises main drinking water source, the average round-trip time to collect water, including queuing, is under six minutes.

PATTERNS IN WATER SOURCE PORTFOLIOS

Table 8 summarizes the most common primary and secondary sources of drinking water in CI areas.

[29] When a household's main source of drinking water is a kiosk or packaged source, we instead use their secondary water source to assess access. Though the JMP no longer follows this model, Indonesia does not consider kiosks and packaged sources to be improved, so we follow the GOI's standard practice in classifying access.

[30] The GOI version of this standard requires availability when needed over the past year. Our survey instrument did not ask about availability when needed over the past year. It is possible that more households would report availability issues over such a timeframe. We will test the sensitivity of this measure to this specification in the endline survey.

[31] This finding is sensitive to whether kiosks or packaged water are allowed to be the source of record for classifying access when they are the main drinking water source. Many households go off-premises to purchase water from these sources. So, although the vast majority of households have an improved source of water on premises, about 27 percent still travel off-premises to purchase drinking water.

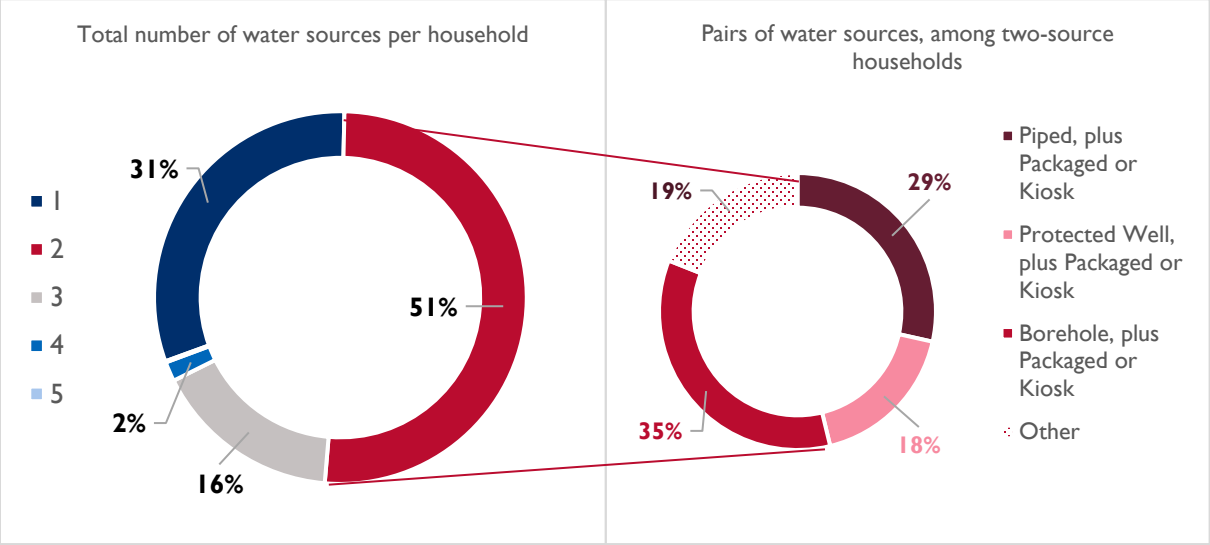
Table 8. Most Common Primary and Secondary Sources of Drinking Water in Community Intervention Areas

Source for Drinking Water	Primary	Secondary
Water kiosk[32]	31.9%	20.6%
Bottled or sachet water[33]	19.6%	23.2%
Piped source on premises	17.2%	10.4%
Borehole	13.7%	26.1%
Protected wells	13.4%	12.3%

<5% primary or secondary: cart with a small tank/drum, piped to neighbors, protected springs, unprotected springs, rainwater storage, tank truck, unprotected wells, community tap

Households in CI areas reported accessing between one and five sources of water on a regular basis—31 percent use only one source, 51 percent use two, and 18 percent use three or more. There are a few notable patterns in the sources that households elect to use and the purposes for which they use these sources. Piped sources, boreholes, and protected wells appear to be critically important sources for households. Among households who use only one water source, 90 percent use one of these three sources, with the remainder most often using kiosk or bottled water exclusively. Among households who use exactly two sources, the most common pairings of sources (applicable to 80 percent of households with exactly two sources) include a piped source, borehole, or protected well paired with either packaged water or water from kiosks. No other pairing of sources occurs in more than 3.4 percent of cases.

Figure 10. Patterns in Water Source Portfolios in Community Intervention Areas



Our household questionnaire asked households to specify for which purpose(s) they use each of their water sources. Nearly all households who access water from kiosks and packaged water use these for

[32] Water sources typically referred to in Indonesia as "drinking water refill depots" or "*Depot Air Minum Isi Ulang*" (DAMIU) are referred to as "kiosk" sources throughout this report, in line with international conventions.

[33] Water sources typically referred to as "water in packaging" or "*air minum dalam kemasan*" (AMDK) are referred to as "packaged" sources throughout this report. Packaged sources include both bottled and sachet water.

drinking and about half of households that use water from kiosks use it for cooking. However, hardly any households use packaged or kiosk water for bathing, cleaning, laundry, or sanitation. Meanwhile, though piped sources, boreholes, and protected wells are only used for drinking in about half of the households who use these sources, they are almost always used for laundry, bathing, sanitation, and cleaning, which require large quantities of water. As we will discuss in ensuing sections, households collect water from piped sources, boreholes, and protected wells in bulk and often at low-cost. Meanwhile, households pay a substantial premium for water from kiosks or packaged water, and often collect a minimal volume of water from these sources. This suggests households may view the more expensive packaged and kiosk water as a commodity worth paying a premium for to use in contexts where water quality and/or taste is paramount, such as drinking and cooking.

4.1.3 RELIABILITY

Our IE measures the reliability of water services as the number of days in a week in which the household experiences a disruption to the normal pressure and/or quantity of water available from their main water source. Such disruptions make it hard for a household to reliably meet its water needs, given that household members cannot know for sure that their water source will have the amount of water available for a given purpose at a given time. Even if a water source provides less water than would be optimal, if it provides consistent amounts of water, households can plan to meet their needs by supplementing with other sources throughout the day.

While a disruption to water quality would be equally important in theory, such disruptions are much less perceptible to households and households are prone to false positive and false negative recollections of when they occur. For example, a household may perceive an increase in chlorine smell as a disruption to water quality when it in fact reflects a normal water treatment procedure. Meanwhile, they may perceive no change in water quality despite a colorless, odorless, and tasteless contamination of their water source upstream. For this reason, it is not feasible to reliably measure quality disruptions through survey methods, and they are not considered in our metric.

Of all five dimensions of household water security, reliability is by far the strongest at baseline. Households in IUWASH Tangguh's CI sites experienced a disruption to the quantity or pressure of their water service an average of 0.38 days (or nine total hours) in the last week. Expressed differently—92 percent of households experienced no disruption to their normal level of water service in the past week.[34] Households report that primary and secondary sources of drinking water are equally reliable, and that disruptions to pressure and quantity are about equally common. Even over the last month, 90 percent of households reported that there were no disruptions to their water services.

GOI standards for water service reliability, which GOI regulations refer to as "continuity," set the goal for main water sources to be available 24 hours per day. This is a difficult metric to capture for non-piped and/or off premises sources, given that households are not as often able to monitor their availability. However, for piped sources, households reported an average of 21.7 hours per day of service over the last week. Among households with piped sources in CI neighborhoods, about 80 percent reported 24 hours per day of service.

[34] As with access, we consider the household's secondary water source for this metric if the primary source is a kiosk or packaged water. If we were to base this metric exclusively on primary drinking water sources, 96 percent of households would have been considered to experience disruptions to their water source over the past week. This indicates that households' main drinking water sources are often available even when their bulk water sources are disrupted. By either definition, disruptions to pressure or quantity of primary water sources are rare.

One finding which raises questions about the reliability of household water sources is that virtually all of the households in IUWASH Tangguh's CI areas store water, often in large volumes.[35] On the one hand, this could suggest that households do not trust the reliability of their water sources and store significant volumes in case of an outage. On the other hand, the common practice of keeping and using Bak Mandis for bathing and/or sanitation may provide a cultural explanation for water storage that does not reflect a lack of confidence in water service reliability.[36]

4.1.4 QUANTITY

Standards for quantity of water used by households are typically expressed in terms of the liters per capita per day (lpcpd) required to meet certain household needs. The WHO's *Domestic Water Quantity, Service Level, and Health* book establishes guidelines for quantities of water service that should meet basic household needs.[37] This resource establishes that basic needs like drinking and cooking should be assured at 20 lpcpd; most basic needs, including hygiene, bathing, and laundry, should be assured at 50 lpcpd; and all needs should be met at 100 lpcpd.[38] For its purposes, the GOI set a minimum volume standard of 60 lpcpd, with larger quantity standards (up to 140 lpcpd) in some large urban settings.

The average quantity of water collected per day from households in IUWASH Tangguh's CI areas is 265 lpcpd—well in excess of all of these standards.[39] However, there are still many households who fall short of these standards—24.6 percent of households collect less than 100 lpcpd and 14.4 percent collect less than 60 lpcpd (see Figure 11).

Several survey questions implemented to score the HWISE scale offer insights into the effects of insufficient water quantity on households and provide corroborating evidence regarding the sufficiency of household water services. Specifically, 98 percent of households "never" went to sleep thirsty or had insufficient drinking water over the last month and only six percent of households worried they might not have enough water for all household needs at least once over the past month. Taken together, there is strong evidence that relatively few households struggle to collect sufficient water to meet their needs.

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[35] On average, households had a storage capacity of about 150 liters per household member (i.e., 600 liters for a four-person household or 900 liters for a six-person household).

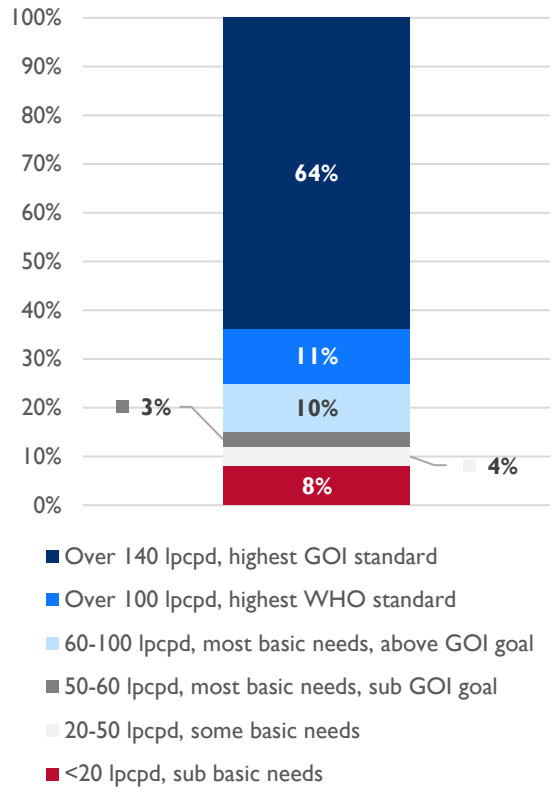
[36] Bak Mandis are large tubs that sit in a bathroom and are often kept full for use in bathing and/or sanitation. Large plastic pails or scoops are kept in the tub to pour water on the bather or down the toilet. Households often keep these tubs full and refill them once they are finished using them.

[37] Howard G, Bartam J, Williams A, Overbo A, Fuente D, Geere JA. Domestic Water Quantity, Service Level and Health, Second Edition. Geneva: World Health Organization; 2020. License: CC BY-NC-SA 3.0 IGO.

[38] The guide caveats that the accessibility, reliability, affordability, and quality of water service are critical co-determinants of "meeting needs." It also establishes that some households, such as those in warm climates, those including pregnant and lactating women, and others, may need more water to meet the same needs.

[39] Note that, in response to a small number of large outliers, which likely reflect measurement error for the quantity of water collected from some non-piped sources, we elected to exclude households with an estimate of over 1,000 lpcpd of water collected. Eleven households, 0.7 percent of our total sample, are excluded on this basis. The median quantity of water collected in CI areas is 181 lpcpd, still well in excess of relevant standards.

Figure 11. Proportion of Households in Community Intervention Areas Relative to WHO and GOI Water Quantity Standards



PATTERNS IN QUANTITY OF WATER COLLECTED BY WATER SOURCE

As might be expected given household reports on purposes for which they use their main water sources, we find that the largest quantity of water collected by households comes from boreholes, protected wells, or piped sources. Among households who use these sources, the median household with a borehole collects 192 lpcpd from this source, while the median well user collects 183 lpcpd and the median household with a piped source collects 157 lpcpd from this source. Despite their status as a common primary drinking water source, households collect very little water from kiosks and packaged sources. Specifically, the median household using a kiosk collects only two lpcpd from this source, while the median bottled water user collects only one lpcpd of bottled water. These fall short even of the three lpcpd that the WHO suggests as a daily minimum for drinking in tropical climates, which suggests households likely fill some of their drinking water needs from other sources.

4.1.5 AFFORDABILITY

The GOI's regulations for water tariffs offer an insight into the amount of expenditure on water that can be considered affordable in the context of other key household needs and expenses. Namely, Indonesia's Minister of Home Affairs Regulation No. 21 of 2020, which amended Regulation No. 71 of 2016 concerning the Calculation and Determination of Drinking Water Tariffs, establishes that water tariffs should not exceed four percent of regional minimal income. To adapt this standard for our evaluation, we compare each household's monthly expenditure on water to its total monthly expenditure, using four percent as the threshold past which water is considered unaffordable.[40]

On average, households in CI areas spend 112,107 IDR per month on water.[41] The average household spends 4.37 percent of total monthly expenditure on water, which is above the GOI standard. Although 61.2 percent of households spend under four percent of their total monthly expenditure on water, 38.8 percent spend over the GOI standard, and 21.5 percent spend over six percent of their total monthly expenditure on water. This exceeds the highest threshold considered affordable internationally, according to the JMP.[42]

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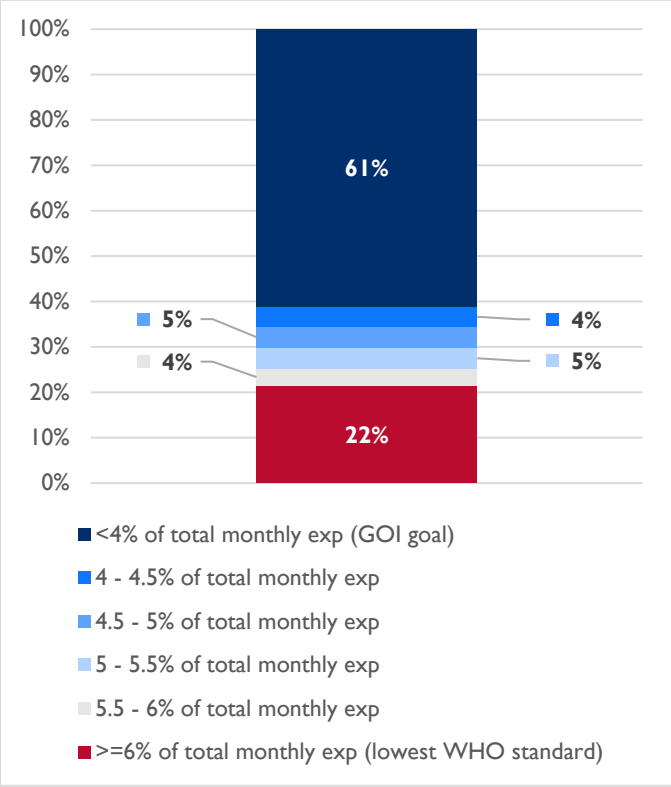
[40] Acknowledging that monthly expenditure and income may not be equivalent in all cases, many households more reliably recall their regular expenditure than their regular income. So, we use expenditure as the frame of reference.

[41] Note that our questionnaire asked only about direct expenditure on water (i.e., money paid in exchange for water), it did not ask about indirect costs (such as money spent on electricity use, water treatment, source maintenance, etc.). This method of measurement could underestimate some real costs of using sources like boreholes and wells, which require electric pumps to operate.

[42] "Affordability | JMP." Accessed October 20, 2022. https://washdata.org/monitoring/inequalities/affordability.

Figure 12. Percent of Total Monthly Expenditure Spent on Water, CI Areas



Although 38.8 percent of households spend an amount on water that GOI might consider unaffordable in the context of their other expenses, most households do not report experiences that suggest their expenditure on water affects their well-being. Over the last month, only nine percent of households said they reduced spending on some other household necessity to pay for water, seven percent said they would consume more water if they could afford it, and three percent said they went into debt to pay for water. These categories were not mutually exclusive (i.e., a household could report that it reduced spending on some other household necessity and also say that they would consume more water if they could afford it).

PATTERNS IN EXPENDITURE AND COST BY WATER SOURCE

Household expenditure on water appears to be determined in large part by households' water sources. Among those who use a piped source, the median household paid about four IDR per liter of water. Even cheaper, households who use protected wells and boreholes each paid a median of 0 IDR per liter of water (i.e., over half of households paid nothing at all for water from these sources). Meanwhile, the median price per liter for water from a kiosk among those that use kiosks was 257 IDR, and the median price of a liter of bottled water was 1,052 IDR.

Factoring in the volume of water households collect from these sources, the average monthly expenditure among households who use the sources are 81,169 IDR from a piped source, 3,429 IDR from a borehole, 300 IDR from a protected well, 73,908 IDR from a kiosk, and 159,590 IDR from bottled water. This cost provides for hundreds of liters per person per day at the median price for piped, borehole, and well users. Meanwhile, for kiosk and bottled water users, it only provides for a few liters per person per day at the median price.

To the extent that households are spending more than they can afford on water, it appears to be either due to excessive reliance on expensive kiosk and bottled water or, more rarely, exorbitant one-time fees (e.g., connection fees, late payment fees) for users of other water sources. Per-unit costs are low enough that consumption of water from a piped source, borehole, or well should be affordable for most households, even in large volumes.

4.1.6 QUALITY

The GOI's standards for water quality are aligned with WHO guidelines for drinking water quality, including specific guideline values for dozens of different chemical, microbial, radiological, and physical parameters that affect the risks water poses to health and its acceptability to water users. There are three priority contaminants among this broad set, according to the JMP: arsenic, fluoride, and *E. coli*.

Among these, our study focuses on *E. coli* as an indicator for water quality, given that it is the most common form of contamination, most feasible to test, and most likely to change in response to IUWASH Tangguh intervention with PDAM water safety plans.

Our primary indicator for characterizing water quality is the presence or absence of *E. coli* in water that households drink. Enumerators requested that households bring them a glass of water that they would normally drink and poured 100 milliliters (ml) of this water directly into a sampling bag to test for *E. coli*. We refer to this test as the "point of consumption" test. The WHO and GOI standard is that no *E. coli* should be present in this sample, and so the primary outcome indicator is the percent of households for whom this test reveals that *E. coli* is present in any amount. However, given that water with more *E. coli* is considered riskier than water with less *E. coli*, we tested this sample for the "most probable number" of *E. coli*.[43] This allows us to characterize the average degree of contamination among samples that are contaminated.

In addition to testing water at the "point of consumption" for *E. coli*, we also took a 100 ml sample directly from the household's main drinking water source and conducted a presence/absence test for *E. coli*.[44] We refer to this second test as the "point of collection" test, signifying that it reflects the water quality directly at the source where the household collects its drinking water. Water that is contaminated at the point of collection but not the point of consumption can be explained by household water treatment and safe storage. Meanwhile, water that is contaminated at the point of consumption but not the point of collection can be explained by unsafe household storage, sanitation, and hygiene behaviors.[45]

Though the water quality at the point of consumption is most indicative of a household's water security, the water quality at the point of collection is an important explanatory factor for the water quality at the point of consumption. To reflect this in the scoring of our household water security index, we score a household who has no *E. coli* detected at the point of consumption as 100/100, regardless of the water quality at the point of collection. However, if a household has water that is contaminated at the point of consumption, we score it 33/100 if there is no *E. coli* detected at the point of collection, under the logic that improved sanitation, storage, and hygiene facilities and behaviors could make the household's water safe to drink at the point of consumption. Households with *E. coli* detected at both locations are scored 0/100 for water quality.

About 60.7 percent of households had no *E. coli* detected at the point of consumption in IUWASH Tangguh CI areas . Meanwhile, 51.4 percent of households had no *E. coli* detected at the point of collection, signaling an improvement in water quality from the source to the glass, on balance. Figure 13 displays how water quality changed in both directions within sampled households—27.2 percent of households had *E. coli* present at the point of collection and absent at the point of consumption, while 10.2 percent of households had *E. coli* absent at the point of collection and present at the point of consumption.[46]

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[43] To perform this test, we poured the 100 ml sample into a compartment bag manufactured by Aquagenx. Aquagenx's compartment bag test estimates the most probable number of *E. coli* present in a 100 ml sample by dividing the sample into five compartments ranging from 1 ml to 56 ml in size and assessing which combination of these compartments demonstrates the presence/absence of *E. coli*.

[44] There is one exception to this rule—households whose main drinking water source was bottled water had their point of collection tests taken from their secondary source of drinking water.

[45] Another possible explanation applicable mostly to piped water users is insufficient residual chlorine at the tap. Piped service providers are supposed to dose water with enough chlorine to continue disinfecting even during storage prior to consumption.

[46] This chart reflects only observations for which both tests are available from households whose main source was not bottled water. We exclude households whose main source was bottled water since these households' secondary source was tested at the point of collection. For this reason, the numbers in the chart are slightly different than the overall estimates in the text.

Figure 13. Quality from Point of Collection to Point of Consumption Among CI Households Whose Main Source Is Not Bottled Water

Based on our survey results, the most likely explanation for improved quality from the source to the glass is household water treatment behavior—75 percent of households whose water we tested for *E. coli* reported that they had treated the water prior to giving it to us for sampling, nearly all of whom said they specifically had boiled the water.[47] One possible explanation for the inverse scenario, where water becomes contaminated between the source and glass, is unsafe water storage practices. Only 39 percent of households showed enumerators a drinking water storage container that was compliant with WHO guidelines for safe water storage (covered with a spigot or tap for accessing water without opening the container). Households without such a container had positive *E. coli* results at the point of consumption marginally more often than households who had such a container (41.0 percent contamination for households without WHO-compliant storage versus 36.9 percent for households with such storage).

In cases where water was contaminated at the point of consumption, it was normally very dangerously contaminated. Among households where water was contaminated at the point of consumption, nearly two-thirds had a most probable number over 100 parts per 100 ml. The WHO considers this degree of contamination unsafe even for washing or bathing.

PATTERNS IN WATER QUALITY BY WATER SOURCE

Table 9 displays patterns in water quality by source at the point of collection and point of consumption.[48]

Table 9. Samples with E. coli Absent at Point of Collection and Point of Consumption, by Source

[47] Among the full sample, 77 percent of households say they normally treat their water prior to drinking. Among households who treated their water, 93 percent said they boiled their water, 23 percent said they let their water stand and settle prior to drinking, 5 percent said they strained their water through cloth, and 3 percent said they used a water filter. These percentages are non-exclusive (i.e., some households used multiple methods).

[48] Note that sources for the point of collection test refer to sources from which water was directly sampled. Sources for the point of consumption test reflect household's main drinking water source. The point of consumption sample likely came from this source, but this is not guaranteed.

Source for Drinking Water	Point of Collection	Point of Consumption
Protected well	6.2%	59.3%
Water kiosk	55.1%	58.4%
Piped source on premises	59.1%	53.3%
Borehole	60.9%	74.1%
Bottled water*	N/A	67.7%

*Bottled water not tested at point of collection

This table reveals a few notable patterns. First, protected wells are, by far, the most contaminated source at the point of collection. Second, kiosks have similar incidence of contamination at the point of collection to piped sources and boreholes, despite a reputation of providing higher-quality water. Third, all households whose main source of drinking water was a borehole or protected well said they boiled their water prior to our point of consumption sample. It appears this substantially improved water quality in both cases. Meanwhile, only 36.4 percent of households whose main source of drinking water was bottled water, and 49.3 percent of those whose main source was a kiosk, treated their water prior to our point of consumption sample. This reflects confidence in the quality of these sources, which may be misguided given the water quality testing results.

Finally, piped sources were the only source for which water quality decreased from the point of collection to the point of consumption, despite 93.3 percent of households with piped sources reporting they had boiled their water.[49] A possible explanation is that residual chlorine at the tap may have been insufficient to prevent contamination during storage and consumption.

4.1.7 CONCLUSIONS REGARDING WATER USAGE WITHIN TYPICAL HOUSEHOLD SOURCE PORTFOLIOS

Considering that IUWASH Tangguh largely focuses its intervention on partnership with PDAMs to improve piped water services, advance water safety planning, and motivate households to connect to PDAM networks, it is worthwhile to examine which dimensions of household water security PDAMs could improve in their current service provision, which dimensions could improve for households who switch from non-PDAM sources to the PDAM network, and which dimensions could improve for all households through SBC or WRM interventions (regardless of their water source). In each case, we must consider how households use water within their current source portfolios and how this situation might change over the course of IUWASH Tangguh's implementation. We present conclusions within these three frameworks below.

Dimensions of household water security that could improve through improved PDAM water service provision.

Water quality is the main dimension on which PDAMs could substantially improve their water services to improve the water security of their customers. Piped water users already have a source on premises, which is reliable and usually provides large quantities of water at an affordable cost. There appears to be no water source in the study areas that guarantees safe drinking water, given that over half of our point of collection tests detected *E. coli* for each of the most common sources of drinking water. This suggests

[49] This result is somewhat sensitive to weighting (in the unweighted sample, the proportion of safe tests only decreases from 54.8 percent to 54.5 percent) meaning that a few households where this dynamic occurred happen to reside in very large neighborhoods.

that increasing water quality at the point of distribution would provide improved household water security for PDAM customers and offer a justification for households not using PDAM water to switch.

Dimensions of household water security that would improve if **households began to use PDAM water services** instead of their current, non-piped source**.**

By definition, households who currently use a main drinking water source that is off premises would have improved water security if they switched to PDAM water as a main source, given that PDAMs offer piped water on premises. However, this potential improvement mostly applies to households purchasing kiosk or bottled water off premises, given that many households using wells and boreholes already access these on premises. Most households do not have to travel very far to access kiosk and bottled water off premises, so it may be challenging to motivate households using kiosks and bottled water to switch to PDAM water on the basis of distance alone. Indeed, many existing PDAM customers use kiosks and bottled water as their main drinking water source, and among households without a piped source, 80 percent said they did not intend to connect in near future. Most justified this decision on the basis of "just preferring their current source."

On the other hand, the significant cost difference between bottled and kiosk water and piped water could provide a stronger justification for switching. Our data suggest there are not clear advantages in terms of water quality for using kiosk water over piped water, such that PDAMs could market their water as an equivalent product at a much lower unit cost. Of course, there is still a potentially large up-front cost associated with connecting to the PDAM that is not required to purchase packaged or kiosk water.

Meanwhile, for households using protected wells and boreholes, there do not appear to be advantages in terms of access, affordability, reliability, or quantity to switching to a piped water source. For boreholes, water quality at the source also appears to be equivalent. Water from protected wells appears to be much lower quality at the source, potentially offering improvements in household water security if households switch to piped water. However, water treatment behaviors currently render the quality of well water equivalent to the quality of piped water at the point of consumption, even if it is much worse at the point of collection. In any case, motivating households to switch from well water to piped water would require convincing many households who do not currently pay for water to begin to pay. The second most common reason households who do not have a piped source indicated they did not intend to connect to the piped network is that "they cannot afford it."

As mentioned above, improving household water quality at the point of distribution would substantially increase the household water security improvements, which would accrue to households switching to piped water and the justification for them to switch, regardless of their current main source of drinking water.

Dimensions of household water security that could improve across multiple sources through PDAM WRM and SBC activities.

SBC interventions prioritizing safe water treatment, storage, hygiene, and sanitation in IUWASH Tangguh's partner cities and districts have the potential to significantly improve water quality at the point of consumption, regardless of which source households prefer for drinking water. There is evidence that such behaviors are already helping some households ensure they are drinking water that is

safe, but there is substantial room for expanding these behaviors, especially among households who consume piped, bottled, or kiosk water.

Meanwhile, interventions to improve the quality of water directly at ground and surface water sources could reduce the risk of contamination for all households who drink water from these sources, regardless of which service or infrastructure they use to access them. Although water quantity and reliability are not currently substantial concerns in IUWASH Tangguh's treatment areas, they could become a concern as urbanization increases and demand on raw water sources strains bulk water availability. In this sense, improving resource management to ensure bulk water quantity could also be advantageous by avoiding a decline in currently strong dimensions of household water security.

4.2 EQ3 (CITY-WIDE WATER SERVICE RESILIENCE) FINDINGS

Our study conceives of city-wide water service resilience as the ability of water service providers to reduce the incidence and/or duration of disruptions to the quantity or quality of city-wide water services caused by shocks and stressors. Measuring this concept directly for the purposes of the evaluation is infeasible. Instead, we measure the ability of PDAMs and LGs to promote resilient city-wide water services by identifying, understanding, and avoiding or mitigating risks to water services.[50] We measure these concepts under the hypothesis that cities who better identify, understand, and mitigate or avoid risks will experience lesser impacts from those risks in the form of disruptions to water services.

In this section, we characterize the extent to which PDAMs and LGs in IUWASH Tangguh's partner cities and districts identify, understand, and mitigate against risks to water services based on expert review of city-wide strategic planning documents, interviews with officials from PDAMs and Bappedas, and available secondary data. We find that neither set of organizations has a strongly institutionalized, evidence-based practice of risk identification, understanding, and mitigation, though they are anecdotally aware of hazards that pose risks to their water services. Prevailing formats for city-wide strategic planning documents very rarely include risk analysis. Good practices in evidence-based risk analysis are starting to emerge in PDAM RPAMs, but these are not yet informed by localized climate projections and, in any case, are only used by PDAMs in a minority of IUWASH Tangguh partner cities and districts. Although PDAM strategic planning documents are more likely than LG documents to include risk analysis, LG budgets are more likely to included dedicated, protected funds for risk mitigation and disaster response and recovery. For their part, personnel within PDAMs and Bappedas assert that hazards rarely cause serious disruptions to their water services and express confidence that their institutions are well-prepared to confront such hazards in the future.

4.2.1 OVERALL CITY-WIDE WATER SERVICE RESILIENCE

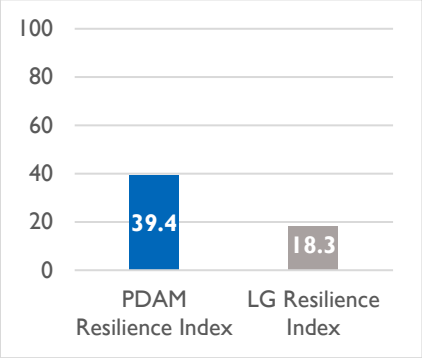
As with household water security, we have constructed an index with values 0–100 to characterize city-wide water service resilience, which considers inputs from various contributing components to resilience. A score of 100 out of 100 signals meeting standards we have created for each component. Differently from the household water security index, we score each component on a "pass/fail" basis. This means the score on the overall index corresponds to the percent of possible standards of resilience

[50] While there are other city-wide water service providers in IUWASH Tangguh treatment areas, IUWASH Tangguh rarely supports water service providers that are not PDAMs. In any case, LGs have a critical role in overseeing water service provision within their jurisdiction and IUWASH Tangguh directly supports them in this capacity.

which a city has "achieved."[51] We score this index separately for the PDAM and LG in each city, given that they have different roles, responsibilities, and potentially performance with respect to identifying, understanding, and mitigating risk. There are five components of resilience that we score for PDAMs and LGs alike (risk identification, risk understanding, planning for risk mitigation and avoidance, finance for risk mitigation and avoidance, and risk data use), four components that we score exclusively for PDAMs (financial performance, operational performance, infrastructure safety, and adequate staffing) and one that we score exclusively for LGs (independent water quality testing).

Figure 14 displays the average overall resilience index score for PDAMs and LGs in IUWASH Tangguh's partner cities and districts. These scores indicate that the average PDAM achieves three to four of nine standards for resilience and the average LG achieves one to two of six standards of resilience.

Figure 14. Average Overall Resilience Index Score for PDAMs and LGs in IUWASH Tangguh Partner Cities and Districts



The difference in average scores reflects two key dynamics, which we will expand upon in the ensuing sections for each resilience standard. First, most existing strategic planning documents do not include risk analysis and planning information aligned with the IE's standards for risk identification, understanding, and mitigation. PDAM RPAMs do include some relevant information, but only 38 percent of IUWASH Tangguh's partner cities and districts have an RPAM, and they are not informed by localized climate projections.[52] Second, standards scored based on survey responses and/or secondary data tend to have higher rates of achievement than those scored based on document review. Standards based on survey responses or secondary data constitute six of nine standards in the PDAM resilience index, compared to three of six in LG resilience index. Still, marginally more PDAMs achieve four of five standards scored for both organizations according to the same methods. The one exception is finance for risk mitigation and avoidance, where LGs score higher.

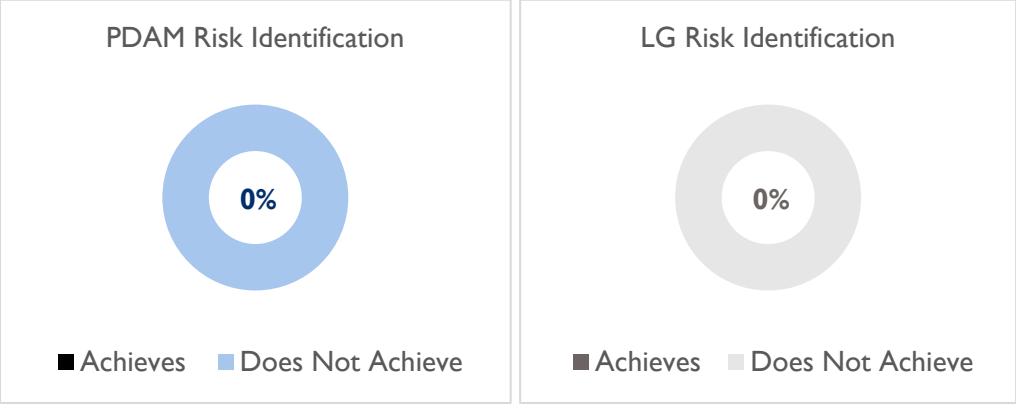
4.2.2 RISK IDENTIFICATION

For risk identification, URBAN WASH's expert reviewers reviewed each institution's planning document (this is the RPAM and/or Business Plan for PDAMs and the RISPAM for LGs) and scored whether these identified hazards to water services based on high-quality evidence, including localized climate projections. As Figure 15 demonstrates, No PDAM or LG in IUWASH Tangguh's partner cities and districts met this standard.

[51] One other difference—standards for resilience were created for the purposes of this evaluation, adapted to a city-wide water service context from the UN's Sendai Framework for Disaster Risk Reduction. Unlike for household water security, there are not prevailing international or country-level resilience standards which apply to IUWASH Tangguh's outcomes of interest.

[52] About 90 percent of PDAMs had an active business plan and 84 percent of LGs had an active RISPAM. These documents are much more institutionalized, but do not historically include risk analysis information.

Figure 15. Percent of Institutions That Identify Hazards to Services Based on High-Quality Evidence

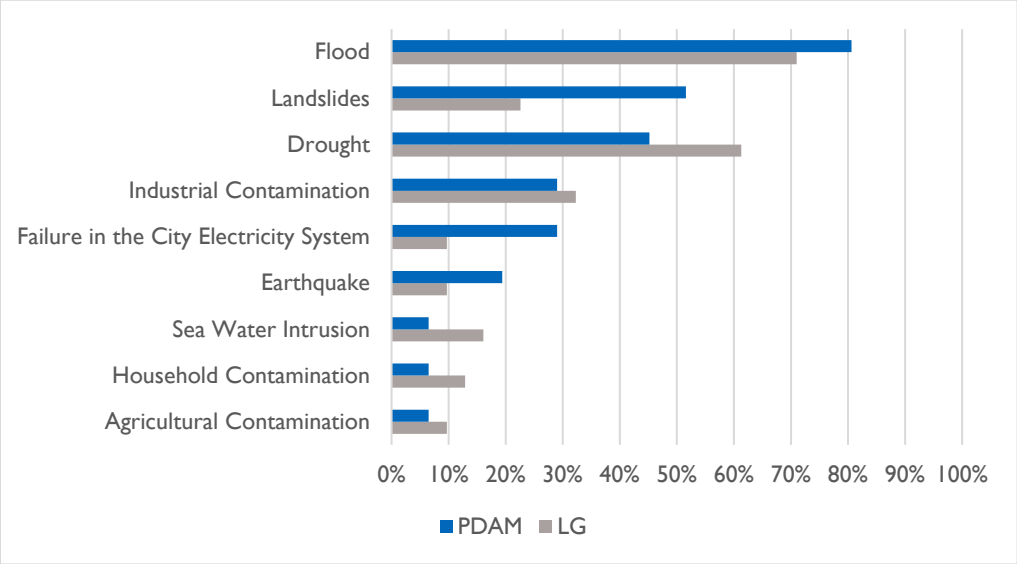


These scores conceal some meaningful differences in the extent of risk identification observed in strategic planning documents, which does appear to be stronger in PDAMs than LGs. RISPAMs maintained by LGs hardly identify any hazards which pose risks to water services. PDAMs with RPAMs, on the other hand, do include a variety of elements which should help risk identification, even if they do not yet meet the IE standard.[53] First, 21.4 percent of PDAMs have documentation of their complete water system supply chain (i.e., the functioning of their water supply system as a whole, including the integration of abstraction, treatment, transmission, and distribution components), which is an important precursor to identifying the specific nature of and mechanisms through which hazards affect water services. Second, 28.5 percent of PDAMs identify hazards to water services, and about one quarter of these use "high-quality" evidence to do so according to our expert reviewers. These PDAMs would qualify for the IE standard on risk identification if they used localized climate projections to inform their risk identification, which they currently do not.

Although strategic planning documents do not reflect an institutionalized effort to identify hazards that pose risks to water services, we have evidence from our PDAM and Bappeda survey regarding which hazards LGs and PDAMs feel are among the three most likely to affect their water services (see Figure 16). The types of hazards that concerned each institution are broadly logical given the scope of their responsibility for overseeing water services. For example, PDAMs appear more concerned with landslides, municipal electrical failures, and earthquakes than LGs. All of these threats would threaten piped water infrastructure, while posing less of a threat to non-piped (and especially groundwater) bulk water sources. Meanwhile, LGs appear more concerned with drought and seawater intrusion than PDAMs, perhaps reflecting their responsibility for ensuring water services for households that use wells and boreholes. Both institutions most frequently cited floods among all hazards.

[53] Our expert reviewers note that the RPAMs that do exist, and that we reviewed, follow a draft set of guidelines prepared by PUPR in 2013. The final set of guidelines were prepared in September 2023, after baseline data analysis was completed. When we refer to "prevailing formats" of RPAMs in this document, we are referring to the draft guidelines that existed prior to September 2023 and not the guidelines finalized after.

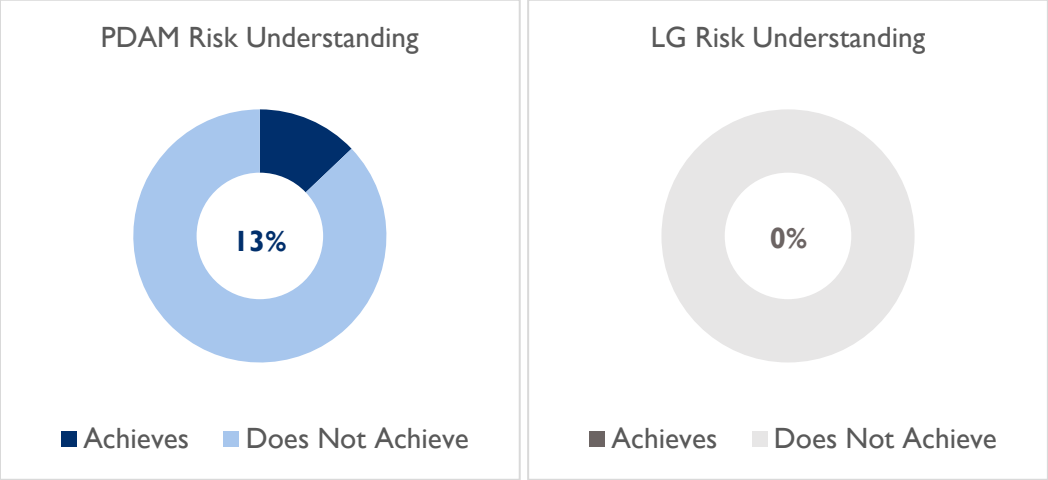
Figure 16. Hazards Identified among Top Three Most Likely to Affect Water Services, by Institution



4.2.3 RISK UNDERSTANDING

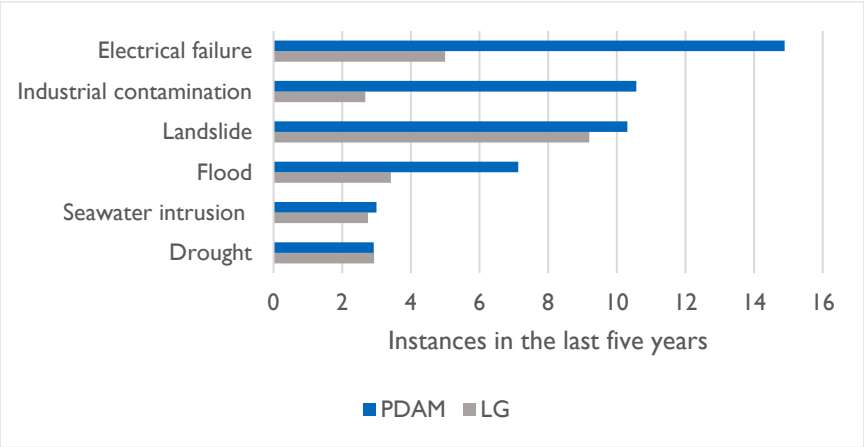
For risk understanding, URBAN WASH's expert reviewers reviewed RPAMs, Business Plans, and RISPAMs and scored whether these incorporated scenarios no more than five years old for the most likely and severe hazards to water services with instructions for use and identified intervals for updates no longer than five years. Predictably, given that PDAM Business Plans and LG RISPAMs did not include analyses to identify risks in the first place, we found few scenarios demonstrating understanding of risks. However, where PDAMs identify hazards that pose risks to their water services in RPAMs, they do typically include scenario analysis to promote understanding. About 21 percent of PDAMs included some kind of scenarios corresponding to the most likely hazards they identified in their risk analysis. Some of these had been created over five years ago, but otherwise qualified for the remaining characteristics to achieve the IE's risk understanding metric. These scenarios covered potential effects throughout the water supply chain, from abstraction and treatment through to transmission and distribution.

Figure 17. Percent of Institutions That Use Scenario Analysis to Understand Risks to Water Services



As with risk identification, we included questions in our survey of PDAM and Bappeda officials to gauge their understanding of risks that certain hazards posed to their water services. First, we asked about the frequency with which different hazards had historically affected city water services. PDAMs reported hazards affecting their water services more frequently over the last five years than LGs did. City-wide electrical failure was particularly common—PDAMs who discussed this hazard estimated it occurred an average of 15 times over the past five years. In comparison, PDAMs who discussed droughts estimated they occurred an average of three times over the past five years. Landslides and floods occurred more commonly, an average of 10 and 7 times over the past five years, respectively.

Figure 18. Instances in Last Five Years Where Hazards Reportedly Affected Water Services, by Institution



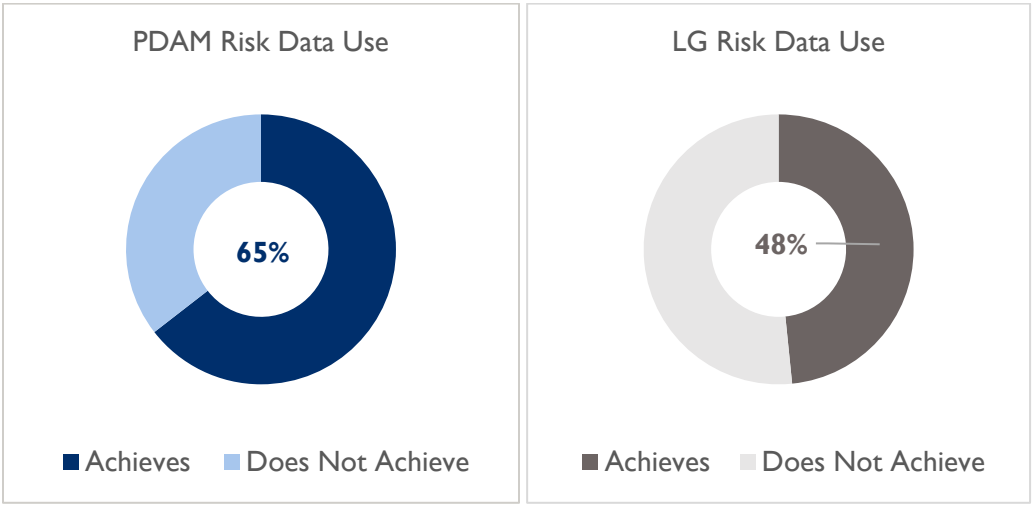
Aside from asking about the historical incidence of different hazards, we also asked about the most likely and severe consequences of different hazards on city-wide water services, should they occur. Even when PDAMs and LGs think a hazard is reasonably likely to affect their water services, they rarely feel the impact of the hazard on their water services will be severe. PDAMs and LGs alike feel the most probable consequence of most hazards occurring is a disruption to water quality or availability of less than one week, and usually less than one day. This perception, based on respondents' experience, may partly reflect why it has not historically been a priority to institutionalize planning surrounding hazards

and the risks they pose to water services. However, should these hazards become more common and/or more intense, this lack of strategic planning incorporating evidence-based risk analysis leaves cities and districts vulnerable to disruptions.

4.2.4 RISK DATA USE

We relied on interviews with PDAM and Bappeda officials to assess the extent to which each institution monitors real-time data on risks to their water services. To achieve this standard, each institution had to assert that it monitored real-time data on the quantity and quality of its bulk water sources. As Figure 19 demonstrates, many PDAMs and LGs monitor such data, though more PDAMs report doing so.

Figure 19. Percent of Institutions That Monitor Real-Time Data on Bulk Water Quantity and Quality



PDAMs and LGs that monitor risk data follow similar patterns for risk data use. Specifically, both organizations typically rely on PDAM master meters to monitor bulk water quantity and PDAM laboratories to monitor bulk water quality. They report monitoring these data sources an average of one to two times per day. Only 10–20 percent of cities and districts rely on more direct measures of bulk water source quantity (like BBWS or *Perum Jasa Tirta* [River Basin Bulk Water Supply Corporation; PJT] river flow gauges) or bulk water quality (like tests from the Ministry of Environment and Forestry). The more common data sources from PDAMs often measure the quantity and quality of bulk water being abstracted, without information as to the quantity and quality of water in the source as a whole.

Aside from monitoring bulk water quantity and quality, we also asked PDAMs and Bappedas whether they monitor early warning systems (EWS) for hydrometeorological and geological disasters, which might pose risks to their water services.[54] PDAMs very rarely monitor EWS—only seven percent monitor geological EWS and 16 percent monitor hydrometeorological EWS. Many more LGs monitor hydrometeorological EWS (about half) than PDAMs, though a similarly small number (seven percent) monitor a geological EWS. For those who do monitor EWS, most rely on an EWS from Indonesia's Meteorology, Climatology, and Geophysical Agency (BMKG), though some Bappedas reportedly also

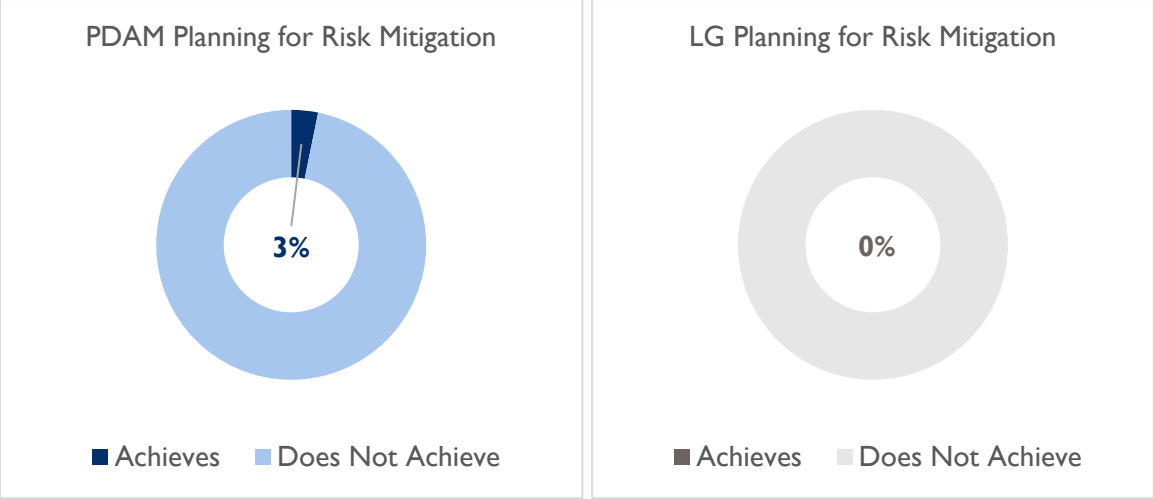
[54] In our EDR, we included these measures as part of the resilience standard for risk data use "when relevant." However, we removed them from the standard in this report, since it is difficult to tell for which cities and districts these qualify as relevant. Taking this step avoids penalizing cities and districts for not monitoring these in cases where it may not meaningfully improve their resilience.

monitor an EWS from their local disaster management agency (*Badan Nasional Penanggulangan Bencana* [Provincial Disaster Management Agency]; BPBD).

4.2.5 PLANNING FOR RISK MITIGATION AND AVOIDANCE

URBAN WASH's expert reviewers reviewed RPAMs, Business Plans, and RISPAMs and scored whether these included objectives and measures to prevent and/or mitigate risks to water service provision, including target indicators and timeframes for risk avoidance/mitigation. RISPAMs, which do not generally engage in risk analysis, by extension do not include any planning for mitigating risk. Although PDAM RPAMs do include risk analysis, they very rarely get to the point of planning actions to mitigate risk. Only 13 percent of PDAMs in IUWASH Tangguh's partner cities and districts had an RPAM with plans for risk avoidance or mitigation actions, and only three percent included indicators and timeframes for implementation.

Figure 20. Percent of Institutions with Comprehensive Plans to Mitigate Risks to Water Services



With that said, LGs and PDAMs alike share a strong framework for making well-evidenced, long-term demand and capacity projections and then planning capital investment to meet demand. For PDAMs, this planning typically occurs in their Business Plan. Around 83 percent of RISPAMS and PDAM Business Plans included detailed demand and capacity projections based on high-quality evidence and tied to specific capital investments. Supposing that the national government, which PDAMs and LGs typically rely on to fund these investments, meets cities' and districts' investment expectations, this has the potential to ensure a baseline level of water services that is sufficient to meet demand moving forward.

Taking these two threads of evidence together, we consider that cities have a key building block in place for resilience by ensuring that the baseline level of water service should be sufficient to meet demand under normal conditions. However, they are vulnerable to hazards that might acutely upend normal conditions and affect water services, especially if climate change causes these hazards to be more frequent and/or intense. Should these hazards occur, there are not documented plans in place to avoid or mitigate their consequences. Even their well-evidenced demand and capacity projections rely on sufficient quantity and quality of water from their bulk water sources for planned investments to meet demand. If water at the source becomes insufficient or dangerously low quality, they may not be able to abstract and deliver the amount and quality required to meet demand, even with adequate infrastructure.

However, interviews with PDAM and LG personnel suggest they do not view their water services to be so vulnerable. Nearly all personnel interviewed felt that their organization can effectively reduce the incidence and duration of disruptions to water services, even in the face of the most severe hazards their cities might face. This seems to align with their perspective that these hazards do not pose much of a risk to their water services in the first place.

Aside from their strategic planning documents, over 90 percent of IUWASH Tangguh's partner cities and districts have a cross-organizational working group (often called a *Pokja*) to manage city-wide water services. According to Bappeda officials interviewed, these groups nearly always include representation from the Bappeda, PDAM, LG agency for environment and forestry, LG health agency, local agency for public works and housing, and the regent/mayor's office. About half include representation from the regional disaster management agency. Less common participants include the provincial government and applicable *Balai (Besar) Wilayah Sungai* (Agency of River Area; B(B)WS).[55] Almost no local working groups include the local agency for energy and mining, which is institutionally responsible for groundwater resources. About 60 percent of these working groups meet less than three times per year, though in our experts' experience informal discussions among group members are common outside of formal meetings. Most PDAM officials interviewed felt the groups had a shared understanding of hazards to water services and coordinated effectively to mitigate the risks these posed.

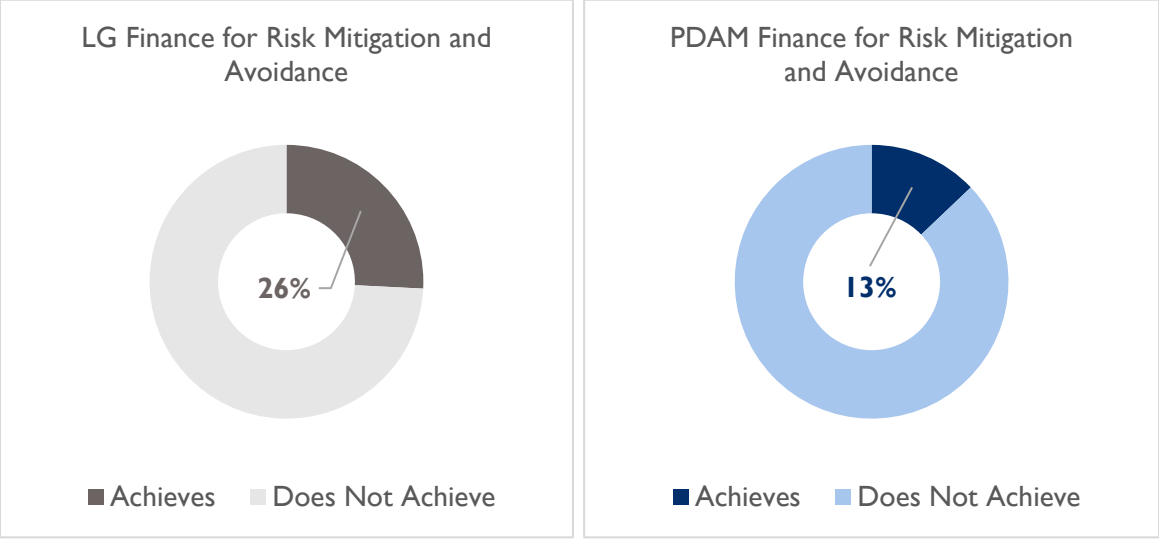
4.2.6 FINANCE FOR RISK MITIGATION AND AVOIDANCE

We measure finance for risk mitigation and avoidance separately, under the assumption that excellent plans for risk mitigation and avoidance are insufficient to promote resilience without adequate resources. For this standard, we rely on interviews with representatives of PDAMs and LGs to assess whether their institutions have separate budget allocations for risk avoidance/mitigation and disaster response/recovery that cannot be used for other purposes. Whether these allocations are set aside in one budget or separated into two, protected funds must be set aside for both purposes to qualify.

As displayed in Figure 21, this is the dimension of our resilience index on which LGs score strongest relative to PDAMs. About 71 percent of LGs have budget allocations for risk mitigation and avoidance and 84 percent have allocations for disaster response and recovery. These allocations are protected exclusively for these purposes in about half of these cities—such that 26 percent of cities and districts have funds available for both purposes that cannot be used for any other purpose. Though PDAMs are nearly as likely to have budget allocations for risk mitigation and avoidance (65 percent), they are much less likely to have allocations for disaster response and recovery (55 percent). Also, these budgets are only protected in about a third of PDAM budgets, compared to half of LG budgets.

[55] We note that provinces typically have their own provincial level working groups, where B(B)WS are more common participants.

Figure 21. Percent of Institutions with Protected Budgets for Risk Mitigation and Disaster Response



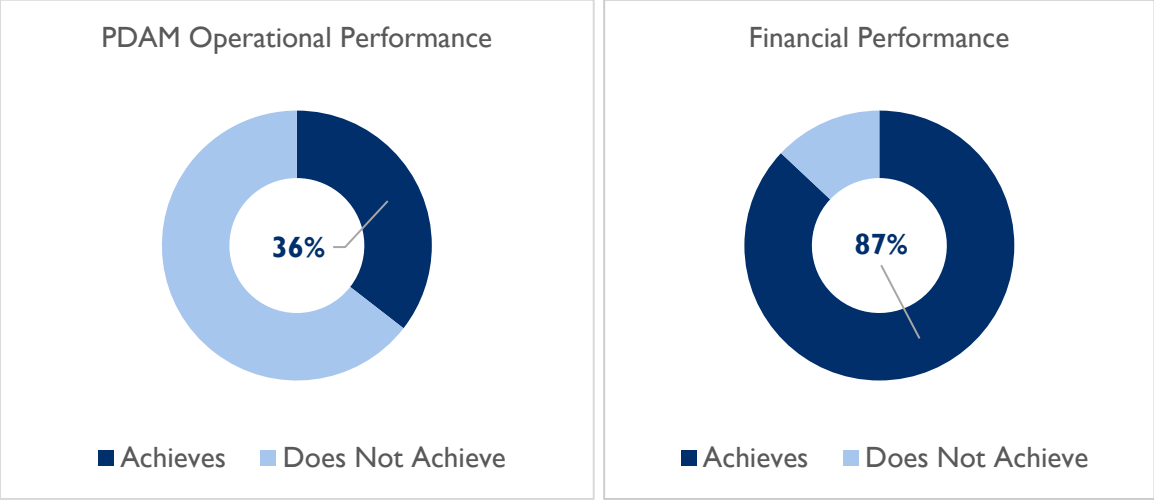
This may reflect, in part, a reliance on external sources for PDAMs to fund investments that might improve water services and/or reduce the likelihood or impact of hazards. Our interviews with PDAM officials included a series of questions meant to gauge which sources of investment they know about and which have historically invested in their PDAM.

Many PDAMs have a strong awareness of different external sources from which they might pursue investment to improve water services. Almost all are aware of opportunities for investment from their local, provincial, or national government, and about half are aware of opportunities from foreign and domestic donor organizations and the private sector. In practice, however, almost no PDAMs have received investment from domestic donors and only around 10 percent have received investment from the private sector or foreign donors. PDAMs have much more commonly received investment from their government counterparts—with 71 percent receiving investment from their LG, 39 percent from their provincial government, and 61 percent from the national government.

4.2.7 OTHER MEASURES OF RESILIENCE: PDAM

We have four measures of resilience that apply exclusively to PDAMs. The first two measures, operational performance and financial performance, are based on administrative data collected by the PUPR. The second two, adequate staffing and infrastructure safety, are based on interviews with PDAM personnel. Figure 22 summarizes achievement of the first two standards (financial and operational performance) among IUWASH Tangguh partner cities and districts, while Figure 23 depicts achievement of the latter two standards (adequate staffing and infrastructure safety).

Figure 22. Percent of PDAMs Meeting Custom Resilience Standards for Operational and Financial Performance



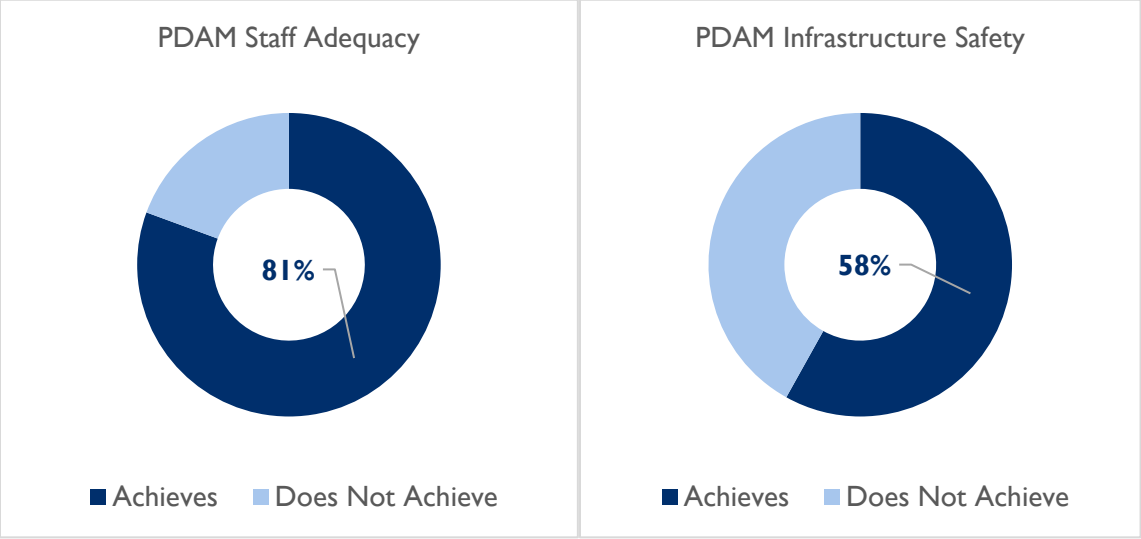
Our standard for operational performance is that PDAMs' production volume for the most recent year of data available (2021) is less than their installed capacity while maintaining at least 16 hours per day of water service. This signals that water supply networks, as designed, are capable of meeting or exceeding demand and could potentially accommodate reductions in bulk water availability while continuing to meet demand. A little over one-third of PDAMs meet this standard—primarily falling short because of the hours per day of water service reported to PUPR.

There are two important caveats related to data quality to consider in interpreting this finding. First, the 2021 PUPR data estimated an average of 15.5 hours per day of water service from IUWASH Tangguh's partner cities and districts. Prior years of PUPR data had significantly higher averages, and our own survey data with household users of piped water suggests an average closer to 21 hours per day in CI areas. We have not confirmed whether there was a change in the way PUPR measures this concept that precipitated this lower average. Second, there are anecdotal reports of PDAMs who have idle capacity according to the PUPR dataset but have insufficient bulk water available according to users. These two caveats have opposite implications for our analysis—higher average service hours would increase the number of PDAMs meeting the operational performance standard, while fewer PDAMs with idle capacity would lower achievement of this standard.

Meanwhile, the standard for financial performance is that the PDAM scores at least 0.644 of a possible 1.15 points on the PUPR's financial performance metrics. Although the PUPR does not have an official cutoff for a "healthy" financial performance score, the cutoff of 0.644 of 1.15 is equivalent to PUPR's official overall cutoff of 2.8/5 for a PDAM's overall performance to be considered "healthy." PUPR's score accounts for cash ratio, return on equity (ROE), solvency, operational ratio, and billing effectiveness.[56] Almost 90 percent of PDAMs meet this standard. Between these measures, PDAMs score particularly highly on solvency, billing effectiveness, and cash ratio.

[56] All these measures provide complementary perspectives of a PDAM's financial health. Cash ratio is the ratio of cash and other liquid assets to total liabilities. Solvency is the ratio of total assets to total liabilities. ROE is net income divided by shareholders' equity. Operational ratio is the ratio of annual operating revenues to annual operating expenses. Billing effectiveness is the percent of accounts with a bill issued in the last month.

Figure 23. Percent of PDAMs Meeting Custom Resilient Standards for Staff Adequacy and Infrastructure Safety



The standard for PDAM staff adequacy is that the PDAM interview respondent agrees that the PDAM "has adequate staff with appropriate skills to reduce the incidence and duration of disruptions to water services from the most likely hazards that the PDAMs will face." Over three-quarters of respondents agreed with this statement. We acknowledge that this measure reflects a particular perspective on staff adequacy (i.e., the research manager's opinion) and is not a direct measurement of staff adequacy. Nonetheless, it is consistent with a variety of other metrics from our survey, indicating that PDAM interview respondents do not perceive hazards like floods, landslides, and droughts to pose grave risks to their services.

The standard for PDAM infrastructure safety is that the PDAM interview respondent reports that abstraction, treatment, transmission, and distribution infrastructure is designed to reduce disruptions from each of the three most likely hazards they named in the interview.[57] Almost half of respondents said that at least one of these components of their water system supply chain was not designed to reduce disruptions from at least one of their most likely hazards. Respondents most frequently cited the distribution network as the component of their system that was not designed to withstand hazards (32 percent), though they also commonly mentioned the transmission network (26 percent) and treatment infrastructure (23 percent). Only 13 percent of respondents felt their abstraction infrastructure was not designed to withstand hazards.

4.2.8 OTHER MEASURES OF RESILIENCE: LOCAL GOVERNMENT

There is one final measure applicable only to LGs, which is compliance with GOI regulations for independently monitoring water quality at the point of use for PDAM, community, and private water service consumers. Minister of Health Regulation (Permenkes) No. 2 of 2023, Permenkes No. 66 of 2014, and Permenkes No. 736 of 2010 together establish that each city or district must monitor 26 mandatory water quality parameters, including chemical, physical, and microbiological aspects for all water consumers in the city. We assessed these regulations by asking Bappeda respondents to identify

[57] For example, in interviews where respondents named floods, landslides, and electrical failure as the three most important risks to their water services, they were asked specifically about their water infrastructure's resilience to floods, landslides, and electrical failure. On the other hand, where respondents named different hazards, they were asked about resilience to those different hazards.

which water service providers existed in their city and to share whether or not they independently monitored chemical, physical, and microbiological water quality at the point of use for users of each of these service providers.

Figure 24. Percent of LGs That Test Chemical, Microbiological, and Physical Water Quality for Relevant Water Users

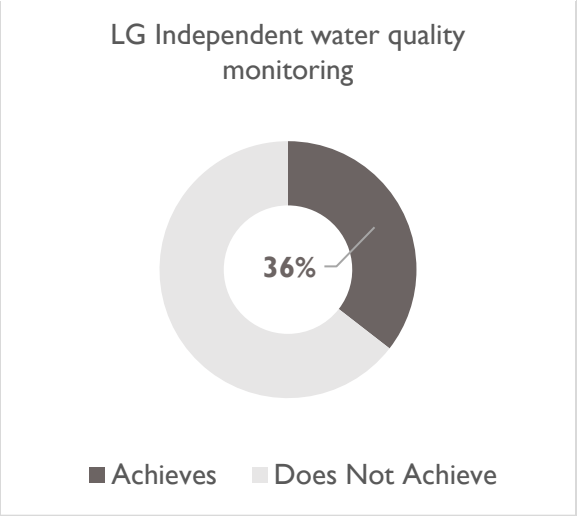


Figure 24 shows that a little over one-third of cities and districts in our sample report testing chemical, microbiological, and physical water quality parameters for each type of water user present in their city.[58] The vast majority of cities and districts independently test at least one parameter for domestic PDAM users, and 61 percent test all three parameters for domestic PDAM users. However, independent water quality monitoring for community-based and private water service users is much less common. Among LGs who implement independent water quality monitoring, 80 percent report that local Labkesdas are responsible. In the remaining cases, a lab with the local *dinas kesehatan* (municipal or provincial health agency) was responsible for testing.

4.3 CROSS-CUTTING GENDER ANALYSIS

There are well-documented gender-specific outcomes of improved WASH services in relevant academic literature. Aside from promoting improved WASH outcomes for women through improved household water security, IUWASH Tangguh's results framework also includes an objective devoted to improved women's participation and leadership roles in WASH and WRM. Our household, PDAM, and Bappeda survey instruments included questions to assess the baseline status of these household- and city-level gender characteristics, which we report on in this section.

4.3.1 GENDER INSIGHTS FROM HOUSEHOLD INTERVIEWS

Many gender-specific benefits of improved WASH outcomes result from the typically gendered responsibilities for water collection. Namely, at a global level, two-thirds of households rely primarily on women and girls for water collection. However, surprisingly, men are equally or more likely than women to be the ones responsible for collecting water in IUWASH Tangguh's CI areas. This may reflect the fact that water sources located off household premises are often kiosks or packaged water vendors close to the households. This suggests that any increase in access to sources on premises will not necessarily provide gender-differentiated benefits for IUWASH Tangguh activity participants.

We tested for differences in the baseline status of household water security outcomes by head of household gender (in our sample, 85.6 percent of heads of household were men). We did not find any significant differences in access, reliability, quantity, affordability, or quality of water services between households headed by women versus men in IUWASH Tangguh's partner sites.

[58] This should be considered an upper bound with respect to compliance with GOI regulations—our measure is not a full audit of compliance with the regulations. It could be that the number and frequency of tests and/or the specific parameters tested are out of compliance with regulations, even if each type of parameter is tested. It was infeasible to conduct a full audit of regulatory compliance within the scope of the study.

Although our baseline data do not suggest differential household water security outcomes by gender, there still exists the potential that program impacts could have different implications for men and women within households. Improvements to water quality have demonstrated links to reduced child illness and mortality under five.[59] Any potential improvement in water quality caused by IUWASH Tangguh could cause positive health outcomes for children under five, which could reduce the childcare burden on women caring for their sick children.

4.3.2 GENDER INSIGHTS FROM PDAM AND BAPPEDA INTERVIEWS

We asked PDAM and Bappeda respondents a series of questions related to the gender of people filling key roles in their organization and their perspectives regarding women's participation in WASH institutions. Though their responses suggest that women often participate in WASH institutions in IUWASH Tangguh's partner cities and districts, there do appear to be important gender differences in the types of roles women hold and in institutional attitudes regarding women's capabilities for technical roles in PDAMs.

PDAM personnel interviewed for the study estimated that an average of six percent of technical personnel (e.g., engineers, operators, and lab technicians) were women in their institutions, compared to 41 percent of non-technical personnel (like managers, administrative, customer service, and other front office staff). In 45 percent of PDAMs, respondents felt that women had fewer opportunities for promotion in technical roles than men have. In contrast, 93 percent of PDAM respondents felt men and women had equal opportunities for promotion in non-technical roles.

The PDAM interview included a set of six questions that asked respondents to estimate how many of their colleagues would agree with a series of statements about women's capabilities to perform certain roles and about the number of women who should participate in these roles relative to men.[60] As Figure 25 depicts, respondents felt many more colleagues would disagree with these statements specifically for women in technical roles than would disagree with these statements about women in executive or non-technical roles.

Although all but one PDAM in IUWASH Tangguh's partner cities and districts has at least one woman leading a division and participating in the executive management team, there were no women serving in chief executive roles (e.g., President Director) and only one woman leading an operations or technical division. This provides further evidence regarding the types of roles that are attainable for women in WASH institutions compared to men.

Outside the scope of PDAM staffing, respondents reported that considerations for gender and social inclusion were included in customer service standards for 74 percent of PDAMs and in standard operating procedures for 52 percent of PDAMs.

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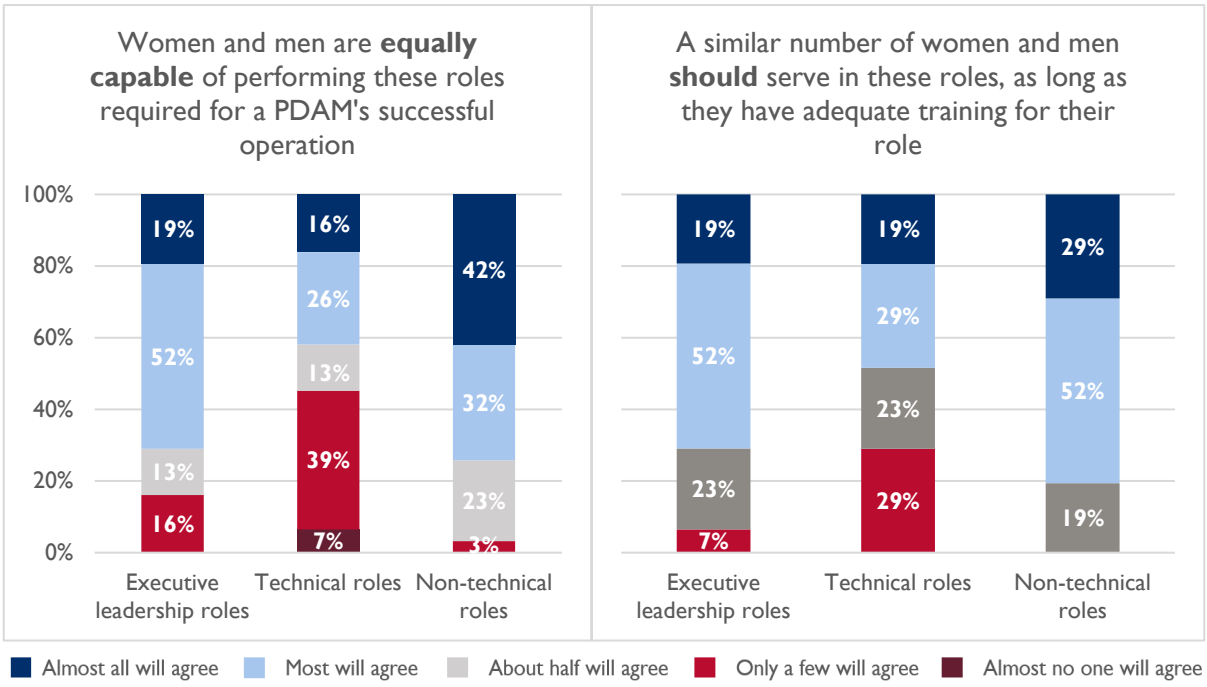
59 Pouramin, Panthea, et al. "A Systematic Review of Water and Gender Interlinkages: Assessing the Intersection with Health." *Frontiers in Water*, vol. 2, 2020. https://doi.org/10.3389/frwa.2020.00006.

60 See questions G-11-G-16 of the PDAM instrument in Annex IV for the specific wording of these questions. It is important to distinguish that these questions asked about the respondents' perceptions about their colleagues' beliefs—they do not ask about the respondent's personal beliefs.

Figure 25. PDAM Perspectives Regarding Women's Participation in WASH Institutions



Although we asked a more limited set of gender-related questions to Bappeda representatives, analysis of these questions suggests a stronger culture of women's participation in city-wide working groups responsible for WASH service provision. Nearly all city working groups included women members, with at least one woman representing 83 percent of Bappedas, 76 percent of agencies for environment and forestry, 72 percent of health agencies, and 79 percent of agencies for public works and housing. All Bappeda representatives thought that at least most of the working group members would agree that women and men are equally capable of representing their institutions on the working group, and 73 percent felt that most working group members would agree that an equal number of women and men should serve on the working group.

5.0 RECOMMENDATIONS

We conclude this report with recommendations to promote household water security and city-wide water service resilience in IUWASH Tangguh's partner cities and districts in consideration of the baseline status of outcomes of interest and potential explanatory factors discussed so far.

5.1 RECOMMENDATIONS TO PROMOTE HOUSEHOLD WATER SECURITY

Prioritize improved water quality at the point of delivery as a main focus of interventions to improve PDAM operational performance. Water quality is the leading explanation for cases where households with piped water connections are not water secure. About 40 percent of samples taken directly from the point of collection for piped water sources show *E. coli* contamination. Improving water quality will require assessing where in the supply chain water quality breaks down in each city (e.g., the treatment plant, reservoirs, distribution, household connection), ensuring that water safety plans include measures to improve water quality at these locations, and connecting PDAMs with investment and adequate financial resources to execute these measures. IUWASH Tangguh should also support PDAMs to improve their water quality monitoring, such that they can quickly identify disruptions to water quality and take corrective actions when these occur. Taking these measures would meaningfully improve household water security for existing PDAM customers and provide a stronger justification for households using other sources to connect to the PDAM for the first time.

Incorporate information about water quality into SBC campaigns that highlight the cost advantages of consuming piped water over kiosk and bottled water. Our baseline data suggest that households pay an enormous premium for water from kiosks and packaged sources because they prefer these sources to piped water sources or other alternatives for drinking. We also have evidence that this household preference is informed by a perception that these sources provide safer water to drink. Meanwhile, we do not find that kiosk water is any higher quality than piped water at the point of collection. Bottled water is likely higher quality, but it is not guaranteed to be safe. Existing SBC campaigns have emphasized the cost advantages of piped water without adding the important context regarding water quality which might motivate some households to switch.

In SBC activities, continue to emphasize water treatment and safe storage practices with communities. Our study finds evidence that household practices related to water treatment and safe storage are likely making water safer to drink from the source to the point of use. We also find that households have a misguided perception that such practices are less important for kiosk and bottled water, when in fact many households drink contaminated water from these sources. Improving water treatment and storage practices city- and district-wide should improve household water security for all households, regardless of their water source.

Assess opportunities to reduce connection costs and motivate households to connect to PDAMs. Among households not connected to the PDAM network, a substantial minority suggest that the main reason they do not connect is cost. Our baseline findings corroborate that wells and boreholes provide a cheaper option for domestic water needs. However, water from PDAMs is only marginally more expensive per-unit. This suggests that up-front connection costs may be motivating households with free sources of water not to connect. Particularly for households using shallow wells, this choice results in access to a much lower quality water source. PDAMs should assess opportunities, whether via targeted subsidies, payment installments, discounts during special events (like PDAM anniversaries or holidays), or other strategies that will reduce this barrier to connection for low-income households.

While promoting access to piped water networks, IUWASH Tangguh should consider how best to incentivize households to switch to piped water when households report alternative water sources provide equal or higher quality water services. In our data, it appears that boreholes especially provide a substantial portion of households in IUWASH Tangguh's CI areas with an equally accessible, reliable, and voluminous source of water with similar quality at a lower cost than PDAMs. Households with access to such a source will be justifiably resistant to paying more money for a source of water that they perceive is no better than their current source. Acknowledging that the priority for IUWASH Tangguh, USAID, and the GOI is to promote access to safely managed water via piped networks, it will be necessary to provide incentives that motivate this change and/or improve the quality of services from PDAMs to help justify it. As previously stated, the main opportunities in this regard would be to improve water quality at the tap and offer discounted costs of connection for PDAM water. IUWASH Tangguh should partner with PDAMs to improve the marketing of aspects of their services that are superior to boreholes and wells.

5.2 RECOMMENDATIONS TO PROMOTE CITY-WIDE WATER SERVICE RESILIENCE

Vastly expand the use of RPAMs among PDAMs and advocate to revise standard RISPAM guidelines to include risk analysis. Our baseline findings suggest that IUWASH Tangguh's planned focus on providing cities and districts with climate vulnerability assessments and promoting the use of RPAMs is well targeted to improve their resilience. Cities and districts whose PDAMs currently use RPAMs are better prepared for hazards to water services than those who do not. At the same time, prevailing RISPAM formats do not assess risks posed by hazards to water services, and so increasing their use will only promote improved resilience if standard RISPAM formats are updated to include risk analysis based on high-quality data. IUWASH Tangguh should ensure that the climate vulnerability assessments enrich the relevance and quality of data that informs the risk analysis in RPAMs and RISPAMs.

Assist PDAMs and LGs to improve the quality of data sources they use to monitor risks and bulk water availability. Even cities and districts whose PDAMs use RPAMs do not consider the most relevant, high quality, and recent data to identify and understand risks. IUWASH Tangguh should support the Ministry of Public Works and Housing as it socializes updated guidelines for RPAM content and best practices, and also support PDAMs to ensure these are based on higher quality data sources and localized climate projections that more directly assess the risks that hazards pose to water services. IUWASH Tangguh should also assess opportunities to partner with WRM institutions (like B(B)WS and PJT) for direct measurement of the quantity and quality of water available in bulk water sources (for example, using river flow gauges). Our baseline data suggests that PDAMs and LGs rarely use EWS to monitor risks to water services—IUWASH Tangguh should assess whether this reflects that existing EWS are not relevant or that SOPs for risk monitoring are inadequate and intervene accordingly to improve real-time data use for risk monitoring among PDAMs and LGs.

When working with LGs, consider exploring opportunities to improve risk identification, risk understanding, and risk mitigation for groundwater sources, in particular. Most households who do not rely on piped water sources for the bulk of their domestic needs instead rely on shallow wells and boreholes. Improvements to RPAMs and PDAM practices for WRM will leave households using groundwater resources vulnerable to hazards which could affect groundwater quantity and quality. In this context, it is particularly important to support LGs in managing groundwater resources and the risks these face from hazards like drought, contamination, seawater intrusion, and increasing urbanization.

Improve coordination between cities and provincial institutions for improved WRM and resilience. Engage with provincial agencies responsible for water resources, reforestation, environmental protection, and other parties related to resilience and hazard mitigation (e.g., *Badan Nasional Penanggulangan Bencana* [National Disaster Management Agency; BNPB) in securing the availability of water sources year-round, in managing groundwater recharge naturally, and in reducing pollution in surface waters and in mitigating risks associated with natural/manmade hazards.

5.3 CROSS-CUTTING GENDER RECOMMENDATIONS

Consider and confront gender norms and stereotypes regarding technical personnel while promoting increased women's participation in PDAMs. Many women already participate in WASH institutions, especially in working groups overseeing city-wide water services and in non-technical roles in PDAMs. However, very few women work as engineers, operators, lab technicians, or other technical roles for PDAMs. In a sizable minority of PDAMs, there is reportedly a widespread perception among PDAM personnel that women are not equally capable of these roles and that they have fewer opportunities for promotion in these roles than men. In this context, increasing the number of women in WASH institutions overall will be less meaningful for women's equality and empowerment if women are constrained mostly to non-technical roles. A few specific actions IUWASH Tangguh should consider to confront this situation include:

1. Disaggregate performance monitoring indicators such that they monitor how many women participate in PDAMs according to the types of roles they occupy;
2. Partner with PDAMs to understand and break down gender norms and stereotypes regarding women's suitability for technical roles;
3. Highlight women who have succeeded in technical roles for PDAMs to break down stereotypes regarding their performance and motivate more women to pursue technical roles;
4. Assess whether there are constraints in terms of the number of women pursuing education, certifications, and/or licenses to perform technical roles in PDAMs; and
5. Investigate opportunities to remove these constraints by increasing women's participation in higher education or vocational programs that prepare people for technical roles in PDAMs.

ANNEX I: TIMELINE

Table 1-1 presents the timeline for key baseline evaluation milestones.

Table 1-1. Timeline for Key Baseline Evaluation Milestones

Task	Date
Data collection training and piloting	February 13–20, 2023
Field data collection, household, *Perusahaan Daerah Air Minum* (PDAM), and Bappeda interviews	March 6–April 14, 2023
Preliminary Findings Presentation	June 5, 2023
Field data collection, water quality testing	June 21–July 7, 2023
Draft baseline report submission	August 4, 2023
Draft baseline report reviewed	August 7–September 1, 2023
Baseline final findings debrief in Indonesia	September 21, 2023
Final baseline report submission	November 29, 2023

By October of 2025, Urban Resilience by Building and Applying New Evidence in Wash (URBAN WASH) will submit revisions to endline instruments, if any, together with a brief update to the Evaluation Design Report (EDR) covering elements of the evaluation design specific only to endline data collection. These might include qualitative methods, sample designs, and instruments for EQ1 and EQ3 together with Performance Evaluation methods for EQ2. The update to the EDR will also include a timeline of key milestones for the endline evaluation, which URBAN WASH anticipates will unfold between January and September of 2026. The extended endline evaluation timeline allows for qualitative data collection once preliminary quantitative data analysis has been completed, which is not envisioned for the baseline.

ANNEX II: EVALUATION STATEMENT OF WORK

II-1.0 TITLE OF ACTIVITY

Impact Evaluation of USAID IUWASH Tangguh in Indonesia.

II-2.0 PURPOSE

This Task Order (TO) is to conduct an impact evaluation (IE) that rigorously tests the effectiveness of United States Agency for International Development (USAID) Indonesia Urban Resilient Wash Tangguh's (IUWASH Tangguh's) interventions and intermediary outcomes against the theory of change.

The contractor's deliverables will provide data and feedback to help increase the effectiveness of Activity implementation. The IE will also contribute to the evidence base in determining whether the multi-sectoral approach is successful within the Indonesia context and what changes may be needed to improve results.

Specifically, the findings of the IE will help USAID/Indonesia to:

- Inform the cause-and-effect relationship between interventions and outcomes, and
- Determine the feasibility of scaling to additional geographic regions and populations within Indonesia.

The IE must be conducted by a team external to the USAID IUWASH Tangguh implementing partner (IP) as required by Automated Directives System (ADS) 201. However, the contractor must collaborate with USAID and the IUWASH Tangguh IP to align an IE design and the activity implementation and jointly identify a treatment and a control (comparison) group, and to coordinate and synchronize data collection.

Table 11-1. Summary Description of Activity to be Evaluated

Activity Title	USAID Indonesia Urban Resilient Water, Sanitation, and Hygiene (USAID IUWASH Tangguh)
Life of Activity	March 2022 to March 2027
Total Estimated Ceiling of the Activity	Approximately $40,000,000

II-3.0 AUDIENCE AND INTENDED USE

The primary audience of this IE is the Government of Indonesia (GOI), USAID and USAID IUWASH Tangguh's implementing partner. The secondary audience includes the GOI at provincial levels, development partners, and other countries in the region that may benefit from the IE results and analysis. Results from the IE will be published in USAID's Development Experience Clearinghouse (DEC) to build the body of knowledge on the multi-sectoral approach.\

II-4.0 EVALUATION QUESTIONS

The **IE questions**, where IUWASH Tangguh's outcomes need to be compared to a counterfactual (which will be determined during the co-design activities) are as follows:

1. How much did increases in access to services, PDAM performance, climate-resilient governance and finance, and water resources management (WRM) increase household water security in the project areas?

2. How much has household livelihoods and economic security improved as a result of these interventions?

3. How much did WRM/bulk water interventions improve the ability of PDAMs to provide reliable and safe drinking water?

During the IE co-design with IUWASH Tangguh IP and USAID, stakeholders may agree to a modification of the EQs listed above.

II-5.0 BACKGROUND

II-5.1 DEVELOPMENT CONTEXT

Water sanitation in Indonesia. Indonesia has made considerable progress in the water supply and sanitation sector over the past twenty years. In 2001, only 49 and 34 percent of Indonesia households had access to improved drinking water and improved sanitation services.[61] As of 2019, 89 percent of households in Indonesia had access to improved drinking water and 77 percent had access to improved sanitation facilities.[62] However, just 20 percent have access to piped water and only 7.5 percent of the population currently have access to safely managed sanitation services. Roughly 25 million people still practice open defecation, and only eight out of 272 sludge treatment facilities are fully operational.

Despite the considerable access to improved water and sanitation services in the past 20 years, Indonesia still faces challenges around insufficient drinking water access, sub-optimal sanitation products and services, and inadequate WRM, particularly for the poor and underserved urban areas. A 2018 USAID study of households from the poorest 40 percent of the population (B40) found a dire situation for households.[63] Only 13 percent of the B40 households owned toilets attached to septic tanks, 64 percent used rudimentary sanitation facilities, and 23 percent practiced open defecation. For their water supply, 62 percent relied on unsafe groundwater sources for drinking purposes.

Indonesia's rapid urbanization drives its economy but also puts heavy pressure on the provision of basic services and infrastructure. The economy grew on average by 5.3 percent annually between 2000 and 2018. From 2000 to 2010, the urban population increased by 3 percent each year. In 2016, the urban population represented 54 percent of the total population or 142 million people. With a 2.3 percent urban growth rate, more than 63.4 percent of Indonesians will live in densely populated urban areas by 2030 and urgently require universal water and sanitation service delivery.[64]

For Indonesia to increase access to safely managed drinking water and sanitation services and improve WRM, it also needs to address vulnerabilities to climate change that will undermine sustainability of current infrastructure and water and sanitation service delivery, and limit long-term development in the sector, particularly for low socio-economic portions of the population, women, and other marginalized groups.

The GOI intends to address these challenges, in part, by setting a national target of 10 million new connections to piped drinking water, connections, on-site sanitation, and sewerage systems. It estimates that 396.3 trillion IDR ($7.35 billion) is needed to achieve the National Medium-Term Development Plan (*Rencana Pembangunan Jangka Menengah Nasional* or RPJMN) targets for the water

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[61] World Bank. 2020. "Indonesia Public Expenditures Review: Spending for Better Results." https://www.worldbank.org/en/country/indonesia/publication/indonesia-public-expenditure-review

[62] Susenas BPS/Indonesia Central Statistics Agency. 2019. "National Socioeconomic Survey."

[63] USAID IUWASH PLUS. 2018. "Final Report: Behavior Change Formative Research." https://www.globalwaters.org/resources/assets/iuwash-plus-behavior-change-formative-research-final-report

[64] Indonesia Central Statistics Agency. 2020.

and sanitation sector alone, an amount that cannot be covered by public sector funds. Reaching these targets and closing the above financing gap will require, among others, alternative financing for investments in WASH services as well as broad changes in individual and collective behaviors.

In addition to the above challenges, nationally, Indonesia faces an estimated deficit of 90 cubic meters per second in bulk water supply. Reaching the national target of 10 million new piped drinking water connections by 2024 is a serious challenge, particularly considering the deficit in bulk water supply. Very few good practices on integrating water supply and sanitation services with urban resilience can be observed in local governments, underscoring the need for deeper engagement to address climate-related hazards and other risks to bulk water supply and overall water security.

While Indonesia's average annual precipitation is 2,702 mm,[65] there are distinct wet and dry seasons. Between 1981 and 2010, there was an upward trend in decadal rainfall rates, as well as evidence of increasing interannual variability in rainfall. There has also been a positive trend in extreme rainfall events in most of the country. However, rainfall during the driest part of the year (July to September) in the last 30 years decreased by 12 percent.[66] Under climate change, mean annual rainfall is projected to increase in the northern part of the country, including over most of Sumatra, Kalimantan, and Papua. In contrast, mean annual rainfall is expected to decrease in the southern part of Indonesia, including Java, Bali, West Nusa Tenggara, and East Nusa Tenggara.

II-5.2 IUWASH TANGGUH THEORY OF CHANGE AND RESULTS FRAMEWORK

Development Hypothesis (Theory of Change)

If Indonesia expands water and sanitation services and improves governance and finance of municipal services and water resources, and ***If*** municipal governments and service providers are better prepared to address climate-related shocks and stresses, and ***If*** municipalities and communities adopt key behaviors that contribute to improving WASH and WRM outcomes and address gender inequities, ***Then*** cities will be more healthy, productive, and resilient.

IUWASH Tangguh's Goal, Objectives, and Anticipated Outcomes

USAID IUWASH Tangguh will partner with key institutions and stakeholders at the national, provincial, and municipal levels to provide timely and appropriate support to achieve the following outcomes:

1. Increasing access to safely managed drinking water, sanitation, and hygiene (WASH) in Indonesia's vulnerable areas; and
2. Strengthening climate-resilient WASH services and WRM.

The complete theory of change and results framework is presented in Annex 1.

II-5.3 CO-DESIGN AND TIMING OF IUWASH TANGGUH AND THE IE

IUWASH Tangguh procurement and implementation timeline

IUWASH Tangguh is a five-year activity that is expected to be awarded in February 2022. The implementation will start with a co-design to determine the interventions targeted provinces and municipalities with consultation with GOI and local government **in coordination with the IE**

[65] AQUASTAT Main Database, Food and Agriculture Organization of the United Nations (FAO). 2016. "AQUASTAT Dissemination System." http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en

[66] Ministry of Foreign Affairs of the Netherlands. 2018. "Climate Change Profile. Indonesia." https://www.government.nl/documents/publications/2019/02/05/climate-change-profiles

Contractor. Once the design is finalized, we anticipate that the IE contractor will have at least a 3-month period to collect the baseline data before the interventions start.

Required areas of co-design and collaboration

The Contractor will collaborate and coordinate with the IUWASH Tangguh IP for the following evaluation activities:

- IE and IUWASH Tangguh implementation co-design workshop(s);
- Field work, including site visits for the determination of IE design and for the identification of the treatment and control groups;
- Coordination between the IE and the IP baseline data collection;
- Review of performance monitoring data, implementation documentation, and fidelity to the agreed-upon implementation and IE designs; and
- Communication and outreach to local stakeholders about the IE IUWASH Tangguh implementation.

Target geographic area and beneficiaries

The geographic scope of the IUWASH Tangguh Activity is within the areas defined by USAID/Indonesia as high priority and urban-based provinces:

- *High Priority Provinces*: *Daerah Khusus Ibukota* (Special Capital Region; DKI Jakarta, East Java, Banten, North Sumatra, South Sulawesi, East Nusa Tenggara, Papua, and West Kalimantan.
- *Urban-based Provinces*: West Java, Central Java, Bali Province, and DI Yogyakarta.

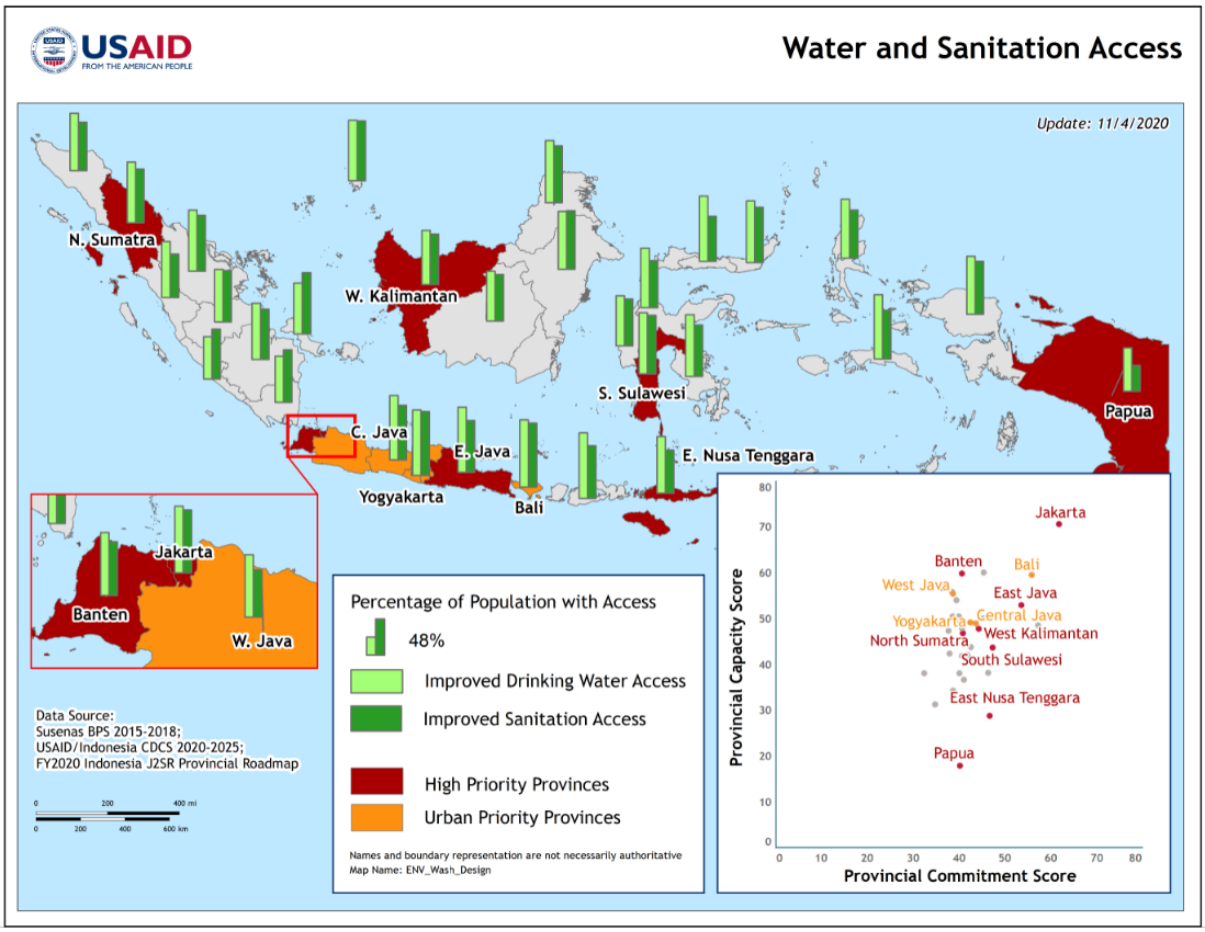
The geographic site selection will consider potential watersheds for each of the targeted municipalities in delineating the WRM interventions to secure raw water for the targeted increased access to safely managed water and sanitation services in its downstream area. Final site selection will be determined by the IUWASH Tangguh IP in coordination with USAID, GOI, and the IE Contractor, in order to determine an implementation plan that allows for a rigorous IE. The intervention will be targeting communities at the urban village level and outcomes may be measured at the individual or household level. The intervention will operate at the level of the PDAM/water service provider, the national government (including inter-ministerial level) and local government at municipality (city or district).

While details will depend on the specific IP chosen and the co-design process, below is an illustrative table of the levels where the interventions and where outcomes would occur:

Level	Intervention	Outcomes
PDAM*	TA on PDAM's technical, financial, and human resources aspects	Improved PDAM performance; Expansion of clean water coverage
Wastewater agency	TA on wastewater's institutional, technical, financial, and human resources aspects	Improved wastewater agency's performance; Expansion of safe sanitation coverage
Provincial/ municipalities/ urban village*	Demand creation and capacity building	Improved provincial and local government performance; Expansion of clean water and safe sanitation coverage
Household	Demand creation and capacity building	WASH behavior for increased access to safe water and sanitation

* intervention

The figure below marks USAID high priority and urban priority provinces within nationwide improved drinking water access and improved sanitation access.



II-6.0 EVALUATION DESIGN AND METHODOLOGY

II-6.1 IMPACT EVALUATION CO-DESIGN AND IMPLEMENTATION

The Contractor will determine the most robust IE design, in coordination with the IUWASH Tangguh IP. The IE design may take advantage of the IP's intervention rollout and will provide input to the IP to find an intervention targeting and rollout scheme that best fits both the implementation and USAID's strategic objectives, and the objective of a robust IE. Ideally, an element of randomization would be included, to ensure the best possible counterfactual. Alternatively, IE approaches that do not involve randomization of the intervention might be considered too.

The IE Contractor will work closely with the IUWASH Tangguh IP to design and conduct the IE activities. To ensure that the IE is carried out properly, the Contractor will be responsible for the following (see more technical requirements under "Deliverables"):

1. Familiarizing themselves with documentation about the activity and USAID's current assistance in the WASH area in the region. USAID will ensure that this documentation is available to the team.
2. Working with USAID and the IUWASH Tangguh IP to determine the sample frame for the evaluation. The sample frame must include beneficiaries (or treatment group) and a comparison, or control group. The study sample needs to be sufficiently powered to show a meaningful minimum detectable effect. What is meaningful is determined by research, prior

findings on what is to be expected from a WASH program and indicator targets in the Activity Monitoring, Evaluation, and Learning Plan.

3. In coordination with the IUWASH Tangguh IP, developing and carrying out a communication strategy designed to secure buy-in from local stakeholders about the IE design and the value of the IE findings.
4. Designing, piloting, and providing oversight for a randomization process if randomization is possible.
5. Developing and testing data collection instruments.
6. Registering the IE analysis plan with open registries network or another similarly reputable registration platform, prior to data collection.
7. Collecting and analyzing all quantitative and qualitative data associated with the evaluation process. In this first stage of the evaluation, this includes at minimum a baseline for both treatment and control groups. Note that the timing of the baseline will also depend on the IE design, on the implementation rollout, and on how fast the theory of change and the IP anticipate seeing minimum detectable results.
8. Reviewing and assessing performance information or data from IUWASH Tangguh as they are shared by the IP and USAID.
9. Facilitating IE co-design workshops, stakeholder meetings.
10. Producing an EDR and a Baseline Report.

The IE Contractor will ensure that USAID evaluation policy is adhered to and that rigorous IE standards are maintained as per the USAID IE technical note.

II-6.2 DATA COLLECTION AND ANALYSIS METHODS

The IE must clearly articulate the link between each EQ, the proposed data to address it, and the analysis plan for these data. For example, the design may describe the regression model and statistics to be used in quantitative analysis. For qualitative approaches, the design may detail each planned analytical step (e.g., coding frame, how it was developed). The IE design must demonstrate that the proposed approaches are best practice (based on evaluation and research literature), that they are intended to provide robust answers to each EQ, and that they are suitable to the Indonesian context.

The evaluation must also examine differences by gender. While a detailed analysis by gender might not be relevant for each question, the IE must address each and explain who is relevant. The analysis may require more than simple disaggregation of quantitative data. For example, analysis of gender dynamics is more than statistics by gender. The Contractor must refer to relevant USAID guidance on gender and inclusion and propose specific evaluation designs, as appropriate.

In addition to proposing a strong theoretical evaluation design, the evaluation team must plan on using standard empirical tools, such as statistical software for quantitative analysis (for example, SPSS or STATA) and software for qualitative analysis (for example, Atlas.ti or NVIVO).

EQs must be answered with data at various levels, including quantitative data at the household level, such as incidence of health problems (diarrhea, fever, cholera). Qualitative data must also be used to complement the IE, to further understand the challenges and obstacles faced by the IUWASH Tangguh IP and to collect information on the performance of the IUWASH Tangguh IP. The Contractor may propose to design quantitative data collection instruments and qualitative protocols to gather data as appropriate. Though such instruments and protocols may be based on existing

tools, they must be adapted and tested so that they address the specific EQs. Instruments must be translated, and the language used must be tested to make sure that each question is understood and validated in the Indonesian and local context. The Contractor must include a detailed plan for relevant tests of such instruments.

The proposal must be specific and name each data collection method used, the reason to use it, and the motivation for data sources for each method. For example, if focus group discussions are proposed, the Contractor must specifically describe what is meant by focus group discussion, what is the motivation for the selection of its participants, and why would focus group discussion be more appropriate than a group discussion or a key informant interview for a particular data source and a particular EQ.

All quantitative data must be collected digitally, and the proposal must demonstrate that proper data quality assurance systems will be put in place. All qualitative data must be recorded and transcribed. All data (including transcripts) and analytical codes must be shared with USAID. Data collection approaches and tools must be reviewed by an Institutional Review Board, if applicable in Indonesia.

II-7.0 DELIVERABLES AND REPORTING REQUIREMENTS

All deliverables must be submitted to USAID within the timeline indicated in below and by no later than the TO's end date. The Contractor must promptly notify the TO Contracting Officer's Representative (COR) of any problems, delays, or adverse conditions that materially impair the Contractor's ability to meet the requirements of the Contract. Per the USAID ADS 579 on Open Data Policy, the contractor must submit raw data and records (e.g., interview transcripts, survey data set, coded qualitative data) to the Development Data Library.

This task is the first stage of an IE of the IUWASH Tangguh activity. The expected deliverables are as follows:

II-7.1 KICKOFF MEETING

At the time of the kickoff meeting, the IUWASH Tangguh IP will identify an evaluation specialist (IP POC) to work with the Contactor and collaborate, as needed, in developing the subsequent deliverables. The Contractor will retain ultimate responsibility for the content of the deliverables and for ensuring the objectivity of the evaluation.

II-7.2 DESK REVIEW

The evidence review must summarize the evidence on WASH and WRM for urban community cohorts. The review must identify what we know works or does NOT work (if anything), and also identify important key contextual/intervening variables that might explain variation in impact effectiveness. To increase the utility of this review, the document must be short: limited to five pages, although additional pages may be included as an annex. The annex must also include an annotated bibliography of a few key "essential readings." The review must include both experimental and observational research and peer reviewed and gray literature. The evidence need not be specific to Indonesia; however, contextual relevance must be considered in presenting the findings.

II-7.3 IMPACT EVALUATION CO-DESIGN WORKSHOP

The Contractor must host a virtual or in-person IE planning and design workshop with the IUWASH Tangguh IP, USAID/Indonesia, and GOI stakeholders, as determined by USAID. The objective of the workshop is to share preliminary ideas developed by the Contractor and IUWASH Tangguh (through the IP POC) and to explore the ideas further and potentially come up with alternatives, and to develop a plan to finalize the design and the memorandum of understanding (MOU) with IUWASH Tangguh. The outcome of the workshop must be a specific plan and a timeline towards the

delivery of the Evaluation Design Memo. In addition to determining a design approach, an equally important goal of the workshop is to build strong relations between stakeholders.

The agenda for the workshop will be developed by the IE Contractors with input from the IUWASH Tangguh IP and USAID. During the workshop, the Contractor will present findings from the evidence review, potential IE design options, and expected challenges and proposed solutions in implementing the evaluation. The IUWASH Tangguh IP will likely present on their experience in water sanitation, water resource management and health interventions, important details from the Indonesia context, and expected challenges in implementing the evaluation. Additional sessions of the workshop will focus on developing a workable draft design that matches IE needs with implementation realities.

II-7.4 EVALUATION INCEPTION REPORT

As an output of the IE workshop, the Contractor must develop a report outlining the key details of the proposed evaluation design or evaluation design options and the issues to be further investigated or confirmed during scoping activities. The report is expected to follow a similar structure to the EDR; however, it need not provide the same level of detail. The Contractor must develop a draft of a MoU with the Activity IP to secure the agreement on design and process of IE that involves them. The final version of the MoU will be attached to the final EDR (see C7.6 below).

II-7.5 SCOPING

Following the evaluation workshop, the Contractor, working with the IUWASH Tangguh IP POC, will undertake scoping activities to ground-truth the initial design in the evaluation design memo and to develop detailed randomization, sampling, and measurement strategies. For budgeting purposes, this is envisioned as no more than two weeks of field work and may include a mix of remote and in-person scoping activities given COVID safety precautions.

II-7.6 EVALUATION DESIGN REPORT

The IE design must follow USAID technical guidance. Please note that 2020 revisions to the ADS require the inclusion of cost analysis in evaluation designs (201.3.6.4). The draft will be revised based on stakeholder feedback.

The evaluation design must include the following sections, only subject to change if an adequate rationale is provided. Highly technical content must be shifted to technical annexes to maintain the readability of the evaluation design.

- Executive summary;
- Background, evaluation purpose, evaluation use;
- Results framework and the theory of change;
- Output and outcome indicators;
- Identification strategy (design and randomization);
- Sampling;
- Data sources;
- Monitoring implementation/fidelity and evaluation/IP coordination plan;
- Analysis plan;
- Dissemination and use plan;

- Human subjects protection;
- Assumptions and limitations;
- Workplan and timeline;
- Research team;
- References; and
- Annexes: including any technical annexes, an updated evaluability assessment, this statement of work, the MOU with IUWASH Tangguh, and a draft MOU between evaluation stakeholders (if required by GOI).

Once the EDR has been approved by USAID, the Contractor may submit the draft data collection instruments and must register the IE analysis plan with open registries network or another similarly reputable registration platform, prior to data collection.

II-7.7 BASELINE DATA COLLECTION AND BASELINE REPORT

Data collection instruments

Please refer to section **"C.6.2 Data Collection and Analysis Methods"** for details about the technical expectation for the data collection instruments. The Contractor will submit, electronically, a draft of a data collection tool. The tool must match the evaluation design and include questionnaires, forms, and guides for data collectors. A data collection testing protocol and the draft data collection tool must be approved by USAID *before* data collection tools are tested.

Baseline data collection

Once testing is completed, the Contractor will submit, electronically, the baseline data collection tools within a deadline to be determined depending on the methodology and the tools, *but before the beginning of data collection.* The Contractor must coordinate baseline data collection with the IP POC, to ensure that activities have not begun and to deploy together the IE sample approach (e.g., randomization, assignment of a treatment and a comparison group).

Baseline Evaluation Report

Once the baseline data are collected, the Contractor will submit a baseline evaluation report. The purpose of the baseline evaluation report is to present baseline data on the comparison and the control groups. For example, for an RCT, the baseline report will validate the randomization process to confirm statistical balance on key characteristics and outcomes for the control and treatment groups. For a difference in difference approach, the baseline report will present the differences between the comparison and the treatment groups but will ascertain the common trend assumptions. The baseline report must confirm or propose modifications to the EDR.

All data from the baseline data collection, along with Stata analytical codebooks, need to be shared with USAID. The analysis plan in the open registries network (or another platform) must include the codes for endline analysis. The data and the identifier will be necessary to match units at the level where the analysis is conducted (individuals, households, districts, etc.) in the final analysis and obtain more precise estimates. The Contractor must therefore consult with USAID and the IP to figure out a system that adheres to privacy laws and ensures that units can be matched. The Contractor must put in place a system where individual identifiers can be securely stored.

II-7.8 IMPLEMENTATION AND PERFORMANCE EVALUATION DATA COLLECTION

The contractor must collect data to answer the EQs and to monitor the fidelity to the activity implementation. Fidelity to the activity implementation is essential to ensure that the evaluation is

clear about what caused the observed impacts, and to make sure that the implementation follows the geographic boundaries decided in the co-design of the IE strategy.

Data collection instruments

Please refer to section **"C.6.2 Data Collection and Analysis Methods"** for details about the technical expectation for the data collection instruments. The Contractor will submit, electronically, a draft of data collection tools. These may be qualitative and/or quantitative, as the Contractor sees fit. The tools must match the evaluation design and include, as appropriate, questionnaires, forms, and guides for data collectors. A data collection testing protocol and the draft data collection tools must be approved by USAID *before* data collection tools are tested.

II-7.9 ENDLINE IE DATA COLLECTION

The endline IE data collection tool should be very close to the baseline data collection tool, so that the baseline and endline data can be compared in the analysis. Any substantial changes from the baseline data collection tool for endline must be reviewed and approved by USAID.

II-7.10 FINDINGS WORKSHOP/PRESENTATION WITH USAID

Before beginning to draft the evaluation report (but after the data have been analyzed), the Contractor must provide an oral briefing to the mission, reviewing findings of their evaluation, and preparing a "Findings Workshop" coordinated with USAID. This findings presentation allows the Contractor to demonstrate the robustness of its data collection and analysis and, given that the evaluation work was robust, to get USAID approval to conduct a recommendations workshop and to begin drafting the evaluation report. The findings workshop may include stakeholders (including IUWASH-Tangguh) as determined by USAID.

II-7.11 RECOMMENDATION WORKSHOP

The Contractor must organize and deliver a workshop involving stakeholders to elicit feedback about the findings and generate policy and programmatic recommendations based on the findings. Audience will be determined in collaboration with USAID. The contractor will adjust the draft dissemination material by taking into consideration the target of internal and external audiences. Internally focused knowledge management and dissemination activities will allow for improving or adapting USAID IUWASH Tangguh during the implementation, while external evaluation dissemination activities will aim to both inform and learn from a broader, global audience, including Activity implementers.

II-7.12 DRAFT EVALUATION REPORT

The Contractor will provide an illustrative outline, USAID a draft of the full report to USAID. The draft must include all the required components of the final report and must be properly copy edited. Unless otherwise specified and agreed upon by USAID, the evaluation report should at least include all the components in the USAID evaluation template.

USAID and the Contractor may agree to submit and review the draft in sections if they jointly prefer an interactive process (for example, the Evaluation Purpose and Questions, the Project Background, and the Methods sections might be cleared first, as they should be easier to draft). USAID will review the draft report and submit comments to the assessment team not later than 10 business days after receipt of the draft report.

II-7.13 FINAL EVALUATION REPORT

The Contractor will finalize the report no later than 20 business days after reception of USAID's comment on the draft. The final report should be no more than 50 pages (excluding covers, table of contents, acronyms list, executive summary, and annexes) and should be written for a non-

evaluation audience. All technical details about the methodology should be included in the annexes. A comment log should list all the comments submitted by USAID on the draft and explain how they were addressed in the final report. Use of the qualitative data as evidence must be specific and clear (e.g., how many informants out of how many interviewed reported finding "A," instead of "many" or "some" of the informants said so, although it is not meant to be used against representativeness). Data must be disaggregated by province and sex to the extent possible. Each of the recommendations must be supported by a specific conclusion that is drawn upon a specific set of findings. They must be action-oriented and practical, and accompanied by recommended responsible parties.

II-7.14 DRAFT DISSEMINATION MATERIALS

The Contractor must provide a draft of the dissemination materials to USAID. The required dissemination materials consist of a PowerPoint presentation to exhibit the results and a two-pager with infographics to summarize the results, including the recommendation. The draft must include all the required components of the final materials and must be properly copy edited.

II-7.15 FINAL DISSEMINATION MATERIALS

The Contractor will finalize the materials no later than 20 business days after reception of USAID's comment on the draft. The Contractor must submit dissemination materials to the evaluation COR in the form of PowerPoint slides of key findings, conclusions, and recommendations.

II-7.16 LEARNING EVENT(S) FOR EVALUATION UTILIZATION

The Contractor must organize at least two learning events to present the IE results by targeting internal and external audiences. The internal events will be mainly targeting USAID, meanwhile external events will be targeting the GOI, IUWASH Tangguh's Implementing Partner, and stakeholders. These events will be discussed with USAID/Indonesia.

II-7.17 CHECK-IN MEETINGS

The contractor must hold teleconferences or in-person meetings, as feasible, every three months with USAID to update on the progress of the IE and discuss any trends and findings from the data collected.

II-8.0 SCHEDULING AND ESTIMATED BUDGET

IUWASH Tangguh will be responsible for providing the Contractor information on the implementation schedule and plans for performance monitoring and evaluation plans and indicators. The intervention is expected to start in March 2022 to March 2027. The activity may take up to six months to process and conduct a series of consultations with GOI for the location selection approval at the beginning of implementation. The Contractor must consult the IUWASH Tangguh IP in order to develop the detailed work plan for the evaluation(s) prior to the start of IUWASH Tangguh. The contractor should include a proposed budget not to exceed $1,000,000.

II-9.0 PERSONNEL

For the base tasking, the IE team can propose the team composition. Collectively, the team must have:

- Expertise with IE methods and data analysis for IE;
- A proven track record of successful implementation of IE in developing countries;
- Expertise in qualitative and quantitative data analysis, including econometrics;

- Expertise in Indonesian urban setting and familiarity with the WASH and WRM system;
- Expertise on measurement and survey work with urban water sanitation and hygiene in communities, including measuring health outcomes and public/private financing in WRM;
- Expertise developing and testing data collection instruments;
- Expertise with field work in developing countries, including testing data collection instruments, implementing data quality protocols in the field, collecting data, and training and supervising enumerators;
- Expertise in digital data collection and data quality processes;
- Willingness to work with and coordinate closely with the implementing partner to find a workable design that meets both the needs of the evaluation and matches the implementation realities; and
- Expertise in meeting and workshop facilitation.

II-10.0 LOGISTICS

The contractor is responsible for all arrangements for travel and meetings.

ANNEX III: EVALUATION METHODS AND ADDITIONAL TECHNICAL DETAIL

III-1.0 ADDITIONAL DETAIL REGARDING BALANCE BETWEEN QUASI-EXPERIMENTAL GROUPS

This section provides a full accounting of the balance between treatment and comparison groups for the three quasi-experiments in the study. In describing the balance between the groups, these tables also offer the average values for all evaluation outcomes and many key covariates for the quasi-experimental groups which are not the focus of the report's main findings section (i.e., EQ3 means for comparison cities and EQ1 means for non-CI neighborhoods in treatment cities).

Table III-1. Pre-Intervention Balance between Treatment and Comparison Cities and Districts

VARIABLE	MEAN		P-VALUE
	COMPARISON	TREATMENT	
PDAM Index – overall (0-100)	37.6	39.4	0.630
Local Government (LG) Index – overall (0-100)	19.9	18.3	0.688
PDAM – risk identification (% achieved)	0.0%	0.0%	N/A
PDAM – risk understanding (% achieved)	6.5%	12.9%	0.399
PDAM – risk data use (% achieved)	67.7%	64.5%	0.793
PDAM – planning for risk mitigation (% achieved)	0.0%	3.2%	0.321
PDAM – finance for risk mitigation (% achieved)	12.9%	12.9%	1.000
PDAM – financial performance (% achieved)	83.9%	87.1%	0.724
PDAM – operational performance (% achieved)	38.7%	35.5%	0.797
PDAM – staff adequacy (% achieved)	80.6%	80.6%	1.000
PDAM – infrastructure safety (% achieved)	48.4%	58.1%	0.453
LG – risk identification (% achieved)	0.0%	0.0%	N/A
LG – risk understanding (% achieved)	3.2%	0.0%	0.321
LG – risk data use (% achieved)	35.5%	48.4%	0.311
LG – planning for risk mitigation (% achieved)	0.0%	0.0%	N/A
LG – finance for risk mitigation (% achieved)	41.9%	25.8%	0.185
LG – water quality compliance (% achieved)	38.7%	35.5%	0.797

Table III-2. Pre-Intervention Balance on City/District-Level Independent Variables

VARIABLE	MEAN		P-VALUE
	COMPARISON	TREATMENT	
Poverty rate (% of households)	8.7%	7.5%	0.078
Access to improved sanitation (% of households)	73.9%	77.0%	0.441
PDAM domestic coverage rate (% of households, 2021)	43.0%	49.0%	0.733
Population in PDAM service area (people, 2021)	715,000	1,150,000	0.055
PDAM average tariff (IDR/m^3, 2021)	4,423	4,268	0.765
PDAM Solvency (IDR, 2021)	3,276	10,162	0.342
PDAM Local government cont. asset ratio (2020)	0.76	0.83	0.723
Prior NUWSP investment (% received)	32.3%	54.8%	0.075
PDAM production volume (m^3, 2021)	18,100,000	51,400,000	0.031

VARIABLE	MEAN		P-VALUE
	COMPARISON	TREATMENT	
PDAM non-revenue water (%, 2021)	31.2%	32.2%	0.719
Ministry of Public Works and Housing (*Kementerian Pekerjaan Umum Dan Perumahan Rakyat* or PUPR) performance score (0-5, 2021)	3.1	3.2	0.331
PDAM customer growth rate (%, 2021)	4.7%	6.2%	0.399
PDAM operating hours (% of day, 2021)	63.4%	64.6%	0.700
PDAM surface water abstr. (liters/sec, 2020)	1353.7	6123.9	0.100
PDAM spring abstraction (liters/sec, 2020)	275.0	988.1	0.133
PDAM groundwater abstr. (liters/sec, 2020)	146.1	105.2	0.577

Table III-3. Pre-Intervention Balance for Incremental CI Quasi-Experiment, Outcome, and Independent Variables

VARIABLE	MEAN		P-VALUE
	NON-COMMUNITY INTERVENTIONS (CI) TREATMENT	CI TREATMENT	
Days per week with disruption	0.46	0.38	0.595
Water collection (lpcpd)	254.5	265.0	0.665
Water expenditure (rupiah/mon)	142,091	112,107	0.091
Affordability ratio (% exp.)	4.8%	4.4%	0.438
Improved source of drinking water available on premises (% of household)	72.5%	68.5%	0.407
E. coli present, point of consumption	39.9%	39.3%	0.919
E. coli present, point of collection	52.5%	51.4%	0.871
Household water security index - access	90.1	92.4	0.324
Household water security index - reliability	92.8	94.1	0.583
Household water security index - quantity	85.7	87.1	0.717
Household water security index - affordability	62.7	70.0	0.127
Household water security index - quality	63.7	71.5	0.097
Household water security index - overall	79.5	81.4	0.429
Connected to PDAM (%)	41.2%	31.8%	0.247
Uses water kiosk (%)	45.4%	44.0%	0.838
Uses packaged water (%)	37.6%	28.9%	0.112
Uses protected well (%)	25.5%	31.1%	0.336
Uses borehole (%)	37.2%	41.7%	0.527
Safely managed sanitation (%)	83.8%	80.4%	0.376
Lowest exp. quintile (%)	30.3%	30.1%	0.973
Second exp. quintile (%)	28.7%	37.4%	0.035
Middle exp. quintile (%)	21.7%	21.6%	0.98
Fourth exp. quintile (%)	12.8%	7.8%	0.148
Highest exp. quintile (%)	4.1%	2.6%	0.503

VARIABLE	MEAN		P-VALUE
	NON-COMMUNITY INTERVENTIONS (CI) TREATMENT	CI TREATMENT	
Assets index (principal component analysis output)	0.38	-0.11	0.030
Household size (# members)	4.2	4.2	0.826
Woman head of household (%)	11.8%	16.8%	0.076
Head of household has completed SMA or more (%)	62.6%	55.2%	0.154
Safe water storage (%)	41.7%	39.1%	0.719
Household treats water (%)	77.3%	76.6%	0.919
Safe hygiene facilities (%)	87.7%	86.4%	0.722

Table III-4. Pre-Intervention for Service Area Quasi-Experiment, Outcome, and Independent Variables

VARIABLE	MEAN		P-VALUE
	COMPARISON	NON-CI TREATMENT	
Days per week with disruption	0.39	0.46	0.629
Water collection (lpcpd)	226.8	254.5	0.205
Water expenditure (rupiah/mon)	119,219	142,091	0.159
Affordability ratio (% exp.)	4.3%	4.8%	0.273
Improved source of drinking water available on premises (% of household)	74.2%	72.5%	0.685
E. coli present, point of consumption	44.5%	39.9%	0.369
E. coli present, point of collection	47.5%	52.5%	0.397
Household water security index – access	91.3	90.1	0.570
Household water security index - reliability	93.3	92.8	0.845
Household water security index - quantity	82.4	85.7	0.468
Household water security index - affordability	69.2	62.7	0.094
Household water security index - quality	63.3	65.3	0.661
Household water security index - overall	79.9	79.5	0.837
Connected to PDAM (%)	37.2%	41.2%	0.621
Uses water kiosk (%)	44.2%	45.4%	0.836
Uses packaged water (%)	25.0%	37.6%	0.024
Uses protected well (%)	24.4%	25.5%	0.847
Uses borehole (%)	32.6%	37.2%	0.605
Safely managed sanitation (%)	85.7%	83.8%	0.637
Lowest exp. quintile (%)	30.2%	30.3%	0.977
Second exp. quintile (%)	29.5%	28.7%	0.853
Middle exp. quintile (%)	24.1%	21.7%	0.610
Fourth exp. quintile (%)	12.8%	12.8%	0.995

VARIABLE	MEAN		P-VALUE
	COMPARISON	NON-CI TREATMENT	
Highest exp. quintile (%)	2.2%	4.1%	0.242
Assets index (principal component analysis output)	0.20	0.38	0.473
Household size (# members)	4.1	4.2	0.193
Woman head of household (%)	16.7%	11.8%	0.019
Head of household has completed SMA or more (%)	58.2%	62.6%	0.399
Safe water storage (%)	24.8%	41.7%	0.001
Household treats water (%)	82.4%	77.3%	0.238
Safe hygiene facilities (%)	89.8%	87.7%	0.570

III-2.0 ADDITIONAL DETAIL REGARDING LOCATIONS INCLUDED IN THE STUDY

The table below presents the full set of treatment and comparison cities and districts included in the study.

Table III-5. Treatment and Comparison Cities and Districts

PAIR ID	TREATED SITE	COMPARISON SITE	PROVINCE(S)
1	Kabupaten Wonogiri	Kabupaten Pati	Jawa Tengah
2	Kota Binjai	Kota Mojokerto	*Sumatera Utara/Jawa Timur*
3	Kota Blitar	Kota Semarang	*Jawa Timur/Jawa Tengah*
4	Kota Depok	Kota Bekasi	Jawa Barat
5	Kota Magelang	Kota Probolinggo	*Jawa Tengah/Jawa Timur*
6	Kota Makassar	Kota Parepare	Sulawesi Selatan
7	Kota Malang	Kota Sibolga	*Jawa Timur/Sumatera Utara*
8	Kota Medan	Kota Tebingtinggi	Sumatera Utara
9	Kota Pasuruan	Kota Pekalongan	*Jawa Timur/Jawa Tengah*
10	Kota Pematangsiantar	Kota Palopo	*Sumatera Utara/Sulawesi Selatan*
11	Kota Salatiga	Kota Tegal	Jawa Tengah
12	Kota Surabaya	Kota Bogor	*Jawa Timur/Jawa Barat*
13	Kota Surakarta	Kota Bandung	*Jawa Tengah/Jawa Barat*
14	Kota Tangerang	Kota Banjar	*Banten/Jawa Barat*
15	Kabupaten Bogor	Kabupaten Bandung	Jawa Barat
16	Kabupaten Deli Serdang	Kabupaten Asahan	Sumatera Utara
17	Kabupaten Gowa	Kabupaten Sinjai	Sulawesi Selatan
18	Kabupaten Gresik	Kabupaten Magetan	Jawa Timur
19	Kabupaten Karanganyar	Kabupaten Magelang	Jawa Tengah
20	Kabupaten Malang	Kabupaten Banyuwangi	Jawa Timur
21	Kabupaten Maros	Kabupaten Luwu Utara	Sulawesi Selatan
22	Kabupaten Pasuruan	Kabupaten Mojokerto	Jawa Timur
23	Kabupaten Sidoarjo	Kabupaten Bojonegoro	Jawa Timur
24	Kabupaten Simalungun	Kabupaten Langkat	Sumatera Utara
25	Kabupaten Barru	Kabupaten Toraja Utara	Sulawesi Selatan
26	Kabupaten Sragen	Kabupaten Kendal	Jawa Tengah

PAIR ID	TREATED SITE	COMPARISON SITE	PROVINCE(S)
27	Kabupaten Sukoharjo	Kabupaten Demak	Jawa Tengah
28	Kabupaten Takalar	Kabupaten Luwu Timur	Sulawesi Selatan
29	Kota Tangerang Selatan	Kota Kediri	*Banten/Jawa Timur*
30	Kabupaten Tangerang	Kabupaten Pandeglang	Banten
31	Kabupaten Temanggung	Kabupaten Batang	Jawa Tengah

III-3.0 ADDITIONAL DETAIL REGARDING NEIGHBORHOOD-LEVEL MATCHING

URBAN WASH deployed statistical matching techniques to identify neighborhoods in both treated and comparison cities and districts to evaluate the IUWASH Tangguh Activity in Indonesia.

The data used for this exercise comes from the 2021 round of the Village Potential Survey (PODES). This dataset provides information about village/kelurahan characteristics for all of Indonesia and it is collected in the context of the periodic censuses (Agriculture, Economy, Population). It has useful information on village characteristics, including the main sources of income.

To assemble the statistical matching dataset, URBAN WASH filtered the dataset to consider only the relevant provinces for treated areas or for potential control units. The final matching dataset comprises 30 variables for 10,757 neighborhoods in six provinces (Banten, Jawa Barat, Jawa Tengah, Jawa Timur, Sulawesi Selatan, Sumatera Utara) across 32 cities and districts.

URBAN WASH selected the variables in Table III.6 for statistical matching.

Table III-6. Statistical Matching Variables, Cities, and Districts

VARIABLE	DEFINITION	UNITS
Kabupaten/kota ID	Unique ID at kabupaten/kota level	Categorical
Government status	Government status (Desa, Kelurahan, UPT/SPT)	Categorical
Urban neighborhood	Neighborhood considered urban in PODES dataset	Binary
Springs	Existence of springs in the village	Categorical
Diarrhea	Neighborhood experienced outbreak of diarrhea in the past year	Binary
Distance from kepala desa to mayor/regent	Distance (km) from the neighborhood head's office to the mayor's/regent's office	Kilometers
Number of grocery store stalls	Number of grocery store stalls	Totals
Market	Neighborhood has market with at least semi-permanent buildings >400 square meters	Binary
Drinking water program	Neighborhood had access to safe drinking water program for stunting in 2020	Binary
Electric connection	Neighborhood main road lit with electricity	Binary
Fuel for cooking: firewood	Most households in neighborhood use firewood or charcoal as main cooking fuel	Binary
Waste: septic tank	Most households dispose of waste in septic tank or to wastewater treatment plant	Binary
Drinking water: branded/refill	Most households source of drinking water is branded packaged or refill water	Binary
Drinking water: piped	Most households source of drinking water is piped (e.g., PDAM)	Binary

VARIABLE	DEFINITION	UNITS
Drinking water: well	Most households source of drinking water is well or borehole	Binary
Drinking water: spring	Most households source of drinking water is spring	Binary
Neighborhood has spring	Neighborhood has a spring, whether managed or unmanaged	Binary
RPJMN updated	RPJMN was updated since 2018 and is active at least through 2021	Binary
Total households	Total number of households in neighborhood	Total
% Households with electricity	Percent of households that use State Electricity Company (*Perusahaan Listrik Negara* or PLN) electricity	Percentage

URBAN WASH tested matching according to multiple specifications. As discussed during evaluation co-design and proposed in the inception report, URBAN WASH excluded the six treatment sites in the Papua, East Nusa Tenggara, and West Kalimantan provinces from the matching exercise since there were no reasonably similar cities or districts within IUWASH Tangguh's intervention provinces. Initial matching attempts included treatment sites in the DKI Jakarta province. However, URBAN WASH found that including these sites in matching damaged the balance between treatment and comparison groups. Indeed, Jakarta is by far the largest city in Indonesia and the only one that is also a province. Accordingly, in URBAN WASH's final matching exercise, Jakarta is excluded.

Across all its different matching specifications, URBAN WASH constrained the algorithm to exact matching on the kabupaten/kota level (i.e., neighborhoods may only match other neighborhoods within the kabupaten/kota), government status, and urban area classification (i.e., cities may only match with cities and districts may only match with districts). URBAN WASH's matching algorithm uses Mahalanobis distance metrics for all other variables. The next section describes these methods and outputs in more detail. All the steps of the matching procedure were conducted in R using the "MatchIt" package.

METHODS

URBAN WASH employed pre-treatment characteristics of the treated neighborhoods to choose the most similar untreated sites within the same set of kabupaten/kota. The selected comparison neighborhoods are the ones that minimize a multivariate distance metric, making them the "most similar." The distance measure is used to define how close two units are, and in nearest neighbor matching, this is used to choose the nearest control unit to each treated unit. URBAN WASH considered using Euclidean or Manhattan distance metrics, but ultimately selected the Mahalanobis distance metric given its ability to handle (i) variables with potentially different distributions, and (ii) dimensions that are far from being independent of each other. The Euclidean and Manhattan metrics fail when there is high correlation between variables. On the contrary, the Mahalanobis distance can transform the dimensions into uncorrelated indicators, scale back their variance to one, and compute the Euclidean distance over these indicators.[67] Nearest neighbor matching algorithms use functions like the following:

$$\delta(x_i, x_j) = \sqrt{(x_i - x_j)' S^{-1} (x_i - x_j)}$$

where x is a p×1 vector containing the value of each of the p included covariates for that unit and S^{-1} is the (generalized) inverse of a scaling matrix. For the Mahalanobis distance, S is the pooled

[67] Xiang, Shiming, Feiping Nie, and Changshui Zhang. 2008. "Learning a Mahalanobis Distance Metric for Data Clustering and Classification." *Pattern Recognition* 41 (12): 3600–3612. https://doi.org/10.1016/j.patcog.2008.05.018

Prabhakaran, Selva. 2019. "Mahalanobis Distance – Understanding the Math with Examples (Python)." Machine Learning Plus.

covariance matrix of the covariates, while the robust Mahalanobis distance is calculated using the ranks of the covariates and uses a correction for ties.[68] When using this distance metric, the scaling matrix obviates the need to standardize the data.

Using the Mahalanobis distance in URBAN WASH's application is a considerable improvement as the algorithm computes distances from a set of treatment site characteristics, which are highly likely to correlate between them. URBAN WASH restricts choosing comparison units without replacement, ensuring that an untreated neighborhood cannot be selected as a match for more than one treated city or district.

URBAN WASH employed a genetic matching model rather than a standard nearest neighbor matching model. Genetic matching algorithms search a range of distance metrics to find the measure that optimizes post-matching covariate balance, where each distance metric considered corresponds to a particular assignment of weights *W* for all matching variables.[69] This algorithm extends the previously presented matching by minimizing a generalized version of the Mahalanobis distance. In this extended version, the distance includes a variable-specific weight parameter that values each variable according to its relative importance for achieving the best overall balance.

ITERATIVE MATCHING AND CORNER CASES

The design of the quasi-experiment requires that we perform neighborhood matching at least twice: (i) to find matches between neighborhoods of CI and treatment, non-CI sites, and (ii) to find matches between untreated neighborhoods and the treatment, non-CI neighborhoods selected in (i). For both procedures, the same set of matching variables (Table III-6) and criteria (Mahalanobis and exact) were used. However, due to realities of program implementation, we needed to select an unequal number of neighborhoods from each group (59 CI neighborhoods, 65 treatment, non-CI neighborhoods, and 62 comparison neighborhoods). This section describes how we treated these cases.

Although our original design called for 62 neighborhoods for each group, three of IUWASH Tangguh's 62 CI neighborhoods are not expected to receive water service interventions, and thus were excluded from the study. To maintain the required sample size, we increased the number of neighborhoods in the treatment, non-CI group, with one additional treatment, non-CI neighborhood to replace each excluded CI neighborhood. Specifically:

1. To replace the Cikasungka CI neighborhood in Tangerang district, we matched three non-CI neighborhoods within this district with the one remaining CI neighborhood. This retained the four original neighborhoods intended to be sampled from Tangerang district.

2. To replace two CI neighborhoods in Tangerang Selatan city, we conducted two-to-one matches with the two CI neighborhoods from nearby Tangerang city. This means the two hotspots in Tangerang city will have three total matches each: one from within the same city, and two from Tangerang Selatan.

With the above iterative matching completed, we were left with three extra neighborhoods in our treatment, non-CI group that did not require a match to achieve the required sample size for the comparison group. We randomly selected one of the three neighborhoods from Tangerang district

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[68] Rubin, Donald B. 1980. "Bias Reduction Using Mahalanobis-Metric Matching." *Biometrics* 36 (2): 293–298. https://doi.org/10.2307/2529981.

Rosenbaum, Paul R. 2010. *Design of Observational Studies*. Springer Series in Statistics. New York: Springer. https://doi.org/10.1007/978-1-4419-1213-8

[69] Diamond, Alexis, and Jasjeet S. Sekhon. 2013. "Genetic Matching for Estimating Causal Effects: A General Multivariate Matching Method for Achieving Balance in Observational Studies." *Review of Economics and Statistics* 95 (3): 932–945. https://doi.org/10.1162/REST_a_00318

and two of the four neighborhoods from Tangerang Selatan city to exclude from this matching exercise and proceeded with one-to-one matching with that reduced set of neighborhoods.

RESULTS

Figure III-1 and Figure III-2 plot the absolute standardized mean differences in URBAN WASH's final matching algorithm for both stages. The standardized mean difference is an indication of the difference between two groups' mean values for a covariate divided by an estimate of the within-group standard deviation for that variable. It expresses how different the groups are considering the variability in the underlying metric. Perfectly balanced groups would have a standardized mean difference of zero. The chart shows that the matching algorithm selects groups that substantially reduce differences between treatment and comparison sites on nearly all metrics.

Figure III-1. Love Plot Pre- and Post-Matching—CI and Treatment Non-CI Matching

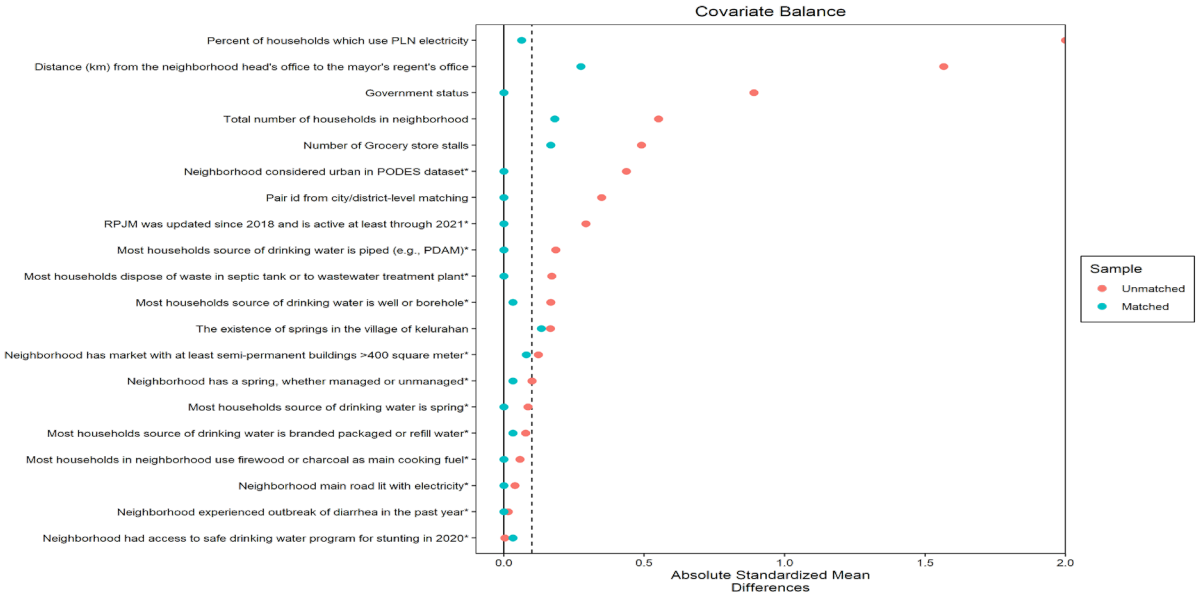


Figure III-2. Love Plot Pre- and Post-Matching—Treatment Non-CI and Comparison Matching

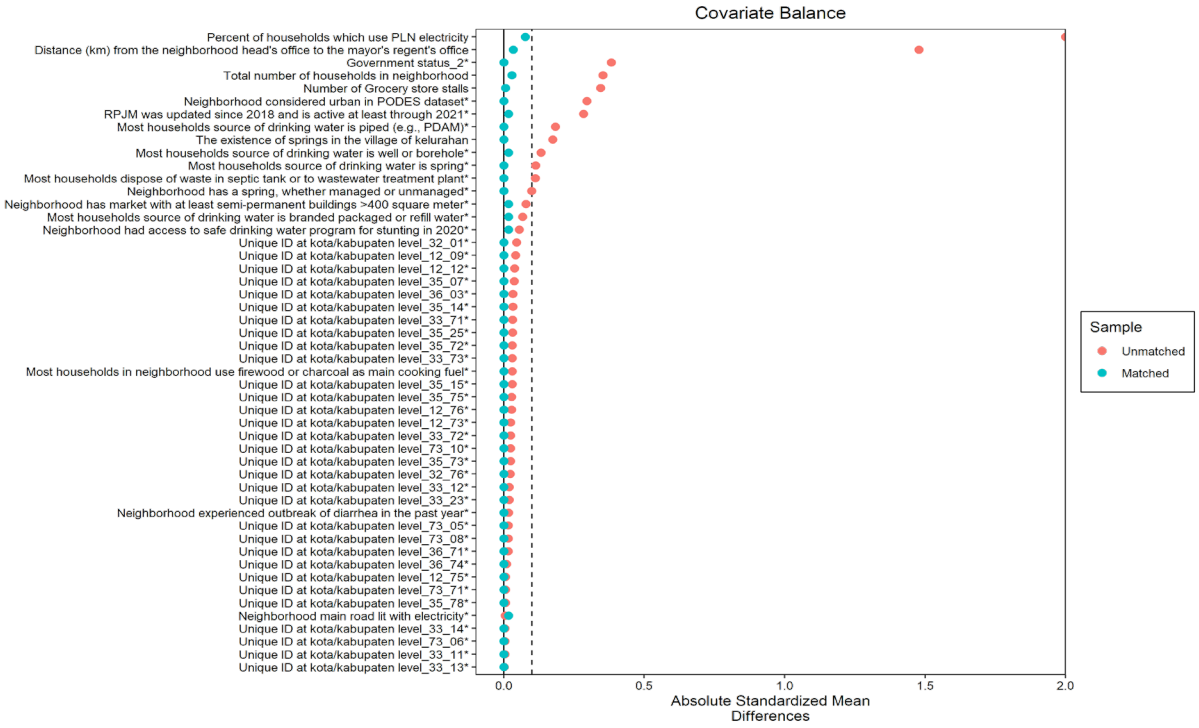


Table III-7 and Table III-8 show the values in natural units for matching covariates before and after the matching exercise, along with the corresponding standard mean differences for each step of the matching.

Table III-7. Comparison of Covariate Means for Hotspot and Non-Hotspot Neighborhoods

COVARIATE MEAN		UNMATCHED		MATCHED	
	Treated	*Comparison*	*Standardized Mean Difference*	*Comparison*	*Standardized Mean Difference*
Springs	2.46	2.31	0.17	2.46	0.00
Diarrhea	0.00	0.02	-0.13	0.00	0.00
Distance to State entity	9.29	24.27	-1.48	8.95	0.03
Number of businesses	78.00	57.40	0.34	77.63	0.01
Market	0.36	0.28	0.16	0.37	-0.04
Stunting	0.64	0.70	-0.11	0.66	-0.04
Electric connection	0.98	0.98	0.04	1.00	-0.13
Fuel for cooking: firewood	0.00	0.03	-0.18	0.00	0.00
Waste: septic tank	1.00	0.89	0.36	1.00	0.00
Drinking water: branded/refill	0.36	0.29	0.14	0.37	-0.04
Drinking water: piped	0.37	0.19	0.38	0.37	0.00
Drinking water: well	0.20	0.34	-0.33	0.19	0.04
Drinking water: spring	0.07	0.18	-0.45	0.07	0.00
Neighborhood has spring	0.31	0.40	-0.21	0.31	0.00
RPJMN updated	0.24	0.52	-0.67	0.25	-0.04
Total households	3376.05	2216.16	0.35	3281.14	0.03
% Households with electricity	99.98	99.65	2.91	99.98	0.08

COVARIATE MEAN		UNMATCHED		MATCHED	
	Treated	*Comparison*	*Standardized Mean Difference*	*Comparison*	*Standardized Mean Difference*
Government status	1.63	1.24	0.78	1.63	0.00
Urban neighborhood	0.80	0.50	0.73	0.80	0.00

Note: dummy variables for Kabupaten/kota ID suppressed. These rows were perfectly balanced as they were used as exact matching.

Table III-8. Comparison of Covariate Means for Non-Hotspot and Untreated Neighborhoods

COVARIATE MEAN		UNMATCHED		MATCHED	
	Treated	*Comparison*	*Standardized Mean Difference*	*Comparison*	*Standardized Mean Difference*
Springs	2.48	2.34	0.17	2.60	-0.13
Diarrhea	0.00	0.02	-0.13	0.00	0.00
Distance to State entity	8.74	23.19	-1.57	11.27	-0.27
Number of businesses	78.39	48.43	0.49	68.18	0.17
Market	0.35	0.23	0.26	0.44	-0.17
Stunting	0.66	0.67	-0.01	0.69	-0.07
Electric connection	1.00	0.96	0.20	1.00	0.00
Fuel for cooking: firewood	0.00	0.06	-0.25	0.00	0.00
Waste: septic tank	1.00	0.83	0.46	1.00	0.00
Drinking water: branded/refill	0.39	0.31	0.16	0.35	0.07
Drinking water: piped	0.35	0.17	0.39	0.35	0.00
Drinking water: well	0.19	0.36	-0.42	0.23	-0.08
Drinking water: spring	0.06	0.15	-0.35	0.06	0.00
Neighborhood has spring	0.29	0.39	-0.22	0.26	0.07
RPJMN updated	0.24	0.53	-0.68	0.24	0.00
Total households	3391.90	1725.42	0.55	2843.24	0.18
% Households with electricity	99.98	99.11	5.35	99.97	0.06
Government status	1.63	1.20	0.89	1.63	0.00
Urban neighborhood	0.81	0.37	1.10	0.81	0.00

Note: dummy variables for Kabupaten/kota ID suppressed. Each pair of matched neighborhoods pertain to the same kabupaten/kota.

URBAN WASH repeated each matching exercise once with the first set of matches excluded to generate a set of replacement neighborhoods that could be contacted in the event that enumerators discovered upon arrival that the initial matched neighborhood was inaccessible or ineligible for the study.

III-4.0 ADDITIONAL DETAIL REGARDING DEFINITIONS OF KEY OUTCOMES

EQ1 (HOUSEHOLD WATER SECURITY) OUTCOME INDICATORS

The IE defines household water security as "reliable access to a quantity and quality of water adequate to maintain wellbeing." This comprises:

- A **source** that is improved and accessible;

- From which water is **reliably** available;[70]
- In the **quantity** needed to meet basic needs;
- With sufficient **quality** to pose no risk to the health of household members; and
- Whose cost is **affordable** in the context of household income and other expenditures required to meet basic needs.

To measure household water security, the IE assigned an indicator to each of the five components and estimates changes in each indicator caused by IUWASH Tangguh from baseline to endline. These indicators are listed in Table III-9. Note that the indicators for access and reliability use a different source in the baseline report than was originally envisioned in the Evaluation Design Report in order to align with Government of Indonesia standards.

Table III-9. Outcome Indicators for Household Water Security

COMPONENT	INDICATOR[71]	UNITS
Access	Household's main water source is "improved" as defined by Joint Monitoring Program (JMP) service ladder, on premises, and available when needed over the past thirty days. The primary drinking water source is the source of record, unless this is a kiosk or bottled water. In that case, the secondary water source is the source of record.	Categorical, aligned with JMP service ladder
Reliability of Supply	Number of days in last seven days when regular availability of main water source has been disrupted[72]. The source of record, as for access, is the main drinking water source unless that source is a kiosk or bottled water.	Number of days in the last seven days
Quantity	Total water consumed by household members (for any purpose across all sources)	Liters per capita per day of water consumed from all sources combined[73]
Quality	Presence/absence of *E. coli* in drinking water at the household point of consumption[74]	Binary – household either has absence of *E. coli* at point of consumption or presence of *E. coli* at point of consumption

[70] We use the term "reliable" here, though in a way that we believe is consistent with the GOI's goals for "continuity." This choice reflects that, though an ideally reliable source would be available continuously, more reliable availability reflects stronger water security than less reliable availability, even if the source is not continuously available.

[71] URBAN WASH proposes to use estimates of water supply over the most recent seven or thirty days for its measures of impact, where applicable, because these are where respondents will have the most accurate recall and/or most recent water bill from their PDAM. However, URBAN WASH also proposes to collect estimates of typical water supply by season and assess the sensitivity of evaluation results to these measures.

[72] The questionnaire is clear this is referring to abnormal changes to water availability or pressure for more than one hour. Though this theoretically would include disruptions to water quality, these are not always perceptible to household members and can be falsely identified. So, the questionnaire will be clear this does not include changes to the taste, odor, or appearance of the water.

[73] Note this was approximated differently for different sources of water. For PDAM customers, the most recent monthly bill divided by days per month yields the estimate of liters per day. For sources outside the household, consumption was approximated based on the container normally used to collect water and the frequency with which water is normally collected in the current season, normalized to the day.

[74] Note that the absence of *E. coli* for this component combined with the considerations for access in the first component constitute all the requirements for a household to have "safely managed access" to drinking water according to WHO definitions. The GOI definition of safely managed access requires constant availability over the past year (instead of last month) and additionally considers the secondary water source when the primary water source is packaged water.

COMPONENT	INDICATOR[71]	UNITS
Affordability	Household expenditure on water (from all sources for any purpose) over the last month divided by approximate total household monthly expenditure[75]	Percent of total expenditure

In addition to measuring change on each of these indicators individually, URBAN WASH constructed an index which scores a household's overall water security by assigning values between 0-100 corresponding to each of the components of water security and averaging the scores across the components (i.e., assigning each component an equal weight) to compute an overall score. These scoring criteria affect only the way the data were analyzed, not how they were collected. URBAN WASH was thus able to test the sensitivity of IE estimates on household water security to different specifications, including assigning different weights to each component or adjusting the scoring criteria. URBAN WASH scored the components of household water security as indicated in Table III-10. These criteria are based on a combination of international and GOI standards for water supply in each component.

Table III-10. Scoring of Household Water Security Index

COMPONENT	SCORING CRITERIA	STANDARDS
Access (A)	**100:** Improved source, on premises, available when needed **60:** Improved source, within 30 minutes round-trip of household including queuing time, available when needed **50:** Improved source, within 30 minutes round-trip of household including queuing time, not available when needed **40:** Improved source, more than 30 minutes round trip from household including queuing time, available when needed **30:** Improved source, more than 30 minutes round trip from household including queuing time, not available when needed **20:** Access only to unimproved sources, available when needed **10:** Access only to unimproved sources, not available when needed **0**: Access only to surface water	100% access to "safely managed WASH" per JMP Service Ladder (GOI and World Health Organization [WHO])
Reliability (R)	**100:** No disruptions last seven days **80:** Service disrupted in one of last seven days **55:** Service disrupted in two of last seven days **25:** Service disrupted in three of last seven days **15:** Service disrupted in four of last seven days **10:** Service disrupted in five of last seven days **5:** Service disrupted in six of last seven days **0:** No service in last seven days	24 hours per day of water service (GOI)
Quantity (Q)	**100:** 100 liters per capita per day or more **90:** 60-99 liters per capita per day **50:** 50-59 liters per capita per day **30:** 20-49 liters per capita per day **0:** fewer than 20 liters per capita per day	At least 60 liters per capita per day (GOI) 20 required for basic needs, 50 for intermediate needs, 100 for all needs (WHO)

[75] URBAN WASH asked households to select which category their expenditure belongs in from a set of ten deciles of Indonesian expenditure in urban areas. For the purposes of this indicator, URBAN WASH divides the household WASH expenditure by the lower bound of the category of expenditure the household selects. This means the actual percentage calculated is an upper bound—actual WASH expenditure may be slightly lower as a percentage of expenditure than is calculated but will be no higher than is calculated.

COMPONENT	SCORING CRITERIA	STANDARDS
Quality (E)	**100:** Absence of *E. coli* at point of consumption **33:** Presence of *E. coli* at point of consumption, absent at point of collection **0:** Presence of *E. coli* at point of consumption and point of collection	Absence of priority fecal contamination (GOI and WHO)
Affordability ($)	**100:** Water expenditure no more than 4.0% of total income **80:** 4.0 – 4.5% **60:** 4.5 – 5.0% **40:** 5.0 – 5.5% **20:** 5.5 – 6.0% **0:** More than 6.0%	Water tariffs must not exceed 4% of customer income (GOI) 2 – 6% of total income (JMP)
Total	**Household Water Security Index Score = (A+R+Q+E+$)/5**	

EQ3 (CITY-WIDE WATER SERVICE RESILIENCE) OUTCOME INDICATORS

Table III-11 includes the set of indicators which URBAN WASH used to quantify city-wide water service resilience. For the purposes of an overall city-wide resilience index, each of these indicators are pass/fail, meaning that the PDAM or LG achieves the required condition or does not. Nine of these indicators apply to PDAMs, while six apply for LGs. Thus, a city's PDAM resilience index score is a value from 0 to 9 corresponding to the number of PDAM-specific resilience conditions which it satisfies, and its LG resilience index score is a value from 0 to 6 corresponding to the number of LG-specific resilience conditions which it satisfies.

The measures combine expert review of water safety planning documentation, survey results, and secondary PDAM performance data aggregated by PUPR. URBAN WASH characterized resilience by analyzing the proportion of cities for which the conditions/standards described in the table are achieved or not achieved.

Table III-11. EQ3 City-Wide Water Supply Resilience Measures

COMPONENT	INDICATOR	SOURCE	PDAM/LG
Risk Identification	Institution's planning document (either Water Safety Plan [RPAM], Business Continuity [BC] Plan, or Water Supply System Master Plan [RISPAM]) identifies hazards to water supply based on localized climate projections	RPAM/ RISPAM expert scoring	Both
Risk Understanding	Institution's planning document (RPAM, BC Plan, or RISPAM) incorporates scenarios no more than five years old for most likely and severe hazards with instructions for use, and identified intervals for updates no longer than five years	RPAM/ RISPAM expert scoring	Both
Risk Data Use	PDAM/LG monitors real-time data from each of the following, as relevant: • Bulk water source quantity and quality, • Early warning systems for hydrometeorological disasters, and • Early warning systems for geological disasters.	Survey*	Both
Planning for Risk Mitigation and Avoidance	RPAM/RISPAM includes objectives and measures to prevent and/or mitigate risks to water service provision, including target indicators and timeframes for risk avoidance/mitigation	RPAM/ RISPAM expert scoring	Both
Finance for Risk Mitigation and Avoidance	PDAM/LG budget includes separate allocations for risk avoidance/mitigation and disaster response/recovery that cannot be used for other purposes	Survey*	Both

COMPONENT	INDICATOR	SOURCE	PDAM/LG
Water Quality Monitoring	LG asserts that water quality at point of use is adequately monitored for PDAM, community, and private water supplies per GOI regulations	Survey*	LG
Operational Performance (Quantity)	Production volume is less than installed capacity, while maintaining at least 16 hours per day of water service	PUPR Performance Data	PDAM
Financial Performance	PUPR Financial Performance score is sufficient to qualify as "healthy"	PUPR Performance Data	PDAM
Adequate Staffing	Respondent perceives PDAM staffing as adequate to maintain operational performance	Survey	PDAM
Infrastructure Safety	Respondent states that PDAM water abstraction, treatment, and distribution infrastructure is designed to withstand disruptions from most likely hazards	Survey	PDAM

* For indicated survey measures, URBAN WASH will assess during piloting if it is possible for PDAMs and/or LGs to produce proof of this assertion that an enumerator could observe and document.

ANNEX IV: DATA COLLECTION TOOLS

This annex includes each of the questionnaires implemented for the household survey, PDAM survey, and Bappeda survey in Bahasa Indonesia and in English. It also includes the scoring rubric for URBAN WASH's expert review of business plans, RPAMs, and RISPAMs.

HOUSEHOLD SURVEY - BAHASA INDONESIA

INFORMASI WAWANCARA

No	Pertanyaan	Opsi Jawaban		
0-1	Nama pewawancara	_____		
		A. Kunjungan 1	B. Kunjungan 2	C. Kunjungan 3
0-2	Tanggal Kunjungan	⌊_⌊_⌋ / ⌊_⌊_⌋ / ⌊_⌊_⌋	⌊_⌊_⌋ / ⌊_⌊_⌋ / ⌊_⌊_⌋	⌊_⌊_⌋ / ⌊_⌊_⌋ / ⌊_⌊_⌋
0-3	Jam kunjungan	⌊_⌊_⌋ / ⌊_⌊_⌋	⌊_⌊_⌋ / ⌊_⌊_⌋	⌊_⌊_⌋ / ⌊_⌊_⌋
0-4	Garis Bujur Global Positioning System (GPS)			
0-5	Garis Lintang GPS			
0-6	Apakah rumah terlihat ditempati/dihuni (bukan rumah kosong)?	• Ya…1 • Tidak…0 → **Kolom B** • Tidak tahu …-98	• Ya…1 • Tidak…0 → **Kolom C** • Tidak tahu …-98	• Ya…1 • Tidak…0 → **Modul I** • Tidak tahu …-98
0-7	Apakah di rumah ada orang yang bisa ditemui?	• Ya…1 • Tidak…0 → **Kolom B**	• Ya…1 • Tidak…0 → **Kolom C**	• Ya…1 • Tidak…0 → **Modul I**
0-8	Bisakah saya berbicara dengan anggota rumah tangga Bapak/Ibu yang paling mengetahui tentang pengumpulan dan penggunaan air di rumah tangga ini?	• Ya…1 • Tidak…0 → **Kolom B**	• Ya…1 • Tidak…0 → **Kolom C**	• Ya…1 • Tidak…0 → **Modul I**

A PERSETUJUAN

No	Pertanyaan	Opsi Jawaban	
A-1 (consent)	Selamat pagi/siang/sore. Perkenalkan nama saya [**NAMA PEWAWANCARA**] dari Article 33 Indonesia. Kami sedang melakukan survei rumah tangga di lingkungan Bapak/Ibu dan lingkungan perkotaan lainnya di Indonesia untuk mempelajari sumber air yang digunakan rumah tangga Bapak/Ibu dan cara anggota rumah tangga Bapak/Ibu menggunakan air. Studi kami didanai oleh United States Agency for International Development (USAID), sebuah badan pemerintah Amerika Serikat yang membantu proyek-proyek pembangunan di Indonesia, dan dilaksanakan oleh NORC at the University of Chicago (NORC), Tetra Tech ARD, dan Article 33 Indonesia. Selain itu, studi ini juga didukung penuh oleh Badan Perencana Pembangunan Nasional (Bappenas) dan Kementerian Pekerjaan Umum dan Perumahan Rakyat (KemenPUPR). Kami mewawancarai Bapak/Ibu dan sekitar 1600 rumah tangga lainnya. Rumah tangga Bapak/Ibu dipilih secara acak di antara rumah tangga yang tinggal di lingkungan ini. Wawancara ini diperkirakan akan memakan waktu sekitar satu jam. Setiap informasi yang Bapak/Ibu berikan akan dijaga kerahasiaannya hanya akan digunakan untuk tujuan penelitian saja. Studi ini tidak akan mempublikasikan informasi pribadi apa pun tentang Bapak/Ibu atau anggota rumah tangga lainnya. Partisipasi Bapak/Ibu bersifat sukarela dan Bapak/Ibu dapat memilih untuk tidak menjawab salah satu atau semua pertanyaan dengan alasan apa pun dan tanpa konsekuensi apa pun. Kami mengantisipasi tidak ada risiko jika Bapak/Ibu berpartisipasi dan sebaliknya Bapak/Ibu juga tidak akan menerima manfaat atau kompensasi langsung apa pun atas partisipasi Bapak/Ibu. Jawaban Bapak/Ibu tidak akan memengaruhi hubungan Bapak/Ibu dengan pihak kelurahan/desa atau akses ke air dengan cara apa pun, jadi jangan ragu untuk membagikan pendapat jujur Bapak/Ibu. Jika Bapak/Ibu memiliki pertanyaan, kekhawatiran, atau keluhan tentang penelitian ini atau hak-hak Bapak/Ibu sebagai peserta, jangan ragu untuk bertanya kapan saja selama wawancara. Atau Bapak/Ibu dapat menghubungi penanggung jawab studi ini [**DEDY JUNAEDI 087875782721**].		
A-2	Mohon jelaskan dengan singkat pemahaman Bapak/Ibu tentang tujuan wawancara hari ini dan konfirmasikan siapa yang akan Bapak/Ibu hubungi jika memiliki pertanyaan.	_____	
A-3	Apakah Bapak/Ibu memiliki pertanyaan tentang studi ini?	**PETUNJUK PEWAWANCARA**: **TANGGAPI PERTANYAAN APA PUN JIKA ADA**	
		• Ya…1	• Tidak…0
A-4	Apakah Bapak/Ibu setuju untuk berpartisipasi?	• Ya…1	• Tidak…0 → **Modul I**
A-5	Apakah Bapak/Ibu setuju jika saya merekam sebagian dari wawancara ini agar dapat melakukan cek ulang jawaban Bapak/Ibu ?	• Ya…1 • Tidak…0	

No	Pertanyaan	Opsi Jawaban
A-6	Jika ternyata nanti ada data yang masih kurang atau membutuhkan konfirmasi, apakah saya nanti bisa menghubungi Bapak/Ibu kembali?	• Ya…1 • Tidak…0
A-7	Nama lengkap Responden	_____
A-8	Alamat	_____
A-9	Provinsi	• Sumatera Utara…12 • Java Barat…32 • Java Tengah…33 • Java Timur…35 • Banten…36 • Sulawesi Selatan…73
A-10	Kabupaten/Kota	*Pilihan mengisi berdasarkan Provinsi*
A-11	Kecamatan	*Pilihan mengisi berdasarkan Kabupaten/Kota*
A-12	Kelurahan	*Pilihan mengisi berdasarkan Kecamatan*
A-13	RW	__| __|
A-14	RT	__| __|
A-15	Apakah Bapak/Ibu memiliki telpon rumah?	_____
A-16	Nomor Telepon Responden (rumah)	_____
A-17	Apakah Bapak/Ibu memiliki telpon seluler/HP?	_____
A-18	Nomor Telepon Responden (seluler)	_____
A-19	Apakah Bapak/Ibu memiliki Kartu Keluarga	• YA…1 • TIDAK…**0**
A-20	Apakah alamat di Kartu Keluarga sama dengan alamat rumah/tempat tinggal saat ini ?	• YA…1 • TIDAK…**0**

No	Pertanyaan	Opsi Jawaban
A-21	*Petunjuk wawancara:* *Amati bahan utama yang digunakan sebagai lantai di rumah ini.* *Lakukan konfirmasi ke responden jika dirasa belum jelas*	• Marmer/granit …1 • Keramik …2 • Parket/vinil/karpet …3 • Ubin/tegel/teraso …4 • Kayu/papan...5 • Semen/bata merah...6 • Bambu...7 • Tanah...8 • Lainnya, sebutkan (_____)…-96
A-22	*Petunjuk wawancara:* *Amati bahan utama yang digunakan sebagai atap di rumah ini.* *Lakukan konfirmasi ke responden jika dirasa belum jelas*	• Beton...1 • Genteng...2 • Seng...3 • Asbes...4 • Bambu...5 • Kayu/sirap...6 • Jerami/ijuk/daun-daunan/rumbia...7 • Lainnya, sebutkan (_____)…-96
A-23	*Petunjuk wawancara:* *Amati bahan utama yang digunakan sebagai dinding di rumah ini.* *Lakukan konfirmasi ke responden jika dirasa belum jelas*	• Tembok...1 • Plesteran anyaman bambu/kawat...2 • Kayu/papan...3 • Anyaman bambu...4 • Batang kayu...5 • Bambu...6 • Lainnya, sebutkan (_____)…-96
A-24	*Petunjuk wawancara:* *Amati dan catat jenis akses jalan di rumah responden*	• Gang/lorong tanah/kerikil...1 • Jalan tanah/kerikil...2 • Jalan beraspal...3 • Jalan paving block… 4 • Bukan gang/lorong ataupun jalan...5 • Lainnya, sebutkan (_____)…-96

SUSUNAN RUMAH TANGGA

PETUNJUK WAWANCARA: BACAKAN PERNYATAAN BERIKUT

Saya akan mengajukan beberapa pertanyaan tentang orang-orang yang biasanya tinggal di rumah ini dan mengelola pengeluaran rumah tangga secara bersama selama enam bulan terakhir.

No	Pertanyaan	Opsi Jawaban
B-1a	Berapa jumlah anggota rumah tangga Bapak/Ibu ?	⌊_⌊_⌋
B-1	Mohon sebutkan nama lengkap kepala rumah tangga	_____
B-1.1	Jenis kelamin kepala rumah tangga	• Wanita…1 • Pria…0 • Lainnya, sebutkan (_____)…-96
B-1.2	Berapa usia kepala rumah tangga ? *Petunjuk wawancara:* *Jika responden tidak tahu, hitung umur berdasarkan perkiraan tahun kelahiran.*	⌊_⌊_⌊_⌋ [Batasi nilai 0-120]
B-1.3	Status perkawinan kepala rumah tangga	• Tidak pernah menikah dan tidak pernah tinggal bersama...1 • Menikah...2 • Tinggal bersama...3 • Cerai hidup...4 • Berpisah...5 • Cerai mati...6 • Menolak menjawab …-99
B-1.4	Pendidikan tertinggi yang ditamatkan kepala rumah tangga	• Tidak bersekolah/Belum tamat SD …0 • SD…1 • SMP…2 • SMA…3 • SMK…4 • S1…5 • Pasca sarjana…6

No	Pertanyaan	Opsi Jawaban
B-1.5	Kegiatan yang menggunakan waktu terbanyak kepala rumah tangga dalam ***tiga puluh hari terakhir***?	• Bekerja…1 • Sekolah…2 □ **no B-2** • Mengurus rumah tangga…3 □ **no B-2** • Anak di bawah usia 5 tahun (Balita)/Bermain… 4 □ **no B-2** • Lainya, sebutkan (_____)…-96 □ **no B-2**
B-1.6	Pekerjaan utama kepala rumah tangga	• Pekerja profesional, ilmiah dan teknis…1 • Pekerja di bidang pertanian, perkebunan dan kehutanan…2 • Pekerja di bidang peternakan dan perikanan… 3 • Pekerja di bidang pertambangan dan galian… 4 • Pekerja di bidang industry pengolahan dan manufaktur… 5 • Pekerja di bidang perdagangan besar, menengah dan kecil… 6 • Pekerja di bidang jasa dan layanan keuangan, perbankan dan asuransi… 7 • Pekerja di bidang jasa dan layanan Pendidikan… 8 • Pekerja di bidang jasa dan layanan Kesehatan… 9 • Pekerja di bidang angkutan, pergudangan dan pengantaran/ekspedisi… 10 • Pekerja di bidang konstruksi… 11 • Pekerja di bidang seni, hiburan dan rekreasi… 12 • Pekerja di bidang keagamaan…13 • Pekerja di lembaga pemerintahan/militer/kepolisian… 14 • Lainya, sebutkan (_____)…-96
Butir B-2 sampai dengan B-2.8 harus diulang untuk setiap ART		
B-2	Nama lengkap anggota rumah tangga	_____
B-2.1	Hubungan anggota rumah tangga dengan kepala rumah tangga	• Pasangan…1 • Anak…2 • Menantu…3 • Saudara…7 • Kerabat lainnya…8 • Anak Angkat/Anak Asuh…9

No	Pertanyaan	Opsi Jawaban	
		• Cucu…4 • Orang tua…5 • Mertua…6	• Anak tiri…10 • Tidak ada hubungan…11 • Tidak tahu…-98
B-2.2	Jenis kelamin anggota rumah tangga	• Wanita…1 • Pria…2	• Lainnya, sebutkan (_____)…-96
B-2.3	Usia anggota rumah tangga	└┴┴┘ [Batasi nilai 0-120]	
B-2.4	Status perkawinan anggota rumah tangga	• Tidak pernah menikah dan tidak pernah tinggal bersama...1 • Menikah...2 • Tinggal bersama...3 • Cerai hidup...4 • Berpisah...5 • Cerai mati...6 • Menolak menjawab …-99	
B-2.5	Pendidikan tertinggi yang ditamatkan anggota rumah tangga	• Tidak bersekolah/Belum tamat SD …0 • SD…1 • SMP…2 • SMA3	• SMK…4 • S1…5 • Pasca sarjana…6
B-2.6	Kegiatan yang menggunakan waktu terbanyak anggota rumah tangga dalam ***tiga puluh hari terakhir***?	• Bekerja…1 • Sekolah…2 → **ART berikut** • Mengurus rumah tangga…3 → **ART berikut** • Anak di bawah usia 5 tahun (Balita)/Bermain… 4 → **ART berikut** • Lainya, sebutkan (_____)…-96 → **ART berikut**	
B-2.7	Pekerjaan utama anggota rumah tangga	• Pekerja profesional, ilmiah dan teknis…1 • Pekerja di bidang pertanian, perkebunan dan kehutanan…2 • Pekerja di bidang peternakan dan perikanan… 3 • Pekerja di bidang pertambangan dan galian… 4 • Pekerja di bidang industry pengolahan dan manufaktur… 5 • Pekerja di bidang perdagangan besar, menengah dan kecil… 6	

No	Pertanyaan	Opsi Jawaban
		• Pekerja di bidang jasa dan layanan keuangan, perbankan dan asuransi… 7 • Pekerja di bidang jasa dan layanan Pendidikan… 8 • Pekerja di bidang jasa dan layanan Kesehatan… 9 • Pekerja di bidang angkutan, pergudangan dan pengantaran/ekspedisi… 10 • Pekerja di bidang konstruksi… 11 • Pekerja di bidang seni, hiburan dan rekreasi… 12 • Pekerja di bidang keagamaan…13 • Pekerja di lembaga pemerintahan/militer/kepolisian… 14 • Lainya, sebutkan (_____)…-96

SUMBER AIR

PETUNJUK WAWANCARA: BACAKAN PERNYATAAN BERIKUT

Sekarang saya akan mengajukan beberapa pertanyaan mengenai sumber-sumber yang digunakan untuk kebutuhan rumah tangga Bapak/Ibu sepanjang tahun.

No	Pertanyaan	Opsi Jawaban
C-1	Apa sumber utama untuk air minum yang digunakan di rumah tangga Bapak/Ibu?	• Air yang disalurkan melalui pipa ke dalam rumah...1 → **C-1.3** • Air yang disalurkan ke dalam kompleks/halaman/pekarangan rumah...2 → **C-1.3** • Disalurkan ke tetangga...3 • Keran umum / pipa tegak...4 • Sumur bor atau tubewell...5 • Sumur terlindungi...6 • Sumur yang tidak terlindungi...7 • Mata air yang terlindungi...8 • Mata air yang tidak terlindungi...9 • Penampungan air hujan...10 • Truk tangki...11 • Gerobak dengan tangki/drum kecil...12 • Kios air...13 • Air kemasan...14 • Air sachet...15 • Air permukaan (sungai, aliran, bendungan, danau, kolam, kanal, saluran irigasi)…16 • Lainya, sebutkan (_____)…-96
C-1.1	Dimana lokasi sumber air ini berada?	• Di dalam rumah …1 → **C-1a** • Di halaman atau pekarangan rumah …2→ **C-1a** • Tempat lain di luar kompleks rumah…3
C-1.2	Berapa lama waktu yang diperlukan untuk perjalanan pulang pergi mengambil air dari sumber ini?	└┴┴┘ menit
C-1a	Selain untuk minum, digunakan untuk keperluan apa saja air yang diambil dari sumber ini?	• Memasak…A • Mandi/Mencuci tangan atau bagian tubuh lainnya…B • Membersihkan rumah, perlengkapan rumah tangga, kendaraan, dsb…C

No	Pertanyaan	Opsi Jawaban
		• Mencuci pakaian…D • Buang air kecil dan besar (keperluan toilet)…E • Berkebun/menyiram tanaman…F • Keperluan usaha/Bisnis…G • Lainnya, sebutkan (_____)…V • HANYA UNTUK MINUM…W
C-1.3	***Dalam tiga puluh hari terakhir***, apakah ada saat di mana rumah tangga Bapak/Ibu tidak memiliki jumlah air minum yang cukup dari sumber ini ketika dibutuhkan?	• Ya, setidaknya satu kali …1 • Tidak, selalu cukup …0 → C-1.5.1 • Tidak Tahu …-98 → **C-1.5.1**
C-1.4	Apa alasan (utama) rumah tangga Bapak/Ibu tidak dapat mengakses air dalam jumlah yang cukup dari sumber ini ketika dibutuhkan? **PETUNJUK PEWAWANCARA: KETERSEDIAAN BERARTI BAHWA AIR TIDAK TERSEDIA DI SUMBER AIR (MISALNYA, KARENA RUSAK). AKSESIBILITAS BERARTI BAHWA, MESKIPUN AIR MUNGKIN TERSEDIA, RESPONDEN TIDAK DAPAT MENGAKSES SUMBER AIR SECARA FISIK ATAU SEBALIKNYA (MISALNYA, KARENA TERKUNCI).**	• Air tidak tersedia dari sumber ini …1 • Air dari sumber ini terlalu mahal …2 • Sumber tidak dapat diakses …3 • Kualitas air dari sumber ini tidak layak dikonsumsi …4 • Lainya, sebutkan (_____)…-96
C-1.5.1	Dalam tujuh hari terakhir, berapa hari tekanan atau jumlah air yang tersedia dari sumber ini terganggu selama lebih dari satu jam?	• Tidak pernah...0 → **C-1.6.1** • ⌊_⌋⌊_⌋ hari...1 [Nilai dibatasi 1-7]
C-1.5.2	Gangguan apa saja yang Bapak/Ibu alami pada sumber air ini?	• Gangguan terhadap tekanan…A • Gangguan terhadap jumlah yang tersedia…B • Lainya, sebutkan (_____)…V
C-1.6.1	Dalam ***tujuh hari terakhir,*** berapa hari air dari sumber ini bisa dialirkan melalui keran Bapak/Ibu selama setidaknya satu jam? **PETUNJUK PEWAWANCARA: "BISA DIALIRKAN" BERARTI AIR KELUAR DARI KERAN DENGAN JUMLAH/TEKANAN BERAPA PUN KETIKA KERAN DIBUKA.**	⌊_⌋ [Nilai dibatasi 0-7] [HANYA BERLAKU JIKA C1 = 1 ATAU 2]

No	Pertanyaan	Opsi Jawaban
C-1.6.2	Dalam periode hari dimana air bisa dialirkan melalui keran selama minimal satu jam tersebut **(C-1.6.1)**, berapa jam per hari air dari sumber ini bisa dialirkan melalui keran di rumah Bapak/Ibu? **PETUNJUK PEWAWANCARA: PERTANYAAN C-1.6.2 MENGACU PADA JAWABAN HARI DI C-1.6.1**	⌊_⌊_⌋ [Nilai dibatasi 0-24] [HANYA BERLAKU JIKA C1 = 1 ATAU 2]
C-1.7	Apakah rumah tangga Bapak/Ibu menggunakan sumber air ini sepanjang tahun?	• Ya, sepanjang tahun...1 • Tidak, hanya musim hujan...2 • Tidak, hanya musim kemarau …3
C-2	Apakah sumber air yang digunakan rumah tangga Bapak/Ibu ketika tidak bisa mendapatkan air minum dari sumber air utama ?	• Air yang disalurkan melalui pipa ke dalam rumah...1 • Air yang disalurkan ke dalam kompleks/halaman/pekarangan rumah...2 • Disalurkan ke tetangga...3 • Keran umum / pipa tegak...4 • Sumur bor atau tubewell...5 • Sumur terlindungi...6 • Sumur yang tidak terlindungi...7 • Mata air yang terlindungi...8 • Mata air yang tidak terlindungi...9 • Penampungan air hujan...10 • Truk tangki...11 • Gerobak dengan tangki/drum kecil...12 • Kios air...13 • Air kemasan...14 • Air sachet...15 • Air permukaan (sungai, aliran, bendungan, danau, kolam, kanal, saluran irigasi)…16 • Lainya, sebutkan (_____)…-96 • TIDAK **BERLAKU… -97 → C3**
C-2a	Digunakan untuk keperluan apa saja air yang diambil dari sumber ini?	• Minum…A • Memasak…B • Mandi/Mencuci tangan atau bagian tubuh lainnya…C • Membersihkan rumah, perlengkapan rumah tangga, kendaraan, dsb…D • Mencuci pakaian…E • Buang air kecil dan besar (keperluan toilet)…F • Berkebun/menyiram tanaman…G

No	Pertanyaan	Opsi Jawaban
		• Keperluan usaha/Bisnis…H • Lainnya, sebutkan (_____)…V
C-2.1	Dimana lokasi sumber air ini berada?	• Di dalam rumah …1 C-2.3 • Di halaman atau pekarangan rumah …2 C-2.3 • Tempat lain…3 [Hanya relevan jika C-2 adalah 3-16 atau -96]
C-2.2	Berapa lama waktu yang diperlukan untuk perjalanan pulang pergi mengambil air dari sumber ini?	└┴┴┘ menit
C-2.3	Dalam ***tiga puluh hari terakhir***, apakah ada waktu ketika rumah tangga Bapak/Ibu tidak memiliki jumlah air yang cukup dari sumber ini ketika dibutuhkan?	• Ya, setidaknya satu kali …1 • Tidak, selalu cukup …0 C-2.5.1 • Tidak Tahu …-98 **C-2.5.1**
C-2.4	Apa alasan (utama) Bapak/Ibu tidak dapat mengakses air dalam jumlah yang cukup saat dibutuhkan?	• Air tidak tersedia dari sumber ini …1 • Air dari sumber ini terlalu mahal …2 • Sumber tidak dapat diakses …3 • Kualitas air dari sumber ini tidak layak dikonsumsi …4 • Lainya, sebutkan (_____)…-96
C-2.5.1	***Dalam tujuh hari terakhir***, berapa hari tekanan atau jumlah air yang tersedia dari sumber ini terganggu selama lebih dari satu jam?	• Tidak pernah...0 **C-2.6.1** • └┴┘ hari...1 [Nilai dibatasi 1-7.]
C-2.5.2	Gangguan apa saja yang Bapak/Ibu alami pada sumber air ini?	• Gangguan terhadap tekanan…A • Gangguan terhadap jumlah yang tersedia…B • Lainnya, sebutkan (_____)…V
C-2.6.1	Dalam ***tujuh hari terakhir,*** berapa hari air dari sumber ini bisa dialirkan melalui keran Bapak/Ibu selama setidaknya satu jam?	└┘ [Nilai dibatasi 0-7.] [HANYA BERLAKU JIKA C2 = 1 ATAU 2]
C-2.6.2	Dalam periode hari dimana air bisa dialirkan melalui keran selama minimal satu jam tersebut **(C-2.6.1)**, berapa jam per hari air dari sumber ini bisa dialirkan melalui keran di rumah Bapak/Ibu? **PETUNJUK PEWAWANCARA: PERTANYAAN C-2.6.2 MENGACU PADA JAWABAN HARI DI C-2.6.1**	└┴┘ [Nilai dibatasi 0-24.] [HANYA BERLAKU JIKA C2 = 1 ATAU 2]

No	Pertanyaan	Opsi Jawaban
C-2.7	Apakah rumah tangga Bapak/Ibu menggunakan sumber air ini sepanjang tahun?	• Ya, sepanjang tahun...1 • Tidak, hanya musim hujan...2 • Tidak, hanya musim kemarau...3
C-3	Mohon sebutkan semua sumber air yang digunakan secara teratur oleh anggota rumah tangga Bapak/Ibu untuk keperluan apa pun ***ENUMERATOR: PILIH SEMUA YANG SESUAI***	• Air yang disalurkan melalui pipa ke tempat tinggal...A • Disalurkan ke kompleks, pekarangan, atau lahan...B • TIDAK BERLAKU… W
C-3_1	Mohon sebutkan semua sumber air yang digunakan secara teratur oleh anggota rumah tangga Bapak/Ibu untuk keperluan apa pun ***ENUMERATOR: PILIH SEMUA YANG SESUAI***	• Disalurkan ke tetangga...C • Keran umum / pipa tegak…D • Lubang bor atau tubewell...E • Sumur terlindungi...F • Sumur yang tidak terlindungi...G • Mata air yang terlindungi...H • Mata air yang tidak terlindungi...I • Penampungan air hujan...J • Truk tangki...K • Gerobak dengan tangki/drum kecil...L • Kios air...M • Air kemasan...N • Air sachet...O • Air permukaan (sungai, aliran, bendungan, danau, kolam, kanal, saluran irigasi)...P • Lainnya, sebutkan (_____)…V • TIDAK BERLAKU… W
Item C-3.1 sampai C-3.7 diulang untuk setiap sumber yang dipilih oleh rumah tangga.		
C-3.1	Pada musim apa rumah tangga Bapak/Ibu menggunakan sumber ini?	• Sepanjang tahun...1 • Hanya musim hujan...2 • Hanya musim kemarau …3

No	Pertanyaan	Opsi Jawaban
C-3.2	Digunakan untuk keperluan apa saja air yang diambil dari sumber ini?	• Minum…A • Memasak…B • Mandi/Mencuci tangan atau bagian tubuh lainnya…C • Membersihkan rumah, perlengkapan rumah tangga, kendaraan, dsb…D • Mencuci pakaian…E • Buang air kecil dan besar (keperluan toilet)…F • Berkebun/menyiram tanaman…G • Keperluan usaha/Bisnis…H • Lainnya, sebutkan (_____)…V
C-3.3	Dimana lokasi sumber air ini **[LIHAT C-3]** berada?	• Di dalam rumah …1 C-3.5.1 • Di halaman atau pekarangan rumah …2 C-3.5.1 • Tempat lain…3 [HANYA BERLAKU JIKA C3 > 2]
C-3.4	Berapa lama waktu yang diperlukan untuk perjalanan pulang pergi mengambil air dari sumber ini?	└┴┴┘ menit [HANYA BERLAKU JIKA C3 > 2]
C-3.5.1	Dalam tujuh hari terakhir, berapa hari tekanan atau jumlah air yang tersedia dari sumber ini terganggu selama lebih dari satu jam?	• Tidak pernah...0 **C-3.6.1** • └┴┘ hari...1 [Nilai dibatasi 1-7.]
C-3.5.2	Gangguan apa saja yang Bapak/Ibu alami pada sumber air ini?	• Gangguan terhadap tekanan...1 • Gangguan terhadap jumlah yang tersedia...2 • Lainnya, sebutkan (_____)…-96
C-3.6.1	Dalam ***tujuh hari terakhir,*** berapa hari air dari keran Bapak/Ibu tersedia selama setidaknya satu jam?	└┘ [Nilai yang dibatasi 0-7] [HANYA BERLAKU JIKA C3 = 1 ATAU 2]
C-3.6.2	Dalam periode hari dimana air bisa dialirkan melalui keran selama minimal satu jam tersebut **(C-3.6.1)**, berapa jam per hari air dari sumber ini bisa dialirkan melalui keran di rumah Bapak/Ibu? **PETUNJUK PEWAWANCARA: PERTANYAAN C-2.6.2 MENGACU PADA JAWABAN HARI DI C-2.6.1**	└┴┘ [Nilai dibatasi 0-24] [HANYA BERLAKU JIKA C3 = 1 ATAU 2]

No	Pertanyaan	Opsi Jawaban
C-3.7	Apa alasan utama Bapak/Ibu menggunakan sumber ini sebagai alternatif pelengkap/pengganti dari sumber air utama Bapak/Ibu?	• Saya menggunakannya ketika sumber utama saya tidak tersedia atau tidak dapat diakses...1 • Lebih banyak air tersedia dari sumber ini...2 • Lebih murah daripada sumber utama saya...3 • Saya lebih suka rasa/bau airnya dibandingkan dengan sumber utama saya...4 • Kualitas airnya lebih baik daripada sumber utama saya...5 • Lebih cocok untuk tujuannya daripada sumber utama saya...6 • Kawan/tetangga saya juga menggunakan sumber ini… 7 • Lainnya, sebutkan (_____)…-96 • Tidak tahu …-98
C-4.1	Apakah rumah tangga Bapak/Ibu berniat untuk menyambung ke PDAM dalam setahun ke depan?	• Tidak…0 • Ya…1
C-4.2	Apa alasan utama rumah tangga Bapak/Ibu tidak berniat/belum tersambung dengan PDAM?	• Kami tidak mampu membelinya/terlalu mahal...1 • Kualitasnya tidak bagus...2 • Rasanya tidak enak/berbau harum...3 • Kualitas layanannya buruk...4 • Kami lebih suka sumber kami saat ini...5 • Lainnya, sebutkan (_____)…-96 • Tidak tahu…-98 [Hanya relevan jika jawaban di C1, C2 dan C3 > 2]

PENGAMBILAN, KONSUMSI, DAN PENGELUARAN AIR

Enumerator membaca dengan keras: Sekarang saya akan bertanya tentang jumlah air yang Bapak/Ibu kumpulkan dan biaya terkait dari masing-masing sumber yang Bapak/Ibu jelaskan.

No	Pertanyaan	Opsi Jawaban
D-x	Siapa penyedia layanan air perpipaan yang digunakan rumah tangga Bapak/Ibu ?	[Hanya relevan untuk rumah tangga yang menggunakan sumber perpipaan di tempat (salah satu sumber di modul C = 1 atau 2). Jika tidak ada sumber tersebut, Loncat ke D-2.1] • PDAM...1 • Sistem Perpipaan berbasis masyarakat… 2 • BLUD… 3 • UPTD… 4 • BUMDes… 5 • Lainnya, sebutkan_____ -96
D-1	Dapatkah Bapak/Ibu menunjukkan tagihan terbaru yang Bapak/Ibu terima dari PDAM? Bolehkah saya mencatat beberapa rincian tagihan untuk survei kami?	• Responden menunjukkan tagihan...1 • Responden tidak menunjukkan tagihan...0 → **D-1.7**
D-1.1	Tanggal awal tagihan PDAM terakhir *Enumerator: Amati dan catat saja. Masukkan 99/99/99 jika informasi ini tidak ada dalam tagihan.*	__/__/__
D-1.2	Tanggal akhir tagihan PDAM terakhir *Enumerator: Amati dan catat saja. Masukkan 99/99/99 jika informasi ini tidak ada dalam tagihan.*	__/__/__
,D-1.3	Jumlah keseluruhan tagihan PDAM terakhir *Enumerator: Jangan membaca dengan keras. Amati dan catat saja. Masukkan -97 jika informasi ini tidak ada dalam tagihan.*	_____ IDR
D-1.4	Jumlah yang dibebankan pada tagihan untuk biaya pemakaian air saja (misalnya, tidak termasuk biaya, pajak, dll.) *Enumerator: Jangan membaca dengan keras. Amati dan catat saja. Masukkan -97 jika informasi ini tidak ada dalam tagihan.*	_____ IDR
D-1.5	Volume air yang dikonsumsi menurut tagihan PDAM terakhir *Enumerator: Jangan membaca dengan keras. Amati dan catat saja. Masukkan -97 jika informasi ini tidak ada dalam tagihan.*	_____ [Lewati ke D-1.6 jika -97]

No	Pertanyaan	Opsi Jawaban
D-1.5a	Satuan volume dimasukkan pada D-1.5 *Pencacah: Jangan membaca keras-keras. Amati dan catat saja.*	• Meter^3...1 • Liter...2 • Lainnya, sebutkan (_____)...-96 • Tidak tahu…-98
D-1.6	Kelas tarif menurut tagihan PDAM terakhir *Enumerator: Jangan membaca dengan keras. Amati dan catat saja*	• Rumah tangga kelas I...1 • Rumah tangga kelas II...2 • Rumah tangga kelas III...3 • Kelas rumah tangga IV...4 • Lainnya, sebutkan (_____)…-96 • Tidak berlaku…-97 • Tidak tahu…-98
D-1.7	Berapa biaya yang biasanya Bapak/Ibu bayarkan ke PDAM per bulan untuk pemakaian air di musim kemarau? *Enumerator: Masukkan -98 jika responden tidak tahu*	_____ IDR
D-1.8	Berapa biaya yang biasanya Bapak/Ibu bayarkan ke PDAM per bulan untuk pemakaian air di musim hujan? *Enumerator: Masukkan -98 jika responden tidak tahu*	_____ IDR
D-1.9	Berapa biaya yang Bapak/Ibu bayarkan ke PDAM untuk menyambung ke jaringan air PDAM? *Enumerator: Masukkan -98 jika responden tidak tahu*	_____ IDR
D-1.10	Apakah Bapak/Ibu membayar biaya koneksi sekaligus atau dengan mencicil?	• Sekaligus...1 • Secara berangsur-angsur...2 • Tidak berlaku…-97 • Tidak tahu …-98
D-1.11	Pada tahun berapa Bapak/Ibu terhubung ke jaringan air PDAM? *Enumerator: Masukkan -98 jika responden tidak tahu*	____ [Batasi ke nilai 1900-2023]

No	Pertanyaan	Opsi Jawaban
Butir D-2.1 sampai D-2.11 diulang untuk setiap sumber non perpipaan dan/atau di luar lokasi yang disebutkan dalam modul C. Responden harus diarahkan sesuai dengan musim. Misalnya, sumber yang digunakan sepanjang tahun harus menerima semua pertanyaan. Sumber yang hanya digunakan pada musim hujan harus menerima set pertama dan set musim hujan (D-2.2 sampai D-2.8). Sumber yang hanya digunakan pada musim kemarau harus menerima set musim kemarau saja (D-2.9 sampai D-2.11). Perhatikan bahwa dalam versi terprogram, ada versi berbeda dari variabel ini untuk sumber yang dimasukkan dalam C-1, C-2, dan C-3_1.		
D-2.1	Siapakah orang yang paling sering mengambil air dari sumber ini? *Enumerator: Jika biasanya lebih dari satu orang yang pergi, Bapak/Ibu dapat memilih beberapa orang di bidang ini.*	[Pilihan harus diperbarui secara dinamis untuk setiap rumah tangga berdasarkan jawaban di Modul B. Misalnya, jika anggota rumah tangga adalah Didik, Upik, Agus, dan Erni, keempat nama tersebut harus muncul sebagai pilihan di sini].
D-2.2	Wadah penampung air apa saja yang Bapak/Ibu gunakan ketika terakhir kali mengambil air dari sumber ini? *Enumerator: Pilih semua yang berlaku. Jika pilihan jawaban tida ada yang sesuai, masukkan di "Lainnya", tapi minta responden untuk menyebutkan volume yang bisa ditampung wadah tersebut (misalnya, "ember 30 liter")*	• Botol…A • Galon…B • Ember…C • Jerigen…D • Bak/bak mandi…E • Drum plastik…F • Drum logam…G • Tangki besar/toren…H • Lainnya, sebutkan: _____...V • Tidak Tahu…Y • Menolak Menjawab…Z
Ulangi item D-2.2.1 untuk setiap wadah yang disebutkan dalam D-2.2		
D-2.2a	Berapa kapasitas dari wadah penampung air yang digunakan saat pengambilan terakhir kali tersebut ?	└┴┴┴┘ mililiter … 1 └┴┴┴┘ liter … 2
D-2.2.1	Berapa banyak wadah dari jenis ini yang Bapak/Ibu gunakan?	_____ wadah
D-2.3	Masih pada saat pengambilan terakhir kali, berapa total biaya yang Bapak/Ibu habiskan untuk pengambilan air dari sumber ini? *Enumerator: Masukkan 0 jika responden menyatakan tidak ada biaya untuk air dari sumber ini. Jika perlu, biarkan responden memperkirakan per wadah dan kemudian menghitung jumlahnya.*	_____ IDR

No	Pertanyaan	Opsi Jawaban
Enumerator: Untuk D-2.4, bacakan pertanyaannya hanya sekali dan biarkan responden memperkirakan sendiri, lalu catat berapa kali (D-2.4.1) dan satuannya (D-2.4.2) (misalnya, dua kali per hari, lima kali per minggu, dll.)		
D-2.4	Dalam tujuh hari terakhir, seberapa sering Bapak/Ibu mengambil air dari sumber ini?	
D-2.4.1	Berapa kali *Enumerator: Jangan membaca dengan keras. Dengarkan dan catat saja*	___ kali
D-2.4.2	Per *Enumerator: Jangan membaca dengan keras. Dengarkan dan catat saja. Minta responden mengulang jika diperlukan.*	• Hari…1 • Minggu…2
D-2.5	Bagaimana perbandingan jumlah air yang Bapak/Ibu kumpulkan dari sumber ini antara rata-rata jumlah pengambilan dalam periode seven hari terakhir dengan pengambilan terakhir kali ?	• Jauh lebih sedikit dari perjalanan terakhir saya...1 • Sedikit kurang dari perjalanan terakhir saya...2 • Kurang lebih sama dengan perjalanan terakhir saya...3 • Sedikit lebih banyak dari perjalanan terakhir saya...4 • Jauh lebih banyak dari perjalanan terakhir saya...5
Enumerator: Untuk D-2.6, bacakan pertanyaannya hanya sekali dan biarkan responden memperkirakan sendiri, lalu catat berapa kali (D-2.6.1) dan satuannya (D-2.6.2) (misalnya, dua kali per hari, lima kali per minggu, empat kali per bulan, dll.)		
D-2.6	Seberapa sering Bapak/Ibu biasanya mengambil air dari sumber ini di musim hujan?	
D-2.6.1	Berapa kali *Enumerator: Jangan membaca dengan keras. Dengarkan dan catat saja*	___ kali
D-2.6.2	Per *Enumerator: Jangan membaca dengan keras. Dengarkan dan catat saja*	• Hari…1 • Minggu…2 • Bulan…3
D-2.7	Wadah penampung air apa saja yang Bapak/Ibu gunakan ketika mengambil air dari sumber ini di musim hujan? *Enumerator: Pilih semua yang berlaku. Jika pilihan jawaban tida ada yang sesuai, masukkan di "Lainnya", tapi minta responden untuk menyebutkan volume yang bisa ditampung wadah tersebut (misalnya, "ember 30 liter")*	• Botol…A • Galon…B • Ember…C • Jerigen…D • Bak/bak mandi…E • Drum plastik…F • Drum logam…G • Tangki besar/toren…H • Lainnya, sebutkan: _____...V

No	Pertanyaan	Opsi Jawaban
		• Tidak Tahu…Y • Menolak Menjawab…Z
Ulangi item D-2.7.1 untuk setiap wadah yang disebutkan dalam D-2.7.		
D-2.7a	Berapa kapasitas dari wadah penampung air yang digunakan saat pengambilan air di musim hujan ?	└─┴─┴─┘ mililiter … 1 └─┴─┴─┘ liter … 2
D-2.7.1	Berapa banyak wadah dari jenis ini yang Bapak/Ibu gunakan?	___ wadah
D-2.8	Berapa total biaya yang Bapak/Ibu habiskan untuk 1 kali pengambilan air dari sumber ini di musim hujan? *Enumerator: Masukkan 0 jika responden menyatakan tidak ada biaya untuk air dari sumber ini. Jika perlu, biarkan responden memperkirakan per wadah dan kemudian menghitung jumlahnya.*	_____ IDR
Enumerator: Untuk D-2.9, bacakan pertanyaannya hanya sekali dan biarkan responden memperkirakan sendiri, lalu catat berapa kali (D-2.9.1) dan satuannya (D-2.9.2) (misalnya, dua kali per hari, lima kali per minggu, empat kali per bulan, dll.)		
D-2.9	Seberapa sering Bapak/Ibu biasanya mengambil air dari sumber ini di musim kemarau?	
D-2.9.1	Berapa kali *Enumerator: Jangan membaca dengan keras. Dengarkan dan catat saja*	___ kali
D-2.9.2	Per *Enumerator: Jangan membaca dengan keras. Dengarkan dan catat saja*	• Hari…1 • Minggu…2 • Bulan…3
D-2.10	Wadah penampung air apa saja yang Bapak/Ibu gunakan ketika mengambil air dari sumber ini di musim kemarau? *Enumerator: Pilih semua yang berlaku. Jika pilihan jawaban tida ada yang sesuai, masukkan di "Lainnya", tapi minta responden untuk menyebutkan volume yang bisa ditampung wadah tersebut (misalnya, "ember 30 liter")*	• Botol…A • Galon…B • Ember…C • Jerigen…D • Bak/bak mandi…E • Drum plastik…F • Drum logam…G • Tangki besar/toren…H • Lainnya, sebutkan: _____...V • Tidak Tahu…Y • Menolak Menjawab…Z

No	Pertanyaan	Opsi Jawaban
Ulangi butir D-2.10.1 untuk setiap wadah yang disebutkan dalam D-2.10.		
D-2.10a	Berapa kapasitas dari wadah penampung air yang digunakan saat pengambilan air di musim kemarau ?	└┴┴┴┘ mililiter … 1 └┴┴┴┘ liter … 2
D-2.10.1	Berapa banyak wadah dari jenis ini yang Bapak/Ibu gunakan?	___ wadah
D-2.11	Berapa total biaya yang Bapak/Ibu habiskan untuk 1 kali pengambilan air dari sumber ini di musim kemarau? *Enumerator: Masukkan 0 jika responden menyatakan tidak ada biaya untuk air dari sumber ini. Jika perlu, biarkan responden memperkirakan per wadah dan kemudian menghitung jumlahnya.*	_____ IDR

PENYIMPANAN DAN PENGOLAHAN AIR

Enumerator membaca dengan keras: Sekarang saya akan mengajukan beberapa pertanyaan yang berkaitan dengan penyimpanan dan pengolahan air di rumah tangga Bapak/Ibu.

No	Pertanyaan	Opsi Jawaban
E-1	Apakah Bapak/Ibu menyimpan air di rumah ini?	• Ya…1 • Tidak…0 [Loncat ke E-5] • Tidak tahu…-98 [Loncat ke E-5]
E-2	Wadah apa saja yang Bapak/Ibu gunakan untuk menyimpan air di rumah ini?	• Botol…A • Galon…B • Ember…C • Jerigen…D • Bak/bak mandi…E • Drum plastik…F • Drum logam…G • Tangki besar/toren…H • Cadangan air tanah…I • Lainnya, sebutkan: _____...V • Tidak Tahu…Y • Menolak Menjawab…Z
Ulangi E-2.1 sampai E-2.3.1.2 untuk setiap wadah penyimpanan yang dipilih dalam E-2		
E-2.1	Berapa banyak dari wadah penyimpanan ini yang digunakan di rumah Bapak/Ibu?	___ wadah
E-2.2.1	Berapa daya tampung total dari wadah-wadah ini?	_____ liter
Untuk E.2.3.1 dan E-2.3.2, biarkan responden memperkirakan sendiri, kemudian catat berapa kali (E.2.3.1) dan satuannya (E-2.3.2) (misalnya, dua kali per hari, lima kali per minggu, dll.)		
E-2.3.1	Seberapa sering Bapak/Ibu biasanya mengisi ulang wadah jenis ini?	
E-2.3.1.1	Berapa kali *Enumerator: Jangan membaca keras-keras, dengarkan dan rekam saja*	_____ kali

No	Pertanyaan	Opsi Jawaban
E-2.3.1.2	Per *Enumerator: Jangan membaca keras-keras, dengarkan dan rekam saja*	• Hari…1 • Minggu…2 • Bulan…3 • Tahun…4
E-2.4	Dalam tiga puluh hari terakhir, apakah Bapak/Ibu pernah tidak dapat menyimpan air yang cukup untuk memenuhi kebutuhan Bapak/Ibu?	• Ya…1 • Tidak…0
E-3	Dari seluruh wadah penyimpanan air yang Bapak/Ibu gunakan di rumah, apakah ada yang digunakan untuk menyimpan air minum?	• Ya...1 • Tidak...0 [Loncat ke E-5]
E-3a	Apa jenis wadah yang digunakan untuk menyimpan air minum ?	• Botol…A • Galon…B • Ember…C • Jerigen…D • Bak/bak mandi…E • Drum plastik…F • Drum logam…G • Tangki besar/toren…H • Cadangan air tanah…I • Lainnya, sebutkan: _____...V • Tidak Tahu…Y • Menolak Menjawab…Z
E-4 – E-4.5 harus diperbarui secara dinamis untuk setiap wadah yang disebutkan di E-3a		
E-4	Bolehkah saya melihat wadah yang digunakan untuk menyimpan air minum di rumah tangga?	• Ya...1 • Tidak...0 [Loncat ke E-5]
E-4.1	Apakah wadah ini HANYA digunakan untuk menyimpan air minum?	• Ya, hanya untuk air minum...1 • Tidak, untuk tujuan lain juga...0
E-4.2	Apakah wadah ini memiliki mulut yang lebar atau sempit? *Enumerator: Jangan membaca dengan keras. Amati dan catat saja.*	• Sempit (<10cm)...1 • Lebar (>=10cm)...0 • Tidak berlaku/tidak ada mulut...-97
E-4.3	Apakah wadah ini memiliki keran? *Enumerator: Jangan membaca dengan keras. Amati dan catat saja.*	• Ya...1 • Tidak...0

No	Pertanyaan	Opsi Jawaban
E-4.4	Apakah wadah ini memiliki tutup atau penutup yang pas? *Enumerator: Jangan membaca dengan keras. Amati dan catat saja.*	• Ya...1 • Tidak...0
E-4.5	Apakah wadah ini merupakan wadah yang memiliki filter/saringan tertutup dengan keran? *Enumerator: Jangan membaca dengan keras. Amati dan catat saja.*	• Ya...1 • Tidak...0
E-5	Apakah Bapak/Ibu atau anggota rumah tangga lain biasanya melakukan sesuatu pada air minum untuk membuatnya lebih aman untuk diminum?	• Ya...1 • Tidak...0 [Loncat ke Modul F] • Tidak tahu…-98 [Loncat ke Modul F]
E-6	Apa yang biasanya Bapak/Ibu lakukan pada air untuk membuatnya lebih aman untuk diminum?	• Direbus...1 • Ditambahkan pemutih/klorin...2 • Disaring menggunakan kain...3 • Menggunakan filter air (keramik, pasir, komposit, reverse osmosis, membran, tabung filter, dll.)...4 • Didesinfeksi di sinar matahari...5 • Didiamkan dan diendapkan...6 • Lainnya, sebutkan (_____)...-96 • Tidak tahu…-98

PENGALAMAN KERAWANAN AIR

Enumerator membaca dengan keras: Sekarang saya akan mengajukan beberapa pertanyaan tentang efek yang ditimbulkan oleh ketersediaan air di rumah terhadap Bapak/Ibu atau anggota rumah tangga lainnya selama 4 minggu terakhir.

No	Pertanyaan	Opsi Jawaban
F-1	Dalam 30 hari terakhir, seberapa sering Bapak/Ibu atau anggota rumah tangga lainnya merasa khawatir tidak akan memiliki cukup air untuk semua kebutuhan rumah tangga Bapak/Ibu?	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-2	Dalam 30 hari terakhir, seberapa sering sumber air utama Bapak/Ibu terganggu atau terbatas (misalnya, tekanan air lemah/kecil, air lebih sedikit dari yang diharapkan, sungai mengering)?	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-3	Dalam 30 hari terakhir, seberapa sering Bapak/Ibu atau anggota rumah tangga lainnya bermasalah dengan air sehingga menyebabkan pakaian tidak bisa dicuci?	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-4	Dalam 30 hari terakhir, seberapa sering Bapak/Ibu atau anggota rumah tangga lainnya harus mengubah jadwal atau rencana karena bermasalah dengan situasi air di rumah? (Kegiatan yang mungkin terganggu termasuk merawat orang lain, melakukan pekerjaan rumah tangga, pekerjaan pertanian, kegiatan yang menghasilkan pendapatan, dll.)	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-5	Dalam 30 hari terakhir, seberapa sering Bapak/Ibu atau anggota rumah tangga lainnya harus mengubah apa yang dimakan karena bermasalah dengan air yang digunakan untuk mencuci makanan, memasak, dll.)?	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-6	Dalam 30 hari terakhir, seberapa sering Bapak/Ibu atau anggota rumah tangga lainnya bermasalah dengan air sehingga harus pergi tanpa mencuci tangan	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3

No	Pertanyaan	Opsi Jawaban
	setelah melakukan kegiatan kotor (misalnya, buang air besar atau mengganti popok, membersihkan kotoran hewan?	• Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-7	Dalam 30 hari terakhir, seberapa sering Bapak/Ibu atau anggota rumah tangga lainnya harus pergi tanpa mandi atau membersihkan tubuh karena masalah dengan air (misalnya, tidak cukup air, kotor, tidak aman)?	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-8	Dalam 30 hari terakhir, seberapa sering Bapak/Ibu atau anggota rumah tangga lainnya tidak mendapatkan air minum sebanyak yang diinginkan?	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-9	Dalam 30 hari terakhir, seberapa sering Bapak/Ibu atau anggota rumah tangga lainnya merasa marah tentang situasi air di rumah?	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-10	Dalam 30 hari terakhir, seberapa sering Bapak/Ibu atau anggota rumah tangga lainnya tidur dalam keadaan haus karena tidak ada air untuk diminum?	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-11	Dalam 30 hari terakhir, seberapa sering tidak ada air yang dapat digunakan atau diminum di rumah tangga Bapak/Ibu?	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5
F-12	Dalam 30 hari terakhir, seberapa sering masalah air menyebabkan Bapak/Ibu atau siapa pun di rumah tangga Bapak/Ibu merasa malu / dikucilkan / distigmatisasi?	• Tidak pernah (0 hari)...1 • Jarang (1-2 hari)...2 • Kadang-kadang (3-10 hari)...3 • Sering (11-20 hari)...4 • Hampir selalu (lebih dari 20 hari)...5

No	Pertanyaan	Opsi Jawaban
F-13	Apakah selama 12 bulan terakhir ini, pengeluaran untuk air telah menyebabkan Bapak/Ibu mengurangi pengeluaran untuk kebutuhan rumah tangga lainnya?	• Ya…1 • Tidak…0
F-14	Apakah selama 12 bulan terakhir ini, Bapak/Ibu pernah berhutang untuk membayar air?	• Ya…1 • Tidak…0
F-15	Apakah Bapak/Ibu akan mengonsumsi lebih banyak air jika Bapak/Ibu mampu membelinya?	• Ya…1 • Tidak…0

INFORMASI RUMAH TANGGA DAN STATUS EKONOMI

Enumerator membaca dengan keras: Terima kasih atas semua tanggapan Bapak/Ibu sejauh ini, kami hampir selesai. Sekarang saya akan menanyakan beberapa pertanyaan tentang karakteristik rumah tangga dan barang-barang milik anggota rumah tangga Bapak/Ibu.

No	Pertanyaan	Opsi Jawaban
G-1	Bagaimana status kepemilikan rumah ini?	• Milik sendiri…1 • Sewa…2 • Menempati… 3 • Tidak Tahu… 98
G-2.1	Berapa banyak kamar di rumah tangga ini yang digunakan untuk tidur?	___ kamar
G-2.2	Apakah Bapak/Ibu memiliki ruangan terpisah yang digunakan sebagai dapur?	• Ya…1 • Tidak…0
G-3	Manakah dari barang-barang berikut ini yang dimiliki rumah tangga Bapak/Ibu? *Enumerator: Bacalah pilihan jawaban dengan keras dan pilih semua yang berlaku*	• Listrik? • Radio yang berfungsi? • Televisi yang berfungsi? • Telepon tetap yang berfungsi? • Komputer yang berfungsi? • Kulkas yang berfungsi? • Kipas angin yang berfungsi? • Mesin cuci yang berfungsi? • Pendingin ruangan yang berfungsi?
G-4	Manakah barang-barang berikut ini yang dimiliki oleh salah satu anggota rumah tangga Bapak/Ibu? *Enumerator: Bacalah pilihan jawaban dengan keras dan pilih semua yang berlaku*	• Jam tangan yang berfungsi? • Telepon seluler yang berfungsi? • Sepeda yang berfungsi? • Sepeda motor atau skuter motor yang berfungsi? • Gerobak yang ditarik hewan yang berfungsi? • Mobil atau truk yang berfungsi? • Perahu yang berfungsi dengan motor?
G-5	Apakah ada anggota rumah tangga yang memiliki rekening bank atau rekening di koperasi?	• Ya…1 • Tidak…0
G-6	Berapa perkiraan total pengeluaran rumah tangga bulanan Bapak/Ibu?.	• Kurang dari Rp. 1.700.000 per bulan…1 • Rp. 1.700.000 – Rp. 2.300.000 per bulan…2 • RP. 2.300.000 – Rp. 2.800.000 per bulan…3 • RP. 2.800.000 – Rp. 3.400.000 per bulan…4 • RP. 3.400.000 – Rp. 4.000.000 per bulan…5

No	Pertanyaan	Opsi Jawaban
		• RP. 4.000.000 – Rp. 4.700.000 per bulan…6 • RP. 4.700.000 – Rp. 5.700.000 per bulan…7 • RP. 5.700.000 – Rp. 7.100.000 per bulan…8 • RP. 7.100.000 – Rp. 10.000.000 per bulan…9 • Lebih dari Rp. 10.000.000 per bulan…10 • Tidak tahu …-98 • Menolak Menjawab…-99
G-7	Sekarang saya akan bertanya tentang sanitasi dan kebersihan di rumah tangga Bapak/Ibu. Fasilitas toilet seperti apa yang biasanya digunakan oleh anggota rumah tangga Bapak/Ibu? *Jika 'Siram' atau 'Tuang siram', selidiki: Ke mana arah pembuangannya?* *Jika tidak memungkinkan untuk menentukan, mintalah izin untuk mengamati fasilitas tersebut.*	• Siram ke sistem saluran pembuangan perpipaan...1 • Siram ke tangki septik...2 • Siram ke jamban lubang...3 • Siram ke saluran pembuangan terbuka...4 • Siram ke tidak tahu di mana...5 • Jamban lubang dengan slab...6 • Jamban tanpa lempengan/jamban terbuka...7 • Jamban kembar dengan slab...8 • Jamban kembar tanpa slab...9 • Jamban kompos lainnya...10 • Ember...11 • Sanitasi berbasis kontainer...12 • Toilet gantung/latrine...13 • Tidak ada fasilitas/semak/ladang...14 • Lainnya, sebutkan (_____)...-96
G-7.1	Apakah anggota rumah tangga Bapak/Ibu berbagi fasilitas ini dengan orang lain yang bukan anggota rumah tangga Bapak/Ibu?	• Ya…1 • Tidak…0 [Hanya relevan jika G-7 tidak sama dengan 14]
G-7.2	Di mana fasilitas toilet ini berada?	• Di tempat tinggal sendiri • Di halaman/pekarangan • Di tempat lain [Hanya relevan jika G-7 tidak sama dengan 14]
G-7.3.1	Apakah (jamban atau tangki septik) Bapak/Ibu pernah dikuras/dikosongkan?	• Ya, dikosongkan...1 • Tidak pernah dikosongkan...0 • Tidak tahu …-98

No	Pertanyaan	Opsi Jawaban
G-7.3.2	Terakhir kali dikuras/dikosongkan, ke mana pembuangan isinya?	*Selidiki jika perlu: Apakah itu dipindahkan oleh penyedia layanan? Jika ya, ke mana penyedia layanan mengambilnya?* • Dipindahkan oleh penyedia layanan ke instalasi pengolahan...1 • Dipindahkan oleh penyedia layanan dan dikubur di lubang tertutup...2 • Dibuang oleh penyedia layanan ke tempat yang tidak tahu di mana...3 • Dikosongkan oleh rumah tangga dan dikubur di lubang tertutup...4 • Dikosongkan oleh rumah tangga ke lubang yang tidak tertutup, tanah terbuka, badan air, atau di tempat lain...5 • Lainnya, sebutkan (_____)…-96
G-7.4	AMATI DAN PERKIRAKAN JARAK DALAM METER ANTARA SUMUR YANG DIGUNAKAN UNTUK AIR MINUM DAN FASILITAS SANITASI (TANGKI SEPTIK ATAU LUBANG PEMBUANGAN JAMBAN) TERDEKAT *ENUMERATOR: JANGAN MEMBACAKAN KEPADA RESPONDEN, AMATI DAN CATAT SAJA*	___ meter [Hanya relevan jika sumur dipilih di antara sumber-sumber yang digunakan untuk minum dalam modul C dan G-7 adalah tangki septik, jamban, atau lubang]
G-8	Dapatkah Bapak/Ibu menunjukkan di mana anggota rumah tangga Bapak/Ibu paling sering mencuci tangan? *Petugas: Jika perlu, klarifikasi bahwa ini adalah mencuci tangan untuk tujuan selain wudhu*	• Fasilitas tetap (wastafel/kran) di tempat tinggal...1 • Fasilitas tetap (wastafel/kran) di halaman/pekarangan...2 • Benda bergerak (ember/kendi/ketel)...3 • Tidak ada tempat cuci tangan di tempat tinggal...4 • Tidak ada izin untuk melihat …5 [Loncat ke Modul H] • Lainnya, sebutkan (_____)…-96 • Tidak Tahu …-98 [Loncat ke Modul H]
G-9.1	*Enumerator: Amati dan catat apakah air tersedia di lokasi cuci tangan*	• Ya…1 • Tidak…0
G-9.2	*Enumerator: Amati dan catat apakah sabun atau deterjen tersedia di tempat untuk mencuci tangan* *Sabun termasuk sabun batangan, sabun cair, deterjen bubuk dan air sabun. Abu, tanah, atau pasir tidak dihitung sebagai sabun atau deterjen.*	• Ya, diamati …1 • Tidak, tidak diamati …3 [Loncat ke Modul H]

PENGUJIAN KUALITAS AIR

[Modul ini hanya akan diberikan untuk sub-sampel dari lima rumah tangga per lingkungan yang dipilih untuk pengujian. Rumah tangga yang tidak terpilih akan melanjutkan ke Modul I]

No	Pertanyaan	Opsi Jawaban
Hx	**APAKAH RUMAH TANGGA INI TERPILIH SEBAGAI SAMPEL UJI KUALITAS AIR**	• Ya…1 • Tidak…0 [Lompat ke Modul I]
	Pada beberapa rumah tangga yang kami wawancarai untuk studi ini, kami juga menguji kualitas air minum rumah tangga. Rumah tangga Bapak/Ibu telah dipilih secara acak untuk pengujian mutu air minum. Pengujian ini memerlukan dua sampel kecil air dari rumah tangga Bapak/Ibu. Pengujian ini memerlukan waktu sekitar satu hingga dua hari untuk menafsirkannya, jadi kami tidak akan mengetahui hasilnya hari ini. Pada saat hasil pengujian diketahui, kualitas dari air dari rumah tangga Bapak/Ibu mungkin sajaa telah berubah, jadi kami tidak berencana untuk membagikan hasilnya dengan responden. Jika Bapak/Ibu memiliki pertanyaan tentang kualitas dari air minum yang diminum rumah tangga ini, Bapak/Ibu sebaiknya menghubungi Puskesmas atau Dinas Kesehatan setempat	
H-1	Proses pengambilan sampel air Anda akan memakan waktu sekitar 5 menit. Pengujian ini akan memberi tahu apakah air tersebut aman untuk diminum berdasarkan ada atau tidaknya bakteri E. coli. Kami akan menganalisis hasil sampel dari rumah tangga Anda bersama dengan hasil dari rumah tangga lain di kota dan kabupaten di seluruh Indonesia untuk mengetahui mutu air rumah tangga di perkotaan seperti kota/kabupaten ini. Anda bebas untuk menolak berpartisipasi dan bebas untuk mengajukan pertanyaan sebelum memberikan persetujuan, atau setiap saat selama proses berlangsung. Apakah Bapak/Ibu memberikan izin kepada saya untuk memulai proses pengujian mutu air sekarang? *Enumerator – jika rumah tangga ini tidak menyetujui, segera beri tahu supervisor Anda untuk mengganti rumah tangga ini dengan pengujian di rumah tangga lain di lingkungan ini.*	• Ya…1 • Tidak…0 [Lompat ke Modul I]

No	Pertanyaan	Opsi Jawaban
H-2.1	Pertama, saya akan mengambil sampel air langsung dari sumber air minum utama yang biasa digunakan rumah tangga Bapak/Ibu. Apakah waktu perjalanan pulang-pergi yang dibutuhkan untuk menuju sumber air minum utama tersebut dari rumah Bapak/Ibu adalah sekitar 15 menit? PETUNJUK PEWAWANCARA : JIKA SUMBER AIR MINUM UTAMA ADALAH AIR KEMASAN ATAU AIR SACHET (C1 = 14 ATAU 15), MAKA YANG AKAN DIAMBIL SAMPEL AIRNYA ADALAH SUMBER AIR MINUM ALTERNATIF SEPERTI YANG DISEBUTKAN DALAM C-2	*Ikuti instruksi dari pedoman pengujian mutu air untuk mengambil sampel. Tunjukkan apakah sampel diambil sesuai dengan instruksi pada pedoman.* Pastikan sampel diambil sesuai dengan instruksi dalam pedoman dengan ID rumah tangga yang tertulis pada sampel
H-2.2	Apakah sumber air minum utama tersebut bisa dikunjungi hari ini untuk diambil sampel airnya?	• Ya…1 • Tidak…0
H-2.3	Mohon tunjukkan saya sumberair minum yang digunakan rumah tangga Ibu/Bpk. Saya mungkin peerlu untuk membuka keran sebentar sebelum mengambil sampel air. PETUNJUK PEWAWANCARA: JIKA SUMBER AIR MINUM UTAMA ADALAH SUMBER PERPIPAAN, MINTA UNTUK MENGAMBIL SAMPEL AIR DARI KERAN YANG PALING DEKAT DENGAN METERAN AIR	KUTI PETUNJUK DARI MANUAL PENGUJIAN KUALITAS AIR DALAM MENGAMBIL SAMPEL UNTUK PENGUJIAN KEHADIRAN/KETIDAKHADIRAN. TUNJUKKAN BAHWA SAMPEL YANG DIAMBIL SUDAH SESUAI DENGAN INSTRUKSI DI MANUAL • SAMPEL YANG DIAMBIL SUDAH SESUAI INSTRUKSI MANUAL… 1 • SAMPEL TIDAK DIAMBIL…2 [LOMPAT KE H-2.4]
Pertanyaan H-2.3 hingga H-2.3.3 akan diisi sebagai formulir elektronik terpisah setelah sampel diinkubasi dan siap untuk dilakukan interpretasi. Kegiatan ini tidak akan dilakukan di rumah tangga responden. Survei yang dilakukan di rumah tangga akan dilanjutkan dari H-2.2 hingga H-3 ertanyaan H-2.3 hingga H-2.3.3 akan diisi sebagai formulir elektronik terpisah setelah sampel diinkubasi dan siap untuk dilakukan interpretasi. Kegiatan ni tidak akan dilakukan di rumah tangga responden. Survei yang dilakukan di rumah tangga akan dilanjutkan dari H-2.2 hingga H-3		
H-2.3.1	ENUMERATOR; MASUKKAN TANGGAL DAN JAM SAAT PENGAMBILAN SAMPEL	KODE ANGKA TERDIRI DARI 8 DIGIT ANGKA
H-2.4	Apakah saya bisa datang kembali di lain waktu untuk mengambil sampel air dari sumber ini?	• Ya… 1 • Tidak… 0 [LOMPAT KE H-3.1]

No	Pertanyaan	Opsi Jawaban
H-2.4.1	MASUKKAN TANGGAL HASIL PENJADWALAN ULANG	• __/__/__ __:__ [RELEVAN HANYA JIKA AIR DARI SUMBER INI TIDAK TERSEDIA SAAT WAWANCARA DILAKUKAN]
H-3.1	Sekarang Saya akan mengambil sampel dari air yang biasanya Ibu/Bpk minum. Bisakah Ibu/Bpk memberikan saya segelas air minum yang baiasa diminum oleh Ibu/Bpk atau anggota rumah tangga lainnya?	• SAMPEL YANG DIAMBIL SUDAH SESUAI INSTRUKSI MANUAL… 1 • SAMPEL TIDAK DIAMBIL…2 [LOMPAT KE MODUL I]
H-3.1.1	ENUMERATOR : MASUKKAN TANGGAL DAN JAM PENGAMBILAN SAMPEL	• __/__/__ __:__
H-3.1.2	ENUMERATOR : ENUMERATOR : MASUKKAN KODE ANGKA DALAM LABEL YANG TERDAPAT DI KANTONG SAMPEL	
H-3.2	Apakah Anda atau anggota rumah tangga lain melakukan sesuatu terhadap air ini agar aman untuk diminum? *Enumerator: pertanyaan ini merujuk secara khusus pada setiap pengolahan yang dilakukan terhadap segelas air yang akan diuji, bukan kebiasaan umum di rumah Anda.*	• Ya…1 • Tidak…0 [Lompat ke Modul I] • Tidak Tahu…-98 [Lompat keModul I]
H-3.3	Apa yang Anda lakukan untuk membuat air aman untuk diminum?	• Merebus…1 • Menambahkan pemutih/klorin…2 • Menggunakan kain untuk menyaring…3 • Menggunakan filter air (keramik, pasir, komposit, osmosis terbalik, membran, tabung, dll.)…4 • Desinfeksi matahari…5 • Mendiamkan air…6 • Lainnya, sebutkan (_____)…-96 • Tidak tahu…-98

KESIMPULAN DAN DISPOSISI KASUS

Enumerator membaca dengan keras: Wawancara sekarang sudah selesai. Terima kasih banyak atas waktu dan tanggapan Bapak/Ibu. Jika ada pertanyaan, silakan hubungi Article 33 di 0878 7578 2721.

No	Pertanyaan	Opsi Jawaban
Enumerator: Semua pertanyaan ini harus diisi setelah membubarkan responden tetapi sebelum meninggalkan rumah tangga. Tidak satu pun dari pertanyaan-pertanyaan ini harus dibacakan.		
I-1	Apa status akhir dari wawancara ini?	• Wawancara lengkap...1 • Wawancara sebagian (kunjungan ulang)...2 • Wawancara sebagian (tidak ada kunjungan ulang)...3 • Penolakan...4 • Non-kontak, tidak dapat mengakses unit rumah...6 • Non-kontak, tidak ada orang di tempat tinggal...7 • Non-kontak, responden tidak ada di tempat tinggal...8 • Tidak diketahui apakah unit rumah...9 • Tidak diketahui apakah responden yang memenuhi syarat hadir...10 • Di luar sampel...11 • Bukan unit rumah...12 • Unit rumah yang tidak dihuni...13 • Lainnya, sebutkan (_____)…-96
I-2.1	Menurut Bapak/Ibu, apakah responden kooperatif dan terlibat?	• Ya…1 [Loncat ke I-3.1] • Tidak…0
I-2.2	Tolong jelaskan	_____
I-3.1	Menurut Bapak/Ibu, apakah responden menjawab pertanyaan dengan jujur dan akurat sesuai kemampuan mereka?	• Ya…1 [Loncat ke I-4.1] • Tidak…0
I-3.2	Tolong jelaskan, termasuk modul atau pertanyaan apa pun yang menurut Bapak/Ibu mungkin tidak akurat	_____
I-4.1	Apakah ada orang lain selain responden yang hadir selama wawancara?	• Ya…1 [Loncat ke I-5.1] • Tidak…0
I-4.2	Siapa yang hadir?	• ART, sebutkan _____…1 • Bukan ART…0

No	Pertanyaan	Opsi Jawaban
I-5.1	Apakah responden berkonsultasi dengan orang lain untuk menjawab pertanyaan?	• Ya…1 [Loncat ke I-6.1] • Tidak…0
I-5.2	Siapa yang mereka konsultasikan?	• ART, sebutkan _____…1 • Bukan ART…0

HOUSEHOLD SURVEY - ENGLISH

0. INTERVIEW INFORMATION

No	Question Text	Response Options		
0-1	Interviewer name	_____		
		B. Visit 1	**C.** Visit 2	**D.** Visit 3
0-2	Visiting Date	└┴┘/ └┴┘/└┴┘	└┴┘/ └┴┘/└┴┘	└┴┘/ └┴┘/└┴┘
0-3	Visiting Time	└┴┘/ └┴┘	└┴┘/ └┴┘	└┴┘/ └┴┘
0-4	GPS Longitude			
0-5	GPS Latitude			
0-6	Does the dwelling appear to be currently occupied? (not an empty house)?	• Yes...1 • No...0 → **Column B** • Don't know...-98	• Yes...1 • No...0 → **Column C** • Don't know...-98	• Yes... 1 • No... 0 → **Module 1** • Don't know...-98
0-7	Is there anyone present in the dwelling?	• Yes...1 • No...0→ **Column B**	• Yes...1 • No...0→ **Column C**	• Yes... 1 • No... 0→ **Module 1**
0-8	Can I talk to the household member who is most knowledgeable regarding your household's water collection and usage?	• Yes...1 • No...0 → **Column B**	• Yes...1 • No...0 → **Column C**	• Yes... 1 • No... 0 → **Module 1**

A. CONSENT AND HOUSEHOLD INFORMATION

No	Question Text	Response Options
A-1 (consent)	My name is [Interviewer Name] and I work with Article 33, an Indonesian social research institute. We are surveying households in your neighborhood and other urban neighborhoods in Indonesia to learn about the sources of water your household uses and the ways that your household members use water. Our study is funded by the United States Agency for International Development or USAID, a US government agency that assists Indonesia's development projects, and is being carried out by NORC at the University of Chicago, Tetra Tech ARD, and Article 33 Indonesia. Our study is further supported by Bappenas and the Ministry of Public Works and Housing. We are interviewing you and about 1600 other households. Your household was selected randomly from among the households residing in this neighborhood. This interview is expected to take about one hour. Any information you provide that can identify you will be kept strictly confidential by those conducting this study. Researchers will use data for statistical analysis purposes only. The study will not publish any information about you or your household members personally. Your participation is voluntary and you may choose not to answer any or all questions for any reason. You can choose not to participate without any consequences. We anticipate no risks if you participate. You will also not receive any benefits or compensation for participating, aside from a small courtesy gift. Your answers will not affect your relationship with the utility [insert local utility name], or access to water in any way, so feel free to share your honest opinions. If you have any questions, concerns, or complaints about the study or your rights as a participant, you may contact [INSERT ARTICLE 33 CONTACT NAME AND DETAILS]. If you have any questions for me, please feel free to ask at any time during the interview.	
A-2	In just a few words, please describe your understanding of the purpose of the interview today and confirm who you will contact if you have any questions.	_____
A-3	Do you have any questions about the study at this time?	*Enumerator: Respond to any questions, if there are any* • Yes...1 • No...0
A-4	Do you agree to participate?	• Yes...1 • No...0 → **Module I**
A-5	May I record part of this interview strictly for quality control purposes?	• Yes...1 • No...0
A-6	May I contact you after this interview if we find that some information is missing or must be confirmed?	• Yes...1 • No...0
A-7	Respondent Name	_____
A-8	Address	_____
A-9	Province	• North Sumatra…12 • West Java…32 • Central Java…33 • East Java…35

No	Question Text	Response Options
		• Banten…36 • South Sulawesi…73
A-10	Kabupaten/Kota	*Options populate based on Province*
A-11	Kecamatan	*Options populate based on Kabupaten/Kota*
A-12	Kelurahan	*Options populate based on Kelurahan*
A-13	RW #	⌊__⌋⌊__⌋
A-14	RT #	⌊__⌋⌊__⌋
A-15	Do you have a home phone?	_____
A-16	Respondent Phone Number (home)	_____
A-17	Do you have a mobile phone/cellphone?	_____
A-18	Respondent's Phone Number (mobile)	_____
A-19	Do you have a Family Card (*kartu keluarga*)	• Yes...1 • No...0
A-20	Is the address in kartu keluarga the same as the current home/residential address?	• Yes...1 • No...0
A-21	*Enumerator instructions:* *Observe the main material used as a floor in this house. Confirm with the respondent if it is not clear.*	• Marble/granite ...1 • Ceramics...2 • Parquet/vinyl/carpet ...3 • Tiles/tiles/terrazzo...4 • Wood/boards...5 • Cement / red brick...6 • Bamboo...7 • Soil...8 • Others, specify (_____)...-96
A-22	*Enumerator instructions:* *Observe the main material used as a roof in this house. Confirm with the respondent if it is not clear.*	• Concrete... 1 • Tile... 2 • Zinc... 3 • Asbestos... 4 • Bamboo... 5 • Wood/shingles... 6 • Straw/ijuk/leaves/rumbia... 7 • Others, specify (_____)...-96
A-23	*Enumerator instructions:* *Observe the main material used as a wall in this house. Confirm with the respondent if it is not clear.*	• Wall... 1 • Bamboo/wire matting stucco... 2 • Wood/boards... 3 • Woven bamboo... 4

No	Question Text	Response Options
		• Wooden bars... 5 • Bamboo... 6 • Others, specify (_____)...-96
A-24	*Enumerator instructions:* *Observe and record the type of street access to the respondent's home.*	• Alleys/earthen passages/gravel... 1 • Dirt/gravel roads... 2 • Paved road... 3 • Paving block road... 4 • Not alleys/alleys or streets... 5 • Others, specify (_____)...-96

B. HOUSEHOLD ROSTER

Enumerator read aloud: *I will ask a few questions about the people who usually live in this house and manage household expenses together for the past six months.*

No	Question Text	Response Options
B-1a	How many members are in your household?	⌊_⌊_⌋
B-1	Please share the full name of the head of household.	_____
B-1.1	Head of household gender	• Woman...1 • Man...0 • Others, specify (_____)...-96
B-1.2	How old is the head of the household? *Enumerator instructions: If the respondent does not know, calculate the age based on the estimated year of birth.*	⌊_⌊_⌊_⌋ [Limit value 0-120]
B-1.3	Head of household marital status	• Never married and never lived together...1 • Married...2 • Living together...3 • Divorce...4 • Separated...5 • Widowed...6 • Refused to answer...-99
B-1.4	Head of household highest education completed	• Not attending school/not finished primary school (Sekolah Dasar/SD)...0 • Primary School (Sekolah Dasar/SD)...1 • Junior High School (Sekolah Menengah Pertama/SMP) or equivalent...2 • High School (Sekolah Menengah Atas/SMA)…3 • Vocational school (Sekolah Menengah Kejuruan/SMK)...4 • University education (S1)...5 • Post-graduate education...6
B-1.5	Of the following activities, which did HoH spend most time on in **the past 30 days?**	• Work...1 • School...2 ⇨ **B-2** • Taking care of the household...3 ⇨ **B-2** • Children under the age of 5 years (Toddlers)/Play...4 ⇨ **B-2** • Other, specify (_____)...-96 ⇨ **B-2**
B-1.6	Head of household primary occupation	• Professional, scientific and technical workers...1 • Workers in agriculture, plantations and forestry...2 • Workers in animal husbandry and fisheries...3 • Workers in the field of mining and quarrying...4 • Workers in the processing and manufacturing industries...5 • Workers in large, medium and small trade fields...6 • Workers in financial services and services, banking and insurance...7 • Workers in the field of services and services Education...8

No	Question Text	Response Options
		• Workers in the field of health services and services...9 • Workers in the fields of transportation, warehousing and delivery/expedition...10 • Workers in construction...11 • Workers in the arts, entertainment and leisure...12 • Workers in the religious field...13 • Workers in government/military/police agencies...14 • Other, specify (_____)...-96
Items B-2 through B-2.7 should be repeated for each household member		
B-2	Household member name	_____
B-2.1	Household member relationship to head of household	• Spouse...1 • Child...2 • Daughter-in-law...3 • Grandchild...4 • Parents...5 • In-laws...6 • Sibling...7 • Other relatives...8 • Adopted Children/Foster Children... 9 • Stepchild...10 • No relationship...11 • Don't know...-98
B-2.2	Household member gender	• Woman...1 • Man...2 • Other, specify (_____)...-96
B-2.3	Household member age	└┴┴┘ [Limit value 0-120]
B-2.4	Household member marital status	• Never married and never lived together...1 • Married...2 • Living together...3 • Divorced...4 • Separated...5 • Widowed...6 • Refused...-99
B-2.5	Household member highest education completed	• Not attending school/not finished primary school (Sekolah Dasar/SD)...0 • Primary School (Sekolah Dasar/SD)...1 • Junior High School (Sekolah Menengah Pertama/SMP) or equivalent...2 • High School (Sekolah Menengah Atas/SMA)…3 • Vocational school (Sekolah Menengah Kejuruan/SMK)...4 • University education (S1)...5 • Post-graduate education...6

No	Question Text	Response Options
B-2.6	Of the following activities, which did household member spend most time on **in the past 30 days?**	• Work...1 • School...2 **next household member** • Taking care of the household...3 **next household member** • Children under the age of 5 years (Toddlers)/Play...4 **next household member** • Other, specify (_____)...-96 **next household member**
B-2.7	Household member primary occupation	• Professional, scientific and technical workers...1 • Workers in agriculture, plantations and forestry...2 • Workers in animal husbandry and fisheries...3 • Workers in the field of mining and quarrying...4 • Workers in the processing and manufacturing industries...5 • Workers in large, medium and small trade fields...6 • Workers in financial services and services, banking and insurance...7 • Workers in the field of services and services Education...8 • Workers in the field of health services and services...9 • Workers in the fields of transportation, warehousing and delivery/expedition...10 • Workers in construction...11 • Workers in the arts, entertainment and leisure...12 • Workers in the religious field...13 • Workers in government/military/police agencies...14 • Other, specify (_____)...-96

C. WATER SOURCES

Enumerator read aloud: *Now I will ask some questions regarding the sources that your household uses throughout the year to access water.*

No	Question Text	Response Options
C-1	What is the **main source of drinking water** for members of your household?	• Piped water into dwelling...1 **C-1.3** • Piped into compound, yard, or plot...2 **C-1.3** • Piped to neighbor...3 • Public tap / standpipe...4 • Borehole or tubewell...5 • Protected well...6 • Unprotected well...7 • Protected spring...8 • Unprotected spring...9 • Rainwater collection...10 • Tanker-truck...11 • Cart with small tank / drum...12 • Water kiosk...13 • Bottled water...14 • Sachet water...15 • Surface water (river, stream, dam, lake, pond, canal, irrigation channel)...16 • Other, specify (_____)...-96
C-1.1	Where is this water collected from?	• Inside the house... 1 **C-1a** • In the yard or yard of the house... 2 **C-1a** • Another place outside the house complex... 3
C-1.2	How long does it take to go to this source, collect water, and come back?	└┴┴┘ minutes
C-1a	In addition to drinking, for which purpose(s) does your household use this source?	• Cooking…A • Bathing/washing hands or other body parts…B • Cleaning the house, household appliances, vehicles, etc. …C • Laundry…D • Urination and defecation (toilet needs)…E • Gardening/watering plants…F • Business/Business Purposes…G • Others, please specify (_____)…V • Only for drinking…W
C-1.3	In the last 30 days, has there been any time when your household did not have sufficient quantities of drinking water from this source when needed?	• Yes, at least one time...1 • No, always sufficient...0 **C-1.5.1** • Don't know...-98 **C-1.5.1**

No	Question Text	Response Options
C-1.4	What was the (main) reason you were unable to access sufficient quantities of water from this source when needed? **Enumerator:** *Availability means that water was not available at the source (e.g., because it is broken). Accessibility means that, though water may have been available, the respondent could not physically or otherwise access the source (e.g., because it is locked).*	• Water was not available from this source...1 • Water from this source was too expensive...2 • Source was not accessible...3 • Quality of water from this source is not worth consuming...4 • Other, specify (_____)...-96
C-1.5.1	In the last seven days, how many days was the pressure or quantity of water available from this source disrupted for longer than one hour?	• Never... 0 □ **C-1.6.1** • └─┴─┘ days...1 [Values are limited to 1-7]
C-1.5.2	Which disruptions did you experience to this water source?	• Disruption to pressure…A • Discruption to quantity available…B • Other, specify (_____)…V
C-1.6.1	How many of the last seven days was water available from your tap for at least one hour? **Enumerator**: *"available" means water comes out of the tap at any quantity/pressure when it is opened.*	└─┴─┘ [Restricted value 0-7] [ONLY APPLICABLE IF C1=1 OR 2]
C-1.6.2	On these days **(C-1.6.1)**, about how many hours per day was water typically available from your tap? **Enumerator:** *question C-1.6.2 refers to the answer of the day in C-1.6.1.*	└─┴─┘ [Restricted value 0-24] [ONLY APPLICABLE IF C1=1 OR 2]
C-1.7	Does your household use this source of water throughout the whole year?	• Yes, throughout the year...1 • No, rainy season only...2 • No, dry season only...3
C-2	What is the source of water used by your household when they cannot get drinking water from the main water source?	• Piped water into dwelling...1 • Piped into compound, yard, or plot...2 • Piped to neighbor...3 • Public tap / standpipe...4 • Borehole or tubewell...5 • Protected well...6 • Unprotected well...7 • Protected spring...8 • Unprotected spring...9

No	Question Text	Response Options
		• Rainwater collection...10 • Tanker-truck...11 • Cart with small tank / drum...12 • Water kiosk...13 • Bottled water...14 • Sachet water...15 • Surface water (river, stream, dam, lake, pond, canal, irrigation channel)...16 • Other, specify (_____)...-96 • **NOT APPLICABLE... -97 → C3**
C-2a	For which purpose(s) does your household use this source?	• Drinking…A • Cooking…B • Bathing/Washing hands or other body parts…C • Cleaning the house, household appliances, vehicles, etc….D • Laundry…E • Urination and defecation (toilet requirements)…F • Gardening/watering plants…G • Business/Business Purposes…H • Other, please specify (_____)…V
C-2.1	Where is this water collected from?	• In own dwelling...1 → **C-2.3** • In own yard or plot...2→ **C-2.3** • Elsewhere... 3 [Only relevant if C-2 is 3-16 or -96]
C-2.2	How long does it take to go to this source, collect water, and come back?	└─┴─┴─┘ minutes
C-2.3	**In the last 30 days**, has there been any time when your household did not have sufficient quantities of water from this source when needed?	• Yes, at least one time...1 • No, it's always sufficient...0 → **C-2.5.1** • Don't know...-98 → **C-2.5.1**
C-2.4	What was the (main) reason you were unable to access sufficient quantities of water when needed?	• Water was not available from the source...1 • Water from the source was too expensive... 2 • Source was not accessible...3 • The quality of the water from this source is not worth consuming...4 • Other, specify (_____)...-96
C-2.5.1	In the last seven days, how many days was the pressure or quantity of water available from this source disrupted for longer than one hour?	• Never... 0 → **C-2.6.1** • └─┴─┘ days... 1 [Values are limited to 1-7]

No	Question Text	Response Options
C-2.5.2	Which disruptions did you experience to this water source?	Disruption to pressure…A • Disruption to quantity available…B • Other, specify (____)…V
C-2.6.1	How many of the **last seven days** was water available from your tap for at least one hour?	└___┘ [Restricted value 0-7.] [ONLY APPLICABLE IF C2=1 OR 2]
C-2.6.2	On these days **(C-2.6.1)**, about how many hours per day was water typically available from your tap? **Enumerator:** *question C-2.6.2 refers to the answer of the day in C-2.6.1*	└__└__┘ [Rated capped 0-24.] [ONLY APPLICABLE IF C2=1 OR 2]
C-2.7	Does your household use this source of water throughout the whole year?	• Yes, throughout the year...1 • No, rainy season only...2 • No, dry season only...3
C-3	Please indicate all other sources of water which members of your household regularly use for any purpose **Enumerator:** *select all that apply*	• Piped water into dwelling…A • Piped into compound, yard, or plot...B • **NOT APPLICABLE**... W
C-3_1	Please indicate all other sources of water which members of your household regularly use for any purpose **Enumerator:** *select all that apply*	• Piped to neighbor...C • Public tap / standpipe...D • Borehole or tubewell...E • Protected well...F • Unprotected well...G • Protected spring...H • Unprotected spring...I • Rainwater collection...J • Tanker-truck...K • Cart with small tank / drum...L • Water kiosk...M • Bottled water...N • Sachet water...O • Surface water (river, stream, dam, lake, pond, canal, irrigation channel)...P • Other, specify (____)...V • **NOT APPLICABLE...** W
Items C-3.1 through C-3.7 are repeated for each source selected in C-3 and C-3_1		
C-3.1	In which season(s) does your household use this source?	• All year... 1 • Rainy season... 2 • Just the dry season... 3

No	Question Text	Response Options
C-3.2	For which purpose(s) does your household use this source?	• Drinking…A • Cooking…B • Bathing/Washing hands or other body parts…C • Cleaning the house, household appliances, vehicles, etc. …D • Laundry…E • Urination and defecation (toilet requirements)…F • Gardening/watering plants…G • Business/Business Purposes…H • Others, please specify (_____)…V
C-3.3	Where is this water **[SEE C-3]** collected from?	• In own dwelling...1 □ **C-3.5.1** • In own yard or plot...2□ **C-3.5.1** • Elsewhere...3 [ONLY APPLICABLE IF C3 > 2 or -96]
C-3.4	How long does it take to go to this source, collect water, and come back?	└┴┴┴┘ minutes [ONLY APPLICABLE IF C3 > 2 or -96]
C-3.5.1	In the last seven days, how many days was the pressure or quantity of water available from this source disrupted for longer than one hour?	• Never...0 □ **C-3.6.1** • └┴┴┘ days...1 [Values are limited to 1-7]
C-3.5.2	Which disruptions did you experience to this water source?	• Interference with pressure...1 • Interference with the available amount...2 • Other, specify (_____)...-96
C-3.6.1	How many of the **last seven days** was water available from your tap for at least one hour?	└┴┘ [Restricted value 0-7] [ONLY APPLICABLE IF C3=1 OR 2]
C-3.6.2	On these days **(C-3.6.1)**, about how many hours per day was water typically available from your tap? **Enumerator:** *question C-2.6.2 refers to the answer of the day in C-2.6.1*	└┴┘ [Rated capped 0-24] [ONLY APPLICABLE IF C3=1 OR 2]
C-3.7	What is the main reason for using this source in addition to your main water source?	• I use it when my primary source is unavailable or inaccessible... 1 • More water is available from this source... 2 • Cheaper than my main source... 3 • I prefer the taste/smell of the water compared to my main source... 4 • The water quality is better than my main source... 5 • More suitable for the purpose than my primary source... 6 • My friends/neighbors also use this source... 7 • Others, mention (_____)...-96 • Don't know...-98

No	Question Text	Response Options
C-4.1	Does your household intend to connect to PDAM within the next year?	• No...0 • Yes...1 [Only relevant if the answers are in C1, C2 and C3 > 2]
C-4.2	What is the main reason why your household does not intend / has not been connected to PDAM?	• We can't afford it/it's too expensive...1 • The quality is not good...2 • It doesn't taste good/smells good...3 • The quality of service is poor...4 • We prefer our current source...5 • Other, specify (_____)...-96 • Don't know...-98 [Only relevant if the answers are in C1, C2 and C3 > 2]

D. WATER RETRIEVAL, CONSUMPTION, AND DISPENSING

Enumerator read aloud: I will now ask about the amount of water you collect and associated expenses from each of the sources you described

No	Question Text	Response Options
D-x	Who is the piped water service provider used by your household?	[Relevant only for households who use a piped source on premises (one of the sources in module C = 1 or 2). If no such source, skip to D-2.1] • PDAM...1 • Community-based Piping System...2 • BLUD...3 • UPTD...4 • BUMDes...5 • Other, specify _____ -96
D-1	Can you please show me the most recent bill you have received from your PDAM? May I record some details of the bill for our survey?	• Respondent showed bill...1 • Respondent did not show bill...0 → **D-1.7**
D-1.1	Beginning date for last PDAM bill **Enumerator:** *Observe and record only. Enter 99/99/99 if this information is absent from bill.*	__/__/__
D-1.2	End date for last PDAM bill **Enumerator:** *Observe and record only. Enter 99/99/99 if this information is absent from the bill.*	__/__/__
D-1.3	Grand total of charges for last PDAM bill **Enumerator:** *Do not read aloud. Observe and record only. Enter -97 if this information is absent from the bill.*	_____IDR
D-1.4	Amount charged on bill for consumption alone (e.g. excluding fees, taxes, etc.) **Enumerator:** *Do not read aloud. Observe and record only. Enter -97 if this information is absent from the bill.*	_____IDR
D-1.5	The volume of water consumed according to the last PDAM bill **Enumerator:** *Do not read aloud. Observe and record only. Enter -97 if this information is not on the bill.*	____ [Skip to D-1.6 if -97]
D-1.5a	Unit of volume entered in D-1.5	• Meter^3...1 • Liter...2 • Other, specify (_____)...-96

No	Question Text	Response Options
	Enumerator: *Do not read aloud. Observe and record only.*	• Don't Know…-98
D-1.6	Tariff class according to the last PDAM bill **Enumerator:** *Do not read aloud. Observe and record only.*	• Household class I...1 • Household class II...2 • Household class III...3 • Household class IV...4 • Other, specify (_____)...-96 • Not Applicable…-97 • Don't Know…-98
D-1.7	How much do you typically pay to the PDAM per month for water in the dry season? **Enumerator:** *Enter -98 if the respondent does not know*	_____IDR
D-1.8	How much do you typically pay to the PDAM per month for water in the rainy season? **Enumerator:** *Enter -98 if the respondent does not know*	_____IDR
D-1.9	How much did you pay to the PDAM to connect to the water network? **Enumerator:** *Enter -98 if the respondent does not know*	_____USD
D-1.10	Did you pay your connection fee all at once or in installments?	• All at once...1 • In installments...2 • Not Applicable…-97 • Don't know...-98
D-1.11	In which year did you connect to the PDAM water network? **Enumerator:** *Enter -98 if the respondent does not know*	____ [Limit to value 1900-2023]
Items D-2.1 through D-2.11 are repeated for each non-piped and/or off-premises source named in module C. Respondents should be routed as appropriate for seasonality. For example, a source used throughout the year should receive all questions. One used only in the rainy season should receive the first set and the rainy season set (D-2.2 through D-2.8). One used only in the dry season should receive only the dry season set (D-2.9 through D-2.11). Note that in programmed version, there is a different version of these variables for sources entered in C-1, C-2, and C-3_1.		
D-2.1	Who is the person that collects water most often from this source? **Enumerator:** *If more than one person normally goes, you may select multiple people in this field.*	[Options should dynamically update for each household based on responses in Module B. For example, if household members are Didik, Upik, Agus, and Erni, those four names should appear as options here.]
D-2.2	The last time you collected water from this source, which container(s) did you use?	• Bottle...A • Gallon bottle...B • Bucket...C

No	Question Text	Response Options
	Enumerator: *Select all that apply. If the answer choice doesn't match, enter it in "Other", but ask the respondent to mention the volume that the container can hold (for example, "30-liter bucket")*	• Jerry can…D • Tub/Bak Mandi...E • Plastic drum…F • Metal drum…G • Large Tank…H • Other, specify (_____)...V • Don't know...Y • Refused...Z
Repeat item D-2.2.1 for each container named in D-2.2.		
D-2.2a	What is the capacity of the water storage container used during the last pick-up?	⌊__⌋⌊__⌋⌊__⌋⌊__⌋ milliliter...1 ⌊__⌋⌊__⌋⌊__⌋⌊__⌋ liter...2
D-2.2.1	How many containers of this type did you use?	_____containers
D-2.3	In total, how much did you spend at this water source for this trip? **Enumerator:** *Enter 0 if the respondent states there is no cost for water from this source. If necessary, allow respondent to estimate per container and then calculate the sum.*	_____IDR
Enumerator: For D-2.4, read the question only once and let the respondent estimate on their won, then record the number of times (D-2.4.1) and the units (D-2.4.2) (for example, twice per day, five times per week, etc.)		
D-2.4	In the past seven days, how often have you taken water from this source?	
D-2.4.1	Number of times **Enumerator:** *Do not read aloud. Listen and record only.*	___times
D-2.4.2	Per **Enumerator:** *Do not read aloud. Listen and record only. Ask respondents to repeat if needed.*	• Day...1 • Week...2
D-2.5	How does the amount of water you collected from this source per trip in the last 7 days compare to your most recent trip?	• Much less than my last trip...1 • A little less than my last trip...2 • It's more or less the same as my last trip...3 • A little more than my last trip...4 • So much more than my last trip...5
Enumerator: For D-2.6, read the question only once and let the respondent to estimate on their own, then capture the number of times (D-2.6.1) and the units (D-2.6.2) (e.g., twice per day, five times per week, four times per month, etc.)		
D-2.6	How often do you usually draw water from this source in the rainy season?	
D-2.6.1	Number of times **Enumerator:** *Do not read aloud. Listen and record only.*	___times

No	Question Text	Response Options
D-2.6.2	Per **Enumerator:** *Do not read aloud. Listen and record only.*	• Day...1 • Week...2 • Month...3
D-2.7	What water storage containers do you use when collecting water from this source in the rainy season? *Enumerator: Select all that apply. If the answer choice doesn't match, enter it in "Other", but ask the respondent to mention the volume that the container can hold (for example, "30-liter bucket")*	• Bottle...A • Gallon bottle...B • Bucket...C • Jerry can…D • Tub/Bak Mandi...E • Plastic drum…F • Metal drum…G • Large Tank…H • Other, specify (_____)...V • Don't know...Y • Refused...Z
Repeat item D-2.7.1 for each container mentioned in D-2.7.		
D-2.7a	What is the capacity of the water container used when collecting water in the rainy season?	⌊_⌊_⌊_⌊_⌋ milliliters...1 ⌊_⌊_⌊_⌊_⌋ liters...2
D-2.7.1	How many of this type of container did you use?	___containers
D-2.8	In total, about how much do you spend at this source per trip in the rainy season **Enumerator:** *Enter 0 if respondent indicates there is no cost for water from this source. If necessary, allow respondent to estimate per container and then calculate the sum.*	_____IDR
Enumerator: For D-2.9, read the question only once and let the respondent estimate on their own, then record the number of times (D-2.9.1) and the units (D-2.9.2) (e.g., twice per day, five times per week, four times per month, etc.)		
D-2.9	How often do you typically collect water from this source in the dry season?	
D-2.9.1	Number of times **Enumerator:** *Do not read aloud. Listen and record only.*	___times
D-2.9.2	Per **Enumerator:** *Do not read aloud. Listen and record only.*	• Day...1 • Week...2 • Month...3
D-2.10	What water storage containers do you use when collecting water from this source in the dry season? *Enumerator: Select all that apply. If the answer choice doesn't match, enter it in "Other", but ask the respondent to mention the volume that the container can hold (for example, "30-liter bucket")*	• Bottle...A • Gallon bottle...B • Bucket...C • Jerry can…D • Tub/Bak Mandi...E • Plastic drum…F • Metal drum…G

No	Question Text	Response Options
		• Large Tank…H • Other, specify (_____)...V • Don't know...Y • Refused...Z
Repeat item D-2.10.1 for each container named in D-2.10.		
D-2.10a	What is the capacity of the water container used when collecting water in the dry season?	└─┴─┴─┴─┘ milliliters...1 └─┴─┴─┴─┘ liters...2
D-2.10.1	How many of this type of container did you use?	___containers
D-2.11	In total, about how much do you spend at this source per trip in the dry season **Enumerator:** *Enter 0 if respondent indicates there is no cost for water from this source. If necessary, allow respondent to estimate per container and then calculate the sum.*	_____IDR

E. WATER STORAGE AND TREATMENT

Enumerator read aloud: *I am now going to ask some questions related to any storage and treatment of water in your household.*

No	Question Text	Response Options
E-1	Do you store water in this house?	• Yes...1 • No...0 → **E-5** • Don't know...-98 → **E-5**
E-2	Which containers do you use to store water in this household?	• Bottle...A • Gallon bottle...B • Bucket...C • Jerry can…D • Tub/Bak Mandi...E • Plastic drum…F • Metal drum…G • Large Tank…H • Aquifer storage and recovery…I • Other, specify (_____)...V • Don't know...Y • Refused...Z
Repeat E-2.1 through E-2.3.1.2 for each storage container selected in E-2		
E-2.1	How many of these storage containers does your household use?	___containers
E-2.2.1	How many liters do these containers hold in total?	_____litres
For E.2.3.1 and E-2.3.2 allow the respondent to estimate on their own, then capture the number of times (E.2.3.1) and the units (E-2.3.2) (e.g., twice per day, five times per week, etc.)		
E-2.3.1	How often do you usually refill this type of container?	
E-2.3.1.1	Number of times **Enumerator:** *Do not read aloud, listen and record only.*	_____times
E-2.3.1.2	Per **Enumerator:** *Do not read aloud, listen and record only.*	• Day... 1 • Week...2 • Month...3 • Year...4
E-2.4	In the last 30 days, have you ever been unable to store enough water to meet your needs?	• Yes...1 • No...0
E-3	Of all the water storage containers that you use at home, are there any used to store drinking water?	• Yes...1 • No...0 → **E-5**
E-3a	What kind of container is used to store drinking water?	• Bottle...A • Gallon bottle...B • Bucket...C • Jerry can…D • Tub/Bak Mandi...E

No	Question Text	Response Options
		• Plastic drum…F • Metal drum…G • Large Tank…H • Aquifer storage and recovery …I • Other, specify (_____)...V • Don't know...Y • Refused...Z
E-4 – E-4.5 should be dynamically updated for each container mentioned in E-3a		
E-4	May I see the container(s) used for storing drinking water in the household?	• Yes...1 • No...0 → **E-5**
E-4.1	Is this container ONLY used to store drinking water?	• Yes, only for drinking water...1 • No, for other purposes also...0
E-4.2	Does this container have a wide or narrow mouth? **Enumerator:** *Do not read aloud. Observe and record only.*	• Narrow (<10cm)...1 • Width (>=10cm)...2 • Not applicable/no mouth...-97
E-4.3	Does this container have a spigot? **Enumerator:** *Do not read aloud. Observe and record only.*	• Yes...1 • No...0
E-4.4	Does this container have a lid or fitted cover? **Enumerator:** *Do not read aloud. Observe and record only.*	• Yes...1 • No...0
E-4.5	Is this container a covered filtration reservoir with a tap? **Enumerator:** *Do not read aloud. Observe and record only.*	• Yes...1 • No...0
E-5	Do you or any other household members typically do anything to your drinking water to make it safer to drink?	• Yes...1 • No...0 → **Module F** • Don't know...-98 → **Module F**
E-6	What do you usually do to the water to make it safer to drink?	• Boil...A • Add bleach/chlorine...B • Strain it through a cloth...C • Use a water filter (ceramic, sand, composite, reverse osmosis, membrane, filter tube, etc.)...D • Solar disinfection...E • Let it stand and settle...F • Other, specify (_____)...-96 • Don't know...-98

F. EXPERIENCES OF WATER INSECURITY

Enumerator read aloud: *I will now ask some questions about effects that your water supply has had on you or members of your household recently.*

No	Question Text	Response Options
F-1	In the last 30 days, how frequently did you or anyone in your household worry you would not have enough water for all of your household needs?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-2	In the last 30 days, how frequently has your main water source been disrupted or limited (e.g., water pressure, less water than expected, river dried up)?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-3	In the last 30 days, how frequently have problems with water meant that clothes could not be washed?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-4	In the last 30 days, how frequently have you or anyone in your household had to change schedules or plans due to problems with the water situation at home? (Activities that may be disrupted include caring for others, doing household chores, agricultural work, income-generating activities, etc.)	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-5	In the last 30 days, how frequently have you or anyone in your household have had to change what was being eaten because there were problems with water (e.g., for washing food, cooking, etc.)?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-6	In the last 30 days, how frequently have you or anyone in your household had to go without washing hands after dirty activities (eg, defecating or changing diapers, cleaning animal dung) because of problems with water?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-7	In the last 30 days, how frequently have you or anyone in your household had to go without washing their body because of problems with water (e.g., not enough water, dirty, unsafe)?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-8	In the last 30 days, how frequently did you or other household members not get as much drinking water as you wanted?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4

No	Question Text	Response Options
		• Almost always (more than 20 days)...5
F-9	In the last 30 days, how frequently have you or other household members felt angry about the water situation at home?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-10	In the past 30 days, how frequently have you or other household members gone to sleep thirsty because there wasn't any water to drink?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-11	In the past 30 days, how frequently has there been no usable or drinkable water whatsoever in your household?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-12	In the past 30 days, how frequently have problems with water caused you or anyone in your household to feel ashamed/excluded/stigmatized?	• Never (0 days)...1 • Rarely (1-2 days)...2 • Sometimes (3-10 days)...3 • Often (11-20 days)...4 • Almost always (more than 20 days)...5
F-13	Has spending on water caused you to reduce spending on other household needs during the past 12 months?	• Yes...1 • No...0
F-14	During the past 12 months, have you ever gone into debt to pay for water?	• Yes...1 • No...0
F-15	Would you consume more water if you could afford it?	• Yes...1 • No...0

G. HOUSEHOLD INFORMATION AND ECONOMIC STATUS

Enumerator read aloud: *Thank you for all your responses so far, we are almost finished. I am going to ask some questions now about your household characteristics and belongings of household members.*

No	Question Text	Response Options
G-1	What is the ownership status of this house?	• Own...1 • Rent...2 • Occupy...3 • Don't know...98
G-2.1	How many rooms in this household are used for sleeping?	___rooms
G-2.2	Do you have a separate room which is used as a kitchen?	• Yes...1 • No...0
G-3	Which of the following items does your household have? **Enumerator:** *Read the response options aloud and select all that apply.*	• Electricity?...A • A functioning radio?...B • A functioning television?...C • A functioning fixed telephone?...D • A functioning computer?...E • A functioning refrigerator?...F • A functioning fan?...G • A functioning washing machine?...H • A functioning air conditioning?...I
G-4	Which of the following does any member of your household own? **Enumerator:** *Read the response options aloud and select all that apply.*	• A functioning watch?...A • A functioning mobile phone?...B • A functioning bicycle?...C • A functioning motorcycle or motor scooter?...D • A functioning animal-drawn cart?...E • A functioning car or truck?...F • A functioning boat with a motor?...G
G-5	Does any member of the household have a bank account or an account with a cooperative?	• Yes...1 • No...0
G-6	What is your estimated total monthly household expenditure?	• Less than Rp. 1.700.000 per month…1 • IDR 1.700.000 – IDR 2.300.000 per month…2 • RP. 2.300.000 – IDR 2.800.000 per month…3 • RP. 2.800.000 – IDR 3.400.000 per month…4 • RP. 3.400.000 – IDR 4.000.000 per month…5 • RP. 4.000.000 – IDR 4.700.000 per month…6 • RP. 4.700.000 – IDR 5.700.000 per month…7 • RP. 5.700.000 – IDR 7.100.000 per month…8 • RP. 7.100.000 – IDR 10.000.000 per month…9 • More than IDR 10.000.000 per month…10 • Don't Know…-98 • Refuse…-99

No	Question Text	Response Options
G-7	Now I am going to ask you about sanitation and hygiene in your household. What kind of toilet facility do members of your household usually use? *If 'Flush' or 'Pour flush', probe: Where does it flush to?* *If not possible to determine, ask permission to observe the facility.*	• Flush to piped sewer system...1 • Flush to septic tank...2 • Flush to pit latrine...3 • Flush to open drain...4 • Flush to don't know where...5 • Pit latrine with slab...6 • Pit latrines without slab/open pit...7 • Twin latrines with slab...8 • Twin latrines without slab...9 • Other composting toilet...10 • Bucket...11 • Container-based sanitation...12 • Hanging toilet/latrine...13 • No facility/bush/field...14 • Other, specify (_____)...-96
G-7.1	Do your household members share this facility with others who are not members of your household?	• Yes...1 • No...0 [Only relevant if the G-7 is not equal to 14]
G-7.2	Where is this toilet facility located?	• In own dwelling • In yard/plot • Elsewhere [Only relevant if the G-7 is not equal to 14]
G-7.3.1	Has your (pit latrine or septic tank) ever been emptied?	• Yes, emptied...1 • Never emptied...0 • Don't know...-98
G-7.3.2	Last time it was drained/emptied, where were the contents emptied to?	*Probe if necessary: Was it moved by the service provider? If so, where did the service provider take it?* • Removed by service provider to the treatment plant...1 • Removed by service provider and buried in a covered pit...2 • Removed by service provider to don't know where...3 • Emptied by the household and buried in a covered pit...4 • Emptied by household to uncovered pit, open ground, water body, or elsewhere...5 • Other, specify (_____)...-96
G-7.4	Observe and approximate the distance in meters between the well used for drinking water and the nearest sanitation facility (septic tank or latrine sinkhole). **Enumerator:** *Do not read to respondent, observe and record only.*	___meters [Only relevant if a well is selected among sources used for drinking in module C and G-7 is a septik tank, latrine, or pit]

No	Question Text	Response Options
G-8	Can you show me where members of your household wash their hands most often? **Enumerator:** *If necessary, clarify that this is handwashing for purposes other than ablution.*	• Fixed facility (sink/tap) in dwelling...1 • Fixed facility (sink/tap) in the yard/plot...2 • Mobile object (bucket/jug/kettle)...3 • No handwashing place on premises...4 • No permission to see...5 → **Module H** • Other, specify (_____)...-96 • Don't know...-98 → **Module H**
G-9.1	**Enumerator:** *Observe and record if water is available at the handwashing location.*	• Yes...1 • No...0
G-9.2	**Enumerator:** *Observe and record if soap or detergent is available at the place for handwashing.* *Soap includes bar soap, liquid soap, powder detergent and soapy water. Ash, soil, or sand do not count as soap or detergent.*	• Yes, observed...1 • No, not observed...3

H. WATER QUALITY TESTING

[This module will only be administered for a sub-sample of five households per neighborhood selected for testing. Households not selected will proceed to Module I]

No	Question Text	Response Options
H-x	Was this household selected as a water quality test sample?	• Yes...1 • No...0 □ **Module I**
H-1	In some of the households we interviewed for this study, we also tested the quality of household drinking water. Your household has been randomly selected for drinking water quality testing. This test requires two small samples of water from your household. These tests take about one to two days to interpret, so we will not know the results today. By the time the results are known, the quality of the water from your household may have changed, so we do not plan to share the results with respondents. If you have any questions about the quality of the drinking water this household drinks, you should contact your local Dinas Kesehatan or Puskesmas. The process of taking your water sample will take about 5 minutes. This test will tell you if the water is safe to drink based on the presence or absence of E. coli bacteria. We will analyze the sample results from your household along with results from other households in cities and districts across Indonesia to determine the quality of household water in urban areas like this city/district. You are free to decline participation and are free to ask questions before giving consent, or at any time during the process. Do you give me permission to start the water quality testing process now? **Enumerator:** *if this household does not consent, immediately notify your supervisor to replace this household with testing at another household in this neighborhood.*	• Yes...1 • No...0 □ **Module I**
H-2.1	First, I will take a water sample directly from the main drinking water source that your household usually uses. Is the round-trip travel time to the main drinking water source from your home about 15 minutes? **Enumerator instructions:** *if the main source of drinking water is bottled water or sachet water (C-1 = 14 or 15), then the alternative source of drinking water as mentioned in C-2 will be sampled.*	**Enumerator instructions:** *Follow instructions from water quality testing manual for taking a sample. Indicate if sample was taken according to instructions in manual.* *Verify that sample was taken according to instructions in manual with household ID written on sample.*
H-2.2	Can the main drinking water source be visited today for water sampling?	• Yes...1 • No...0

No	Question Text	Response Options
H-2.3	Please show me the source of drinking water used by your household. I may need to open the tap briefly before taking the water sample. **Enumerator instructions:** *If the main source of drinking water is a piped source, ask to take a water sample from the tap closest to the water meter.*	Follow the instructions of the water quality testing manual in taking samples for attendance/absence testing. Demonstrate that the samples taken are in accordance with the instructions in the manual. • The samples taken are as per the instruction manual...1 • No sample taken...2 □ **H-2.4**
Questions H-2.3 to H-2.3.3 will be completed as a separate electronic form once the sample is incubated and ready for interpretation. This activity will not be conducted in the respondent's household. Surveys conducted in households will continue from H-2.2 to H-3.		
H-2.3.1	**Enumerator instructions:** *Enter the date and time of sampling.*	Number code consists of an 8-digit number
H-2.4	Can I come back another time to take a water sample from this source?	• Yes...1 • No...0 □ **H-3.1**
H-2.4.1	**Enumerator instructions:** *Enter the rescheduling result date*	• __/__/__ __:__ [Relevant only if water from this source was not available at the time of the interview]
H-3.1	Now I will take a sample of the water that you usually drink. Can you give me a glass of water that you or other household members usually drink?	• The samples taken are as per the instruction manual...1 • No sample taken...2 □ **Module I**
H-3.1.1	**Enumerator instructions:** *enter the date and time of sampling.*	• __/__/__ __:__
H-3.1.2	**Enumerator instructions:** *enter the number code on the label on the sample bag*	
H-3.2	Did you or other household members do anything to make this water safe to drink? **Enumerator instructions:** *this question refers specifically to any treatment done to the glass of water that is to be tested, not the household's general practices.*	• Yes...1 • No...0 □ **Module I** • Don't know...-98 □ **Module I**
H-3.3	What did you do to make the water safe to drink?	• Boil...1 • Add bleach/chlorine...2 • Use a cloth to filter...3 • Use a water filter (ceramic, sand, composite, reverse osmosis, membrane, tube, etc.) ...4 • Solar disinfection...5 • Let the water settle...6 • Other, specify (_____)...-96 • Don't know...-98

I. CONCLUSION AND DISPOSITION OF THE CASE

Enumerator read aloud: The interview is now over. Thank you very much for your time and response. If you have any questions, please contact Article 33 at 0878 7578 2721.

No	Question Text	Response Options
Enumerator: All these questions should be completed after dismissing the respondent but before leaving the household. None of these questions should be read aloud.		
I-1	What is the final status of this interview?	• Complete interview...1 • Partial interview (re-visit)... 2 • Partial interview (no re-visit)... 3 • Refusal...4 • Non-contact, unable to access the housing unit...6 • Non-contact, there is no one at the residence...7 • Non-contact, respondents not at residence...8 • It is not known whether the housing unit...9 • It is not known whether eligible respondents were present...10 • Out of sample...11 • Not a housing unit...12 • Unoccupied housing unit...13 • Other, specify (_____)...-96
I-2.1	According to you, were the respondents cooperative and engaged?	• Yes...1 → **I-3.1** • No...0
I-2.2	Please explain	_____
I-3.1	In your opinion, did the respondent answer questions honestly and accurately to the best of their ability?	• Yes...1→ **I-4.1** • No...0
I-3.2	Please explain, including any modules or questions you feel may be inaccurate.	_____
I-4.1	Was anyone besides the respondent present during the interview?	• Yes...1 → **I-5.1** • No...0
I-4.2	Who was present?	_____
I-5.1	Did the respondent consult anyone else to answer questions?	• Yes...1 • No...0
I-5.2	Who did they consult?	_____

PDAM SURVEY – BAHASA INDONESIA

0. INFORMASI WAWANCARA

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
0-1	Nama Pewawancara	[daftar yang sudah diisi sebelumnya]
0-2	Provinsi	• Sumatera Utara…12 • Jawa Barat…32 • Jawa Tengah…33 • Jawa Timur…35 • Banten…36 • Sulawesi Selatan…73
0-3	Kabupaten/Kota	[Opsi dibatasi hanya berisi provinsi terpilih yang memungkinkan]
0-4	Koordinat garis lintang	[Idealnya ditangkap secara otomatis]
0-5	Koordinat garis lintang	[Idealnya ditangkap secara otomatis]

A. PERSETUJUAN DAN PROFIL RESPONDEN

PEWAWANCARA MEMBACAKAN DENGAN LANTANG:

Selamat pagi/siang. Perkenalkan nama saya *[**NAMA PEWAWANCARA**]* dari Article 33 Indonesia, sebuah Lembaga riset sosial di Jakarta. Lembaga kami saat ini sedang melakukan survei mengenai penyediaan layanan air dan praktik pengelolaan sumber daya air di beberapa kota dan kabupaten di Indonesia. Studi ini didanai oleh United States Agency for International Development (USAID), sebuah badan pemerintah AS yang membantu proyek-proyek pembangunan di Indonesia, dan dilaksanakan oleh NORC dari Universitas Chicago, AS, Tetra Tech ARD, dan Article 33 Indonesia. Studi ini juga didukung oleh Bappenas dan Kementerian Pekerjaan Umum dan Perumahan Rakyat (PUPR). Bapak/Ibu terpilih untuk diwawancara karena peran Bapak/Ibu yang kami yakini dapat memberikan informasi yang detil dan menyeluruh tentang berbagai aspek terkait prosedur teknis, keuangan, dan operasional PDAM.

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
A-1 (persetujuan)	Apabila Bapak/Ibu setuju untuk berpartisipasi dalam wawancara ini, kami akan mengajukan beberapa pertanyaan terkait sumber air baku dan tentang upaya PDAM mengidentifikasi dan mengatasi risiko-risiko yang mungkin terjadi terhadap pelayanan air minum. Kami juga akan menanyakan pertanyaan tentang personil PDAM, dan hubungan PDAM dengan OPD terkait di pemerintah daerah. Wawancara ini diperkirakan memakan waktu sekitar tiga puluh menit. Setiap informasi yang Bapak/Ibu berikan akan dijaga kerahasiaannya oleh tim yang melakukan penelitian ini. Peneliti akan menggunakan data untuk tujuan studi ini saja dan tidak akan mempublikasikan informasi apapun tentang Bapak/Ibu atau PDAM secara khusus. Partisipasi Bapak/Ibu bersifat sukarela dan Bapak/Ibu dapat memilih untuk tidak menjawab salah satu atau semua pertanyaan dengan alasan apa pun. Bapak/Ibu dapat memilih untuk tidak berpartisipasi tanpa konsekuensi apa pun. Meskipun demikian, informasi dari studi ini akan membantu Pemerintah Indonesia dan USAID dalam upaya meningkatkan dukungan terhadap perbaikan layanan air minum di Indonesia. Jika Bapak/Ibu memiliki pertanyaan, kekhawatiran, atau keluhan tentang studi atau hak Bapak/Ibu sebagai peserta, Bapak/Ibu dapat bertanya kapan saja selama wawancara atau menghubungi penanggung jawab kami [**DEDY JUNAEDI 087875782721**].	
A-2	Mohon dijelaskan secara singkat pemahaman Bapak/Ibu tentang tujuan wawancara hari ini dan konfirmasi siapa yang akan Bapak/Ibu hubungi kalau ada pertanyaan.	_____
A-3	Apakah Bapak/Ibu memiliki pertanyaan tentang studi ini?	***PEWAWANCARA: MENANGGAPI SETIAP PERTANYAAN, JIKA ADA*** ● Ya…1 ● Tidak…0
A-4	Apakah Bapak/Ibu setuju untuk berpartisipasi?	● Ya…1 ● Tidak…0 → **Modul I**
A-5	Saya ingin merekam wawancara ini untuk tujuan pengecekan. Apakah Bapak/Ibu setuju wawancara ini direkam?	● Ya…1 ● Tidak…0

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
A-6	Jika nanti dibutuhkan, akan ada petugas dari Article 33 yang menghubungi Bapak/Ibu untuk mengkonfirmasi beberapa jawaban Bapak/Ibu. Konfirmasi ini akan berlangsung maksimal selama 10 menit. apakah Bapak/Ibu memberikan izin kepada kami untuk menghubungi Kembali jika diperlukan?	• Ya…1 • Tidak…0
A-7.1	Nama Responden	_____
A-7.2	Nomor Telepon Responden (tetap)	_ _ _ _ _ _ _ _ _ _ [Dibatasi hingga 11 digit]
A-7.3	Nomor Telepon Responden (seluler)	_ _ _ _ _ _ _ _ _ _ _ _ [Dibatasi hingga 13 digit]
A-8a	Nama PDAM tempat Bapak/Ibu bertugas	
A-8	Apa jabatan Bapak/Ibu di PDAM ini?	• Manajer Riset dan Pengembangan …1 • Lainnya, sebutkan (_____)…-96
A-9	Jenis kelamin	• Perempuan…1 • Laki-laki…0 • Lainnya, sebutkan (_____)…-96

B. LATAR BELAKANG RESPONDEN DAN PROFIL SUMBER AIR BAKU

Pewawancara membaca dengan lantang: Sebagai permulaan, saya akan mengajukan beberapa pertanyaan tentang sumber air baku yang digunakan PDAM saat ini.

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
B-1	Dari mana sajakah PDAM saat ini mengambil air sebagai sumber air bakuya? ***Petunjuk wawancara:*** *baca setiap pilihan tanggapan dan pilih semua yang sesuai*	• Sungai, yang melintasi berbagai provinsi …A • Sungai yang melintasi beberapa kota/kabupaten dalam provinsi …B • Sungai dalam batas kota/kabupaten …C • Danau, yang melintasi beberapa kota/kabupaten dalam provinsi …D • Danau dalam batas kota/kabupaten …E • Mata air dalam batas kota/kabupaten …F • Akuifer/air tanah …G • Lainnya, sebutkan.. (_____)…V
Item B-2.1 diulangi untuk setiap jenis sumber yang dipilih di B-1.		
B-2.1	Berapa banyak jenis sumber air yang saat ini digunakan oleh PDAM sebagai sumber air baku?	__ [Nilai pembatas 1-10]
Butir B-2.1.1 sampai dengan B-2.1.4.1 diulangi untuk setiap sumber air baku. Entri B-2.1.1 sesuai dengan tipe sumber A, B-2.2.1 dengan tipe sumber B, dll.		
B-2.1.1	Apakah nama sumber air ini?	_____
B-2.1.2	Sepengetahuan Bapak/Ibu, di daerah aliran sungai mana (Wilayah Sungai) sumber ini berada?	• Alas – Singkil…1 • Batang Natal - Batang Batahan…2 • Rokan…3 • Cidanau - Ciujung – Cidurian…4 • Kepulauan Seribu…5 • Ciliwung – Cisadane…6 • Cimanuk – Cisanggarung…7 • Citanduy…8 • Progo - Opak – Serang…9 • Bengawan Solo…10 • Palu – Lariang…11 • Kalukku – Karama…12 • Pompengan – Larona…13 • Saddang…14 • Towari – Lasusua…15 • Wampu – Besitang…16 • Bah Bolon…17 • Nias…18 • Sibundong - Batang Toru…19 • Barumun – Kualuh…20 • Batang Angkola - Batang Gadis…21

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
		Cibaliung – Cisawarna…22 • Ciliman – Cibungur…23 • Cisadea – Cibareno…24 • Ciwulan – Cilaki…25 • Pemali – Comal…26 • Bodri – Kuto…27 • Madura – Bawean…28 • Welang – Rejoso…29 • Bondoyudo – Bedadung…30 • Pekalen – Sampean…31 • Baru – Bajulmati…32 • Lainnya, sebutkan: (_____)…-96 **[TANYAKAN HANYA JIKA JAWABAN B-1 ADALAH A, B, C, D, E, atau F]**
B-2.1.3	Menurut perkiraan Bapak/Ibu, berapa banyak air yang sudah digunakan PDAM dari sumber ini pada musim hujan terakhir? **Petunjuk wawancara:** *persilakan responden merujuk pada dokumentasi apabila tersedia, atau tanyakan perkiraan terbaik mereka.*	_____ [liter atau meter kubik]/[detik atau hari]
B-2.1.3.1	Informasi diperoleh berdasarkan? *ENUMERATOR:* ***TIDAK PERLU DIBACAKAN. TOLONG VERIFIKASI JIKA JAWABAN RESPONDEN BERDASARKAN PADA DOKUMEN ATAU PERKIRAAN***	• Responden memperkirakan jawaban… 1 • Jawaban responden berdsarkan dokumen/data tetapi dokumen tidak diperlihatkan… 2 • Jawaban responden berdsarkan dokumen/data dan dokumen tidak diperlihatkan… 3
B-2.1.4	**BERAPA BANYAK AIR YANG BAPAK/IBU PERKIRAKAN PDAM AKAN MENGAMBIL DARI SUMBER INI PADA MUSIM KEMARAU TERAKHIR?**	_____ [liter atau meter kubik]/[detik atau hari]
B-2.1.4.1	Informasi diperoleh berdasarkan? *ENUMERATOR:* ***TIDAK PERLU DIBACAKAN. TOLONG VERIFIKASI JIKA JAWABAN RESPONDEN BERDASARKAN PADA DOKUMEN ATAU PERKIRAAN***	• Responden memperkirakan jawaban… 1 • Jawaban responden berdsarkan dokumen/data tetapi dokumen tidak diperlihatkan… 2 • Jawaban responden berdsarkan dokumen/data dan dokumen diperlihatkan… 3

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
B-3.1	Dengan mengacu pada semua sumber air yang saat ini digunakan oleh PDAM, bagaimana pendapat Bapak/Ibu terhadap pernyataan ini: "Air yang tersedia dari sumber air baku PDAM cukup untuk memenuhi permintaan konsumen saat ini BAIK selama kondisi musim hujan normal maupun kondisi musim kemarau normal?" *Pewawancara membacakan pilihan jawaban*	• Sangat tidak setuju…1 • Tidak setuju…2 • Netral…3 • Setuju…4 → **B-3.2** • Sangat setuju…5 → **B-3.2** • Tidak tahu…-98
B-3.1a	Dalam kondisi apa air yang tersedia dari sumber baku PDAM tersebut tidak mencukupi untuk memenuhi permintaan konsumen	• Kondisi musim hujan normal…1 • Kondisi musim kemarau normal…2 • Tidak mencukupi baik untuk musim hujan normal ataupun musim kemarau normal…3
B-3.2	Dengan mengacu pada semua sumber air yang saat ini digunakan oleh PDAM, sejauh mana Bapak/Ibu setuju dengan pernyataan ini: "Air yang tersedia dari sumber air baku PDAM saya cukup untuk memenuhi permintaan konsumen saat ini bahkan dalam kondisi ekstrim seperti banjir, badai ekstrim, tanah longsor di musim hujan dan kekeringan atau kebakaran di musim kemarau ini?"	• Sangat tidak setuju…1 • Tidak setuju…2 • Netral…3 • Setuju…4 → **B-3.3** • Sangat setuju…5 → **B-3.3** • Tidak tahu…-98
B-3.2a	Dalam kondisi ekstrem apa air yang tersedia dari sumber baku PDAM tersebut tidak mencukupi untuk memenuhi permintaan konsumen?	• Kondisi musim hujan ekstrem…1 • Kondisi musim kemarau ekstrem…2 • Tidak mencukupi baik untuk musim hujan ekstrem ataupun musim kemarau ekstrem…3
B-3.3	Dengan mempertimbangkan semua sumber air secara bersamaan, sejauh mana anda setuju dengan pernyataan ini: "Kualitas air dari sumber air baku PDAM yang sudah diolah dengan mengikuti prosedur pengolahan standar, aman untuk didistribusikan baik selama kondisi musim hujan normal maupun kondisi musim kemarau normal?"	• Sangat tidak setuju…1 • Tidak setuju…2 • Netral…3 • Setuju…4 → **B-3.4** • Sangat setuju…5 → **B-3.4** • Tidak tahu…-98
B-3.3a	Dalam kondisi apa kualitas air dari sumber baku PDAM yang sudah diolah dengan mengikuti prosedur pengolahan standar, tidak/kurang aman untuk didistribusikan ?	• Kondisi musim hujan normal…1 • Kondisi musim kemarau normal…2 • Tidak aman baik untuk musim hujan normal ataupun musim kemarau normal…3

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
B-3.4	Dengan mempertimbangkan semua sumber air secara bersamaan, sejauh mana anda setuju dengan pernyataan ini: "Kualitas air dari sumber air baku PDAM yang sudah diolah dengan mengikuti prosedur pengolahan standar, aman untuk didistribusikan bahkan dalam kondisi ekstrim seperti banjir, badai ekstrim, tanah longsor di musim hujan dan kekeringan atau kebakaran di musim kemarau?"	• Sangat tidak setuju…1 • Tidak setuju…2 • Netral…3 • Setuju…4 → **Modul C** • Sangat setuju…5 → **Modul C** • Tidak tahu…-98
B-3.4a	Dalam kondisi musim ekstrem apa kualitas air yang sudah diolah dengan mengikuti prosedur pengolahan standar, tidak/kurang aman untuk didistribusikan?	• Kondisi musim hujan ekstrem • Kondisi musim kemarau ekstrem • Tidak aman baik untuk musim hujan ekstrem ataupun musim kemarau ekstrem

C. IDENTIFIKASI RISIKO

Pewawancara membaca lantang: Sekarang saya akan mengajukan beberapa pertanyaan tentang bahaya yang menimbulkan risiko terhadap kemampuan PDAM untuk menyediakan layanan air.

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
C-1	Sebutkan tiga jenis bahaya yang menimbulkan risiko terbesar terhadap kemampuan institusi anda untuk menyediakan layanan air yang andal. ***Pewawancara:*** *Responden harus memilih hingga tiga, tetapi dapat menyebutkan lebih sedikit*	• Banjir…A • Topan/badai ekstrim …B • Kekeringan …C • Tanah longsor…D • Kebakaran hutan …E • Gempa bumi…F • Gunung meletus…G • Tsunami…H • Intrusi air laut …I • Penurunan tanah …J • Kontaminasi industri …K • Kontaminasi pertanian …L • Kegagalan dalam sistem kelistrikan kota …M • Lainnya, sebutkan (_____)…V
Item di bawah diulang untuk setiap bahaya yang disebutkan dalam C-1.		
C-2.1.1	Seberapa sering bahaya ini mempengaruhi layanan air anda dalam 5 tahun terakhir? *Pewawancara: Isikan "-98" jika responden tidak tahu*	_____ kali [Nilai Batasan 1-50 kali]
C-2.1.2	Dengan mempertimbangkan tren historis dan kemungkinan pengaruh perubahan iklim, menurut pendapat anda, seberapa besar kemungkinan bahaya ini memengaruhi penyediaan layanan air dalam 5 tahun ke depan?	• Tidak diharapkan terjadi…1 • Sangat tidak mungkin, hanya dalam keadaan luar biasa…2 • Mungkin terjadi setidaknya sekali…3 • Sangat mungkin terjadi setidaknya sekali…4 • Hampir pasti terjadi setidaknya sekali…5 • Tidak Tahu… -98
C-2.1.3.1	Sepengetahuan anda, apakah sarana pengambilan, transmisi, pengolahan, dan distribusi air dirancang untuk menghindari atau mengurangi dampak bahaya ini selama masa pakai yang dirancang?	• Ya…1 [Lewati ke C-2.1.4] • Tidak…0 • Tidak tahu…-98
C-2.1.3.2	Sarana mana saja yang tidak dirancang untuk menghindari atau mengurangi dampak bahaya ini selama masa pakainya? *Pewawancara: Pilih semua yang sesuai*	• Abstraksi …A • Transmisi…B • Perlakuan …C • Reservoir dan distribusi …D • Lainnya, sebutkan (_____)…V
C-2.1.4	Apa konsekuensi yang paling mungkin dari bahaya ini terhadap kualitas air?	• Air yang tidak aman untuk diminum kurang dari satu hari…1 • Air yang tidak aman untuk diminum lebih dari satu hari kurang dari satu minggu…2

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
		• Air tidak aman untuk diminum selama lebih dari satu minggu tetapi kurang dari satu bulan…3 • Air tidak aman untuk diminum selama lebih dari satu bulan…4
C-2.1.5	Apa konsekuensi yang paling mungkin dari bahaya ini terhadap ketersediaan layanan air?	• Layanan air tidak tersedia kurang dari satu hari…1 • Layanan air tidak tersedia lebih dari satu hari kurang dari satu minggu…2 • Layanan air tidak tersedia selama lebih dari satu minggu tetapi kurang dari satu bulan…3 • Layanan air tidak tersedia selama lebih dari satu bulan…4
C-2.1.6	Apa konsekuensi paling parah dari bahaya ini terhadap kualitas air?	• Air yang tidak aman untuk diminum kurang dari satu hari…1 • Air yang tidak aman untuk diminum lebih dari satu hari kurang dari satu minggu…2 • Air tidak aman untuk diminum selama lebih dari satu minggu tetapi kurang dari satu bulan…3 • Air tidak aman untuk diminum selama lebih dari satu bulan…4
C-2.1.7	Apa konsekuensi paling parah dari bahaya ini terhadap ketersediaan layanan air?	• Layanan air tidak tersedia kurang dari satu hari…1 • Layanan air tidak tersedia lebih dari satu hari kurang dari satu minggu…2 • Layanan air tidak tersedia selama lebih dari satu minggu tetapi kurang dari satu bulan…3 • Layanan air tidak tersedia selama lebih dari satu bulan…4

D. PENGGUNAAN DATA RISIKO

Pewawancara membaca lantang: Sekarang saya akan bertanya tentang data yang digunakan PDAM untuk mengidentifikasi dan memantau potensi risiko terhadap layanan air minum.

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
D-1	Apakah PDAM memantau data kuanitas air yang tersedia pada sumber air baku utama secara '*real time*'?	• Ya…1 • Tidak…0 [Lewati ke D-2] • Tidak tahu…-98 [Lewati ke D-2]
D-1.1	Sumber data apa yang anda gunakan untuk memantau kuantitas air yang tersedia dari sumber air baku utama anda? *Pewawancara: Baca semua pilihan dan pilih semua yang sesuai*	• PDAM Master meter dengan data logger terpasang…A • B(B)WS pengukur aliran sungai…B • Pengukur aliran sungai PJT…C • Lainnya, sebutkan (_____) …V
D-1.2	Seberapa sering pemantauan dilakukan? *Pewawancara: izinkan responden untuk menjawab sesuka mereka dan kemudian catat unit dalam jawaban*	_____ kali per [hari/minggu/bulan]
D-1.3	Apakah peralatan pemantauan secara umum berfungsi?	• Ya…1 • Tidak…0 • Tidak tahu…-98
D-2	Apakah PDAM memantau data kualitas air yang tersedia dari sumber air baku utama secara '*real time*' (waktu nyata)?	• Ya…1 • Tidak…0 [Lewati ke D-3] • Tidak tahu…-98 [Lewati ke D-3]
D-2.1	Sumber data apa yang anda gunakan untuk memantau kualitas air yang tersedia dari sumber air baku utama anda? *Pewawancara: Baca semua pilihan dan pilih semua yang sesuai*	• Pengujian laboratorium PDAM dengan buku riwayat manual…A • Pengujian laboratorium PDAM masuk dalam sistem informasi manajemen…B • Pengujian dari Kementerian Lingkungan Hidup dan Kehutanan setempat…C • Pengujian dari PJT…D • Lainnya, sebutkan (_____)…V
D-2.2	Seberapa sering pemantauan dilakukan? *Pewawancara: izinkan responden untuk menjawab sesuka mereka dan kemudian catat unit dalam jawaban*	_____ kali per [hari/minggu/bulan]
D-2.3	Apakah peralatan pemantauan berfungsi secara umum?	• Ya…1 • Tidak…0 • Tidak tahu…-98
D-3	Apakah PDAM memantau sistem peringatan dini untuk bencana hidrometeorologi seperti badai ekstrim yang berisiko terhadap layanan air?	• Ya…1 • Tidak…0 [Lewati ke D-4] • Tidak berlaku (ini tidak menimbulkan risiko)…-97 [Lewati ke D-4] • Tidak tahu…-98 [Lewati ke D-4]
D-3.1	Sistem peringatan dini mana yang anda pantau?	• Sistem peringatan dini BMKG …1 • Lainnya, sebutkan (_____)…-96

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
D-4	Apakah PDAM memantau sistem peringatan dini untuk bencana geologis seperti gunung berapi dan gempa bumi yang berisiko terhadap layanan air?	• Ya…1 • Tidak…0 [Lewati ke Modul E] • Tidak berlaku (ini tidak menimbulkan risiko)…-97 [Lewati ke Modul E] • Tidak tahu…-98 [Lewati ke Modul E]
D-4.1	Sistem peringatan dini mana yang anda pantau?	• InaTEWS • InAWARE • Lainnya, sebutkan (_____)…-96

E. PERENCANAAN UNTUK MITIGASI DAN PENGHINDARAN RISIKO

Pewawancara membaca lantang: Sekarang saya akan mengajukan beberapa pertanyaan terkait dengan perencanaan PDAM untuk memastikan kelanjutan layanan air dalam berbagai situasi yang berbeda.

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
E-1	Apakah PDAM memiliki Rencana Pengamanan Air (RPAM)/Water Safety Plan atau Rencana Kelanjutan Bisnis (Business Continuity Plan) yang telah diperbaharui dalam 5 tahun terakhir	• Tidak keduanya…0 [Lewati ke E-5] • Rencana Bisnis saja …1 • RKAM saja …2 • Keduanya…3 • Tidak tahu…-98 [Lewati ke E-5]
E-1.1	Apakah PDAM memiliki suatu tim khusus yang ditugaskan untuk menerapkan Rencana Pengamanan Air dan/atau Rencana Kelanjutan Bisnis	• Keduanya tidak ada… 0 • Hanya Rencana Kelanjutan Bisnis saja… 1 • Hanya Rencana Pengamanan Air saja • Keduanya ada… 3 • Tidak Tahu… 98
E-1.2	Bagamana Ibu/Bpk menilai kesesuaian penerapan Rencana Pengamanan Air di PDAM Ibu/Bpk bertugas ?	• Sama sekali tidak sesuai rencana… 1 • Sedikit sesuai dengan rencana… 2 • Cukup sesuai dengan rencana… 3 • Sebagian besar sesuai dengan rencana... 4 • Sangat sesuai dengan rencana… 5 • Tidak Tahu… -98
E-1.3	Bagaimana Ibu/Bpk menilai kesesuaian penerapan Rencana Kelanjutan Bisnis di PDAM tempat Ibu/Bpk bertugas	• Sama sekali tidak sesuai rencana… 1 • Sedikit sesuai dengan rencana… 2 • Cukup sesuai dengan rencana… 3 • Sebagian besar sesuai dengan rencana... 4 • Sangat sesuai dengan rencana… 5 • Tidak Tahu… -98
E-2	Potensi bahaya apa saja yang perencanaan untuk mitigasi dan pencegahannya terhadap layanan air sudah dibuat oleh PDAM, dan tertuang dalam RPAM atau Rencana Bisnis PDAM? *Pewawancara: Baca setiap pilihan dan pilih semua yang sesuai*	• Banjir…A • Topan/badai ekstrim …B • Kekeringan …C • Tanah longsor…D • Kebakaran hutan …E • Gempa bumi…F • Gunung meletus…G • Tsunami…H • Intrusi air laut …I • Penurunan tanah …J • Kontaminasi industri …K • Kontaminasi pertanian …L • Kegagalan dalam sistem kelistrikan kota …M • Lainnya, sebutkan (_____)…V
E-3	Sejauh mana anda setuju dengan pernyataan berikut: "Saya yakin bahwa RPAM dan/tau Rencana Bisnis sudah memadai untuk menghindari atau mengurangi durasi gangguan terhadap layanan air jika terjadi bahaya yang biasa kita hadapi berdasarkan dasar tahunan"	• Sangat tidak setuju…1 • Tidak setuju…2 • Netral…3 • Setuju…4 • Sangat setuju…5

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
E-4	Sejauh mana anda setuju dengan pernyataan berikut: "Saya yakin bahwa RPAM dan/atau Rencana Bisnis PDAM sudah memadai untuk menghindari atau mengurangi durasi gangguan terhadap layanan air jika terjadi bahaya yang paling parah, yang hanya dihadapi sekali setiap lima sampai sepuluh tahun"	• Sangat tidak setuju…1 • Tidak setuju…2 • Netral…3 • Setuju…4 • Sangat setuju…5
E-5a	Apakah PDAM ini sudah tergabung dalam satu Kelompok Kerja/Kelompok Koordinasi dengan lembaga-lembaga lain dalam mengelola sumber air dan menghindari atau memitigasi risiko terhadap sumber-sumber air tesrebut ?	• Ya… 1 • Tidak… 0 ☐ **Modul F**
E-5	Lembaga mana saja yang sudah bergabung dengan PDAM dalam suatu Kelompok Kerja/Kelompok Koordinasi pengelola sumber air tersebut? *Pewawancara: Baca setiap pilihan dan pilih semua yang sesuai*	• Bupati atau Walikota…A • Pemerintah Provinsi…B • B(B)WS…C • Dinas/Badan Energi dan Pertambangan setempat…D • Dinas/Badan Lingkungan Hidup dan Kehutanan setempat…E • Dinas/Badan Kesehatan setempat…F • Dinas/Badan Pekerjaan Umum dan Perumahan setempat…G • Bappeda…H • Badan Penanggulangan Bencana Provinsi (BPBD)…I • Lainnya, sebutkan (_____)…V
E-5.1	Seberapa sering PDAM dan Lembaga-lembaga lain yang tergabung dalam Kelompok Kerja tersebut melakukan koordinasi untuk tujuan pemantauan potensi bahaya dan menghindari atau memitigasi risiko terhadap sumber-sumber air baku PDAM?	• Kurang dari sekali per tahun…1 • 1-3 kali per tahun…2 • 1-2 kali per kuartal…3 • 1 kali per bulan…4 • 2-3 kali per bulan…5 • 1-3 kali per minggu…6 • Lebih dari 3 kali per minggu…7
E-5.2	Sejauh mana Bapak/Ibu setuju dengan pernyataan berikut: "PDAM dan lembaga-lembaga lain yang tergabung dalam Kelompok Kerja pengelolaan air memiliki pemahaman yang sama tentang bahaya pada layanan air PDAM, termasuk kemungkinan dan potensi konsekuensinya"	• Sangat tidak setuju…1 • Tidak setuju…2 • Netral…3 • Setuju…4 ☐ **E-5.3** • Sangat setuju…5 ☐ **E-5.3**
E-5.2.1	Institusi mana yang menurut Bapak/Ibu belum memiliki pemahaman yang sama dengan	

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
	PDAM tentang bahaya terhadap layanan air PDAM	
E-5.3	Sejauh mana Bapak/Ibu setuju dengan pernyataan berikut: "PDAM dan lembaga-lembaga lain yang tergabung dalam Kelompok Kerja pengelolaan air sudah berkoordinasi secara efektif untuk menghindari dan/atau memitigasi risiko terhadap layanan air PDAM"	• Sangat tidak setuju…1 • Tidak setuju…2 • Netral…3 • Setuju…4 ☐ **Modul F** • Sangat setuju…5 ☐ **Modul F**
E-5.3.1	Institusi mana yang menurut Bapak/Ibu belum berkoordinasi secara efektif dengan PDAM untuk menghindari dan/atau memitigasi risiko terhadap layanan air PDAM ?	• Bupati atau Walikota…A • Pemerintah Provinsi…B • B(B)WS…C • Dinas/Badan Energi dan Pertambangan setempat…D • Dinas/Badan Lingkungan Hidup dan Kehutanan setempat…E • Dinas/Badan Kesehatan setempat…F • Dinas/Badan Pekerjaan Umum dan Perumahan setempat…G • Bappeda…H • Badan Penanggulangan Bencana Provinsi (BPBD)…I • Lainnya, sebutkan (_____)…V

F. PEMBIAYAAN UNTUK MITIGASI DAN PENGHINDARAN RISIKO

Pewawancara membacakan: Saya sekarang akan mengajukan beberapa pertanyaan terkait dengan posisi keuangan PDAM untuk memastikan layanan air yang berkelanjutan dalam berbagai keadaan yang berbeda.

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
F-1	Sumber investasi eksternal apa yang anda ketahui yang dapat diupayakan untuk mendanai kegiatan ketahanan? *Pewawancara: Baca setiap pilihan dan pilih semua yang sesuai.*	• Swasta…A • Pemerintah Kabupaten/Kota…B • Pemerintah Provinsi …C • Pemerintah Nasional …D • Donor Dalam Negeri…E • Donor Luar Negeri…F • Lainnya, sebutkan (_____)…V
F-2	Dari sumber-sumber tersebut, manakah yang telah memberikan investasi kepada PDAM dalam lima tahun terakhir?	• Swasta…A • Pemerintah Kabupaten/Kota…B • Pemerintah Provinsi …C • Pemerintah Nasional …D • Donor Dalam Negeri…E • Donor Luar Negeri…F • Lainnya, sebutkan (_____)…V • Tidak ada…Z [Lewati ke F-3]
Ulangi item F-2.1-F-2.2 untuk setiap sumber yang ditunjukkan pada F-2.		
F-2.1.1	Dari pilihan berikut, yang mana yang paling menggambarkan tujuan dari [investasi]? *Pewawancara: Baca pilihan dengan lantang.* [Teks pertanyaan harus diperbarui secara dinamis berdasarkan tanggapan terhadap F-2]	• Pencegahan Risiko…1 • Mitigasi Risiko…2 • Tanggap Bencana…3 • Pemulihan Bencana…4
F-2.1.2	Berapa perkiraan jumlah dari [investasi]? *Pewawancara: Isikan -98 bila responden tidak tahu.* [Teks pertanyaan harus diperbarui secara dinamis berdasarkan tanggapan terhadap F-2]	_____ RP
F-3	Apakah anggaran PDAM termasuk alokasi untuk pencegahan dan mitigasi risiko?	• Ya…1 • Tidak…0 [Lewati ke F-4]
F-3.1.1	Berapa besarnya untuk tahun anggaran terakhir? *Pewawancara: Isikan -98 bila responden tidak tahu.*	_____ RP
F-3.1.2	*Pewawancara: Tanyakan apakah responden dapat menunjukkan bukti terdokumentasi dari alokasi ini dalam*	• Tidak, responden tidak membagikan bukti yang terdokumentasi…0

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
	anggaran tahunan (RKAP) mereka dan masukkan rinciannya di sini.	• Ya, responden memberikan bukti yang terdokumentasi, sebutkan (_____)…1
F-3.2.1	Apakah anggaran ini khusus digunakan untuk pencegahan dan mitigasi risiko, atau dapat digunakan untuk tujuan lain?	• Ya, khusus untuk pencegahan dan mitigasi risiko…1 • Tidak, hal itu dapat digunakan untuk tujuan lain…0 [Lewati ke F-4]
F-3.2.2	Apa alasan anggaran tidak dapat digunakan untuk tujuan lain?	• Peraturan pemerintah daerah melindungi anggaran ini…1 • Prosedur operasi standar PDAM melindungi anggaran ini…2 • Norma/Ekspektasi – semua orang tahu anggaran ini terlindungi…3 • Lainnya, sebutkan (_____)…-96
F-4	Apakah anggaran PDAM termasuk dana darurat untuk tanggap bencana dan pemulihan?	• Ya…1 • Tidak…0 [Lewati ke Modul G] • Tidak tahu…-98
F-4.1	Apakah anggaran ini sama dengan yang disisihkan untuk pencegahan dan mitigasi risiko, atau berbeda?	• Anggaran yang sama …1 [Lewati ke G] • Anggaran yang berbeda…2
F-4.2.1	Berapa besarnya untuk tahun anggaran terakhir? *Pewawancara: Isikan -98 bila responden tidak tahu.*	_____ RP
F-4.2.2	*Pewawancara: Tanyakan apakah responden dapat menunjukkan bukti terdokumentasi dari alokasi ini dalam anggaran tahunan (RKAP) mereka dan masukkan rinciannya di sini*	• Tidak, responden tidak membagikan bukti yang terdokumentasi …0 • Ya, responden memberikan bukti yang terdokumentasi, sebutkan (_____)…1
F-4.3.1	Apakah anggaran ini khusus digunakan untuk tanggap bencana dan pemulihan, atau dapat digunakan untuk keperluan lain?	• Ya, khusus untuk pencegahan dan mitigasi risiko …1 • Tidak, itu dapat digunakan untuk tujuan lain …0 [Lewati ke Modul G]
F-4.3.2	Apa alasan anggaran tidak dapat digunakan untuk tujuan lain?	• Peraturan pemerintah daerah melindungi anggaran ini …1 • Prosedur operasi standar PDAM melindungi anggaran ini …2 • Norma/Ekspektasi – semua orang tahu anggaran ini terlindungi …3 • Lainnya, sebutkan (_____)…-96

G. KEPEGAWAIAN PDAM DAN PARTISIPASI PEREMPUAN

Pewawancara membacakan lantang: Sekarang saya akan mengajukan beberapa pertanyaan tentang susunan kepegawaian di PDAM.

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
G-1	Berapa tahun direktur utama PDAM saat ini menjabat dalam peran ini? *Pewawancara: Masukkan 0 untuk waktu kurang dari satu tahun dan -98 untuk "Tidak Tahu"*	____ tahun
G-2	Apakah PDAM memilih Direktur Utama / President Direktur dengan melalui prosedur sebagai berikut :	
G-2a	Melalui proses seleksi yang kompetitif	• Ya… 1 • Tidak… 0
G-2b	Pembatasan periode jabatan selama 2 periode	• Ya… 1 • Tidak… 0
G-2c	Pembatasan masa jabatan selama 4 tahun	• Ya… 1 • Tidak… 0
G-3.1	Di PDAM ini, manakah dari peran-peran berikut ini yang diisi oleh perempuan? *Pewawancara: Baca setiap pilihan dan pilih semua yang sesuai*	• Direktur / Direktur Utama…A • Direktur Operasi…B • Direktur Teknik…C • Direktur Keuangan…D • Direktur SDM….E • Anggota Dewan Pengawas PDAM…F • Kepala Bagian Lainnya, sebutkan (_____)…V • Tidak ada…W
G-5	Sejauh mana Aada setuju dengan pernyataan berikut: "PDAM memiliki jumlah pegawai yang memadai dengan keterampilan yang sesuai untuk menghindari atau mengurangi durasi gangguan layanan air jika terjadi bahaya yang biasa kita hadapi dengan dasar tahunan"	• Sangat tidak setuju… 1 • Setuju…2 • Netral…3 • Setuju…4 [Lewati ke G-6] • Sangat setuju…5 [Lewati ke G-6]
G-5.1	Tolong jelaskan mengapa Anda tidak setuju dengan pernyataan itu	_____
G-6	Sejauh mana Anda setuju dengan pernyataan berikut: "PDAM memiliki jumlah staf yang memadai dengan keterampilan yang sesuai untuk menghindari atau mengurangi durasi gangguan layanan air jika terjadi bahaya yang paling parah, yang kami hadapi hanya sekali setiap lima sampai sepuluh tahun"	• Sangat tidak setuju… 1 • Tidak setuju…2 • Netral…3 • Setuju…4 [Lewati ke G-7] • Sangat setuju…5 [Lewati ke G-7]

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
G-6.1	Tolong jelaskan mengapa Anda tidak setuju dengan pernyataan itu	_____
G-7	Berapa proporsi tenaga teknis PDAM yang perempuan? *Pewawancara: Izinkan untuk mereferensikan dokumentasi jika tersedia, dan sebaliknya minta perkiraan terbaik mereka. Tenaga teknis termasuk insinyur, operator, teknisi lab, dll.*	_____ Persen
G-7.1	Apakah pegawai teknis pria dan wanita memiliki partisipasi yang salam dalam program peningkatan kapasitas PDAM?	• Wanita lebih banyak berpartisipasi…1 • Women cukup banyak berpartisipasi …2 • Pria dan Wanita sama-sama berpartisipasi…3 • Prioa cukuo banyak berpartisipasi …4 • Pria lebih banyak berpartisipasi…5
G-7.2	Apakah pegawai teknis pria dan wanita memiliki kesempatan yang sama untuk promosi dan kenaikan pangkat/jabatan?	• Wanita memiliki lebih banyak kesempatan …1 • Wanita memiliki lebih sedikit kesempatan …2 • Pria dan Wanita memiliki kesempatan yang sama …3 • Pria memiliki lebih sedikit kesempatan …4 • Pria memiliki lebih banyak kesempatan…5
G-8	Berapa proporsi tenaga nonteknis PDAM yang perempuan? *Pewawancara: Izinkan untuk mereferensikan dokumentasi jika tersedia, dan sebaliknya minta perkiraan terbaik mereka. Personil non-teknis termasuk manajer, staf administrasi, staf layanan pelanggan, staf kantor depan (Front Office) lainnya, dll.*	_____ Persen
G-8.1	Apakah pegawai non- teknis pria dan wanita memiliki partisipasi yang salam dalam program peningkatan kapasitas PDAM?	• Wanita lebih banyak berpartisipasi…1 • Women cukup banyak berpartisipasi …2 • Pria dan Wanita sama-sama berpartisipasi…3 • Prioa cukuo banyak berpartisipasi …4 • Pria lebih banyak berpartisipasi…5
G-8.2	Apakah pegawai non-teknis pria dan wanita memiliki kesempatan yang sama untuk promosi dan kenaikan pangkat/jabatan?	• Wanita memiliki lebih banyak kesempatan …1 • Wanita memiliki lebih sedikit kesempatan …2 • Pria dan Wanita memiliki kesempatan yang sama …3 • Pria memiliki lebih sedikit kesempatan …4 • Pria memiliki lebih banyak kesempatan…5

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
G-9	Apakah prosedur operasi standar (POS) PDAM mencakup pertimbangan kesamaan jender dan inklusi sosial?	• Ya…1 • Tidak …0 • Tidak Tahu …-98
G-10	Apakah standar pelayanan konsumen PDAM mencakup pertimbangan kesamaan jender dan inklusi sosial?	• Ya…1 • Tidak …0 • Tidak Tahu …-98
G-11	Berapa banyak rekan anda di PDAM yang menurut anda akan setuju dengan pernyataan berikut: "Perempuan dan laki-laki sama-sama mampu menjalankan peran kepemimpinan eksekutif yang diperlukan untuk keberhasilan operasional PDAM"	• Hampir tidak ada yang setuju…1 • Hanya beberapa yang akan setuju…2 • Kira-kira sebanyak yang setuju dan tidak setuju…3 • Sebagian besar akan setuju…4 • Hampir semua pasti setuju…5
G-12	Berapa banyak rekan anda di PDAM yang menurut anda akan setuju dengan pernyataan berikut: "Perempuan dan laki-laki sama-sama mampu menjalankan peran teknis yang diperlukan untuk keberhasilan operasional PDAM"	• Hampir tidak ada yang setuju…1 • Hanya beberapa yang akan setuju…2 • Kira-kira sebanyak yang setuju dan tidak setuju…3 • Sebagian besar akan setuju…4 • Hampir semua pasti setuju…5
G-13	Berapa banyak rekan anda di PDAM yang menurut anda akan setuju dengan pernyataan berikut: "Perempuan dan laki-laki sama-sama mampu menjalankan peran non-teknis yang diperlukan untuk keberhasilan operasi PDAM"	• Hampir tidak ada yang setuju…1 • Hanya beberapa yang akan setuju…2 • Kira-kira sebanyak yang setuju dan tidak setuju…3 • Sebagian besar akan setuju…4 • Hampir semua pasti setuju…5
G-14	Berapa banyak rekan anda di PDAM yang anda yakini akan setuju dengan pernyataan berikut: "Jumlah perempuan dan laki-laki yang sama harus menjabat dalam peran kepemimpinan eksekutif PDAM, asalkan mereka memiliki pelatihan yang memadai untuk peran mereka"	• Hampir tidak ada yang setuju…1 • Hanya beberapa yang akan setuju…2 • Kira-kira sebanyak yang setuju dan tidak setuju…3 • Sebagian besar akan setuju…4 • Hampir semua pasti setuju…5
G-15	Berapa banyak rekan anda di PDAM yang menurut anda setuju dengan pernyataan berikut: "Jumlah perempuan dan laki-laki yang sama harus melayani dalam peran teknis, asalkan mereka memiliki pelatihan yang memadai untuk peran mereka"	• Hampir tidak ada yang setuju…1 • Hanya beberapa yang akan setuju…2 • Kira-kira sebanyak yang setuju dan tidak setuju…3 • Sebagian besar akan setuju…4 • Hampir semua pasti setuju…5
G-16	Berapa banyak rekan anda di PDAM yang menurut anda setuju dengan pernyataan berikut: "Jumlah	• Hampir tidak ada yang setuju…1 • Hanya beberapa yang akan setuju…2

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
	perempuan dan laki-laki yang sama harus melayani dalam peran non-teknis, asalkan mereka memiliki pelatihan yang memadai untuk peran mereka"	• Kira-kira sebanyak yang setuju dan tidak setuju…3 • Sebagian besar akan setuju…4 • Hampir semua pasti setuju…5

H. KOMITMEN PEMERINTAH

Pewawancara membaca lantang: Kita hampir selesai. Saya akan mengajukan beberapa pertanyaan terakhir sekarang tentang interaksi PDAM dengan rekan-rekan anda di pemerintahan [kota/kabupaten].

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
H-1	Sejauh mana anda setuju dengan pernyataan berikut: "Kepala Daerah di kabupaten/kota ini sangat mendukung PDAM, dan berkomitmen untuk memastikan kami dapat memberikan layanan air yang berkualitas kepada warga."	• Sangat tidak setuju…1 • Setuju…2 • Netral…3 • Setuju…4 [Lewati ke H-2] • Sangat setuju…5 Lewati ke H-2]
H-1.1	Tolong jelaskan mengapa Anda tidak setuju.	_____
H-2	Apakah pemerintah daerah menyetujui tarif yang cukup untuk menutup biaya operasional PDAM?	• Ya…1 • Tidak…0 • Tidak tahu…-98
H-3	Apakah pemerintah daerah telah memberikan subsidi yang memadai untuk memastikan PDAM mencapai pemulihan biaya penuh?	• Ya…1 • Tidak…0 • Tidak tahu…-98
H-4	Apakah Bupati/Walikota yang sekarang mendukung penyusunan peraturan daerah tentang tarif air minum ?	• Ya… 1 • Tidak… 0 • Tidak Tahu… -98

I. KEPATUHAN PENGUJIAN KUALITAS AIR

Enumerator:Kita sudah hamper selesai. Saat ini saya akan menanyakan beberapa pertanyaan terakhir tentang peran PDAM Ibu/Bpk dalam memastikan kualitas air yang digunakan

No	Pertanyaan	Opsi Jawaban
I-1	Apakah PDAM Ibu/Bpk melalukukan pengujian kualitas air langsung di titik penggunaan?	• Ya…1 • Tidak…0 [Skip ke J-1]
I-2	Terhadap pelanggan yang mana dilakukan pengujian kualitas air pada titik penggunaan *Enumerator: Bacakan opsi jawaban dan pilih yang sesuai*	• Pelanggan Domestik…A • Pelanggan non-domestik …B • Lainnya, sebutkan (_____)…V
Ulangi pertanyaan di bawah ini untuk setiap pelanggan yang disebutkan di I-2 dan perbarui penomoran yang relevan. Misalnya, I-2.1.1 untuk pelanggan pertama menjadi I-2.2.1 untuk pelanggan kedua, dst.		
I-2.1.1	Parameter apa yang dipantau di titik penggunaan? *Enumerator: Bacakan opsi jawaban dan pilih yang sesuai*	• Parameter Kimia…1 • Parameter Mikrobiologi…2 • Parameter fisik…3 • Tidak Tahu …-98
I-2.1.2.c	Berapa banyak sampel yang diambil untuk pengujian parameter Kimiawi? *Enumerator: Ini adalah jumlah pelanggan domestic (rumah tangga), pelanggan non domestik (dunia usaha), dsb. Yang diambil sampelnya.*	_____ sampel [Hanya berlaku jika parameter kimiawi (1) yang dipilih di I-2.1.1]
I-2.1.3.c	Berapa sering pengambilan sampel kualitas air untuk pengujian parameter kimia?	• Sekali per bulan …1 • Sekali per three bulan …2 • Sekali peer tahun …3 • Lainnya, sebutkan (_____)…-96 [Hanya berlaku jika parameter kimiawi (1) yang dipilih di I-2.1.1]
I-2.1.2.m	Berapa banyak sampel yang diambil untuk pengujian parameter Mikrobiologi? *Enumerator: Ini adalah jumlah pelanggan domestic (rumah tangga), pelanggan non domestik (dunia usaha), dsb. Yang diambil sampelnya*	_____ samples [Hanya berlaku jika parameter Mikrobiologi (2) yang dipilih di I-2.1.1]
I-2.1.3.m	Berapa sering pengambilan sampel kualitas air untuk pengujian parameter Mikrobiologi?	• Sekali per bulan …1 • Sekali per three bulan …2 • Sekali peer tahun …3 • Lainnya, sebutkan (_____)…-96 [Hanya berlaku jika parameter Mikrobiologi (2) yang dipilih di I-2.1.1]
I-2.1.2.p	Berapa banyak sampel yang diambil untuk pengujian parameter Fisik? *Enumerator: Ini adalah jumlah pelanggan domestic (rumah tangga), pelanggan non*	_____ sampel [Hanya berlaku jika parameter fisik (3) yang dipilih di I-2.1.1]

No	Pertanyaan	Opsi Jawaban
	domestik (dunia usaha), dsb. Yang diambil sampelnya.	
I-2.1.3.p	Berapa sering pengambilan sampel kualitas air untuk pengujian parameter Fisik?	• Sekali per bulan …1 • Sekali per three bulan …2 • Sekali peer tahun …3 • Lainnya, sebutkan (_____)…-96 [Hanya berlaku jika parameter Fisik (3) yang dipilih di I-2.1.1]

J. KESIMPULAN DAN DISPOSISI KASUS

Pewawancara membaca lantang: Wawancara sekarang selesai. Terima kasih banyak atas waktu dan tanggapan Anda. Jika Anda memiliki pertanyaan, harap hubungi Article 33 di 0878 7578 2721

Pertanyaan	Teks Pertanyaan	Pilihan Tanggapan
Pewawancara : Semua pertanyaan ini harus diisi setelah responden keluar tetapi sebelum meninggalkan. Tak satu pun dari pertanyaan ini harus dibacakan dengan lantang.		
J-1	Apa status akhir dari wawancara ini?	• Wawancara lengkap …1 • Wawancara parsial (kunjungan kembali)…2 • Wawancara sebagian (tidak ada kunjungan ulang)…3 • Penolakan …4 • Mengakhiri…5 • Non-kontak, tidak dapat mengakses unit perumahan …6 • Non-kontak, tidak ada orang di tempat tinggal …7 • Non-kontak, responden tidak tersedia …8 • Diketahui jika unit rumah …9 • Tidak diketahui apakah responden yang memenuhi syarat hadir …10 • Keluar dari sampel …11 • Bukan unit rumah …12 • Unit rumah tidak berpenghuni …13 • Lainnya, sebutkan (_____)…-96
J-2.1	Menurut Anda, apakah responden kooperatif dan terlibat?	• Ya…1 [Lewati ke I-3.1] • Tidak…0
J-2.2	Tolong jelaskan	_____
J-3.1	Menurut Anda, apakah responden menjawab pertanyaan dengan jujur dan akurat sesuai kemampuannya?	• Ya…1 [Lewati ke I-4.1] • Tidak…0
J-3.2	Tolong jelaskan	_____
J-4.1	Apakah ada orang selain responden yang hadir selama wawancara?	• Ya…1 [Lewati ke I-5.1] • Tidak…0
J-4.2	Siapa yang hadir?	_____
J-5.1	Apakah responden berkonsultasi dengan orang lain untuk menjawab pertanyaan?	• Ya…1 [Lewati ke I-6.1] • Tidak…0
J-5.2	Kepada siapa mereka berkonsultasi?	_____

PDAM SURVEY - ENGLISH

0. INTERVIEW INFORMATION

Question	Question Text	Response Options
0-1	Interviewer name	[pre-populated list]
0-2	Province	• North Sumatra...12 • West Java...32 • Central Java...33 • East Java...35 • Banten...36 • South Sulawesi...73
0-3	Kabupaten/Kota	[Restricted option contains only selected possible provinces]
0-4	Latitude coordinates	[Ideally captured automatically]
0-5	Latitude coordinates	[Ideally captured automatically]

A. CONSENT AND RESPONDENT PROFILE

Enumerator read aloud: *Good morning/afternoon. My name is [INTERVIEWER NAME] from Article 33 Indonesia, a social research organization based in Jakarta. Our organization is currently conducting a survey on water service provision and water resources management practices in several cities and districts in Indonesia. The study is funded by the United States Agency for International Development (USAID), a US government agency that assists development projects in Indonesia, and is implemented by NORC of the University of Chicago, USA, Tetra Tech ARD, and Article 33 Indonesia. The study was also supported by Bappenas and the Ministry of Public Works and Housing (PUPR). You were selected for interviews because of your role in providing detailed and comprehensive information on various aspects of the PDAM's technical, financial and operational procedures.*

Question	Question Text	Response Options
A-1 (consent)	If you agree to participate in this interview, we will ask several questions related to raw water sources and the PDAM's efforts to identify and address possible risks to water services. We will also ask questions about the PDAM's personnel, and the PDAM's relationship with the relevant local government DPOs. This interview is expected to take about 30 minutes. Any information you provide will be kept strictly confidential by the team conducting this study. The researcher will use the data for the purpose of this study only and will not publish any information about you or the PDAM specifically. Your participation is voluntary and you may choose not to answer any or all questions for any reason. You may choose not to participate without any consequences. Nonetheless, the information from this study will assist the Government of Indonesia and USAID in their efforts to increase support for water service improvements in Indonesia. If you have any questions, concerns, or complaints about the study or your rights as a participant, you may ask at any time during the interview or contact our focal point. **[INSERT ARTICLE 33 CONTACT NAME AND DETAILS]**	
A-2	Please briefly explain your understanding of the purpose of the interview today and confirm who you will contact if you have any questions.	_____
A-3	Do you have any questions about this study?	**Enumerator instructions:** *respond to any questions, if any.* • Yes...1 • No...0
A-4	Do you agree to participate?	• Yes...1 • No...0 → **Module I**
A-5	May I record part of this interview strictly for quality control purposes?	• Yes...1 • No...0
A-6	May I contact you after this interview if we find that some information is missing or must be confirmed?	• Yes...1 • No...0
A-7.1	Respondent name	_____
A-7.2	Respondent phone number (fixed)	_ _ _ _ _ _ _ _ _ _ _

Question	Question Text	Response Options
		[Constrained to 11 digits]
A-7.3	Respondent's phone number (cellular)	_ _ _ _ _ _ _ _ _ _ _ _ _ [Constrained to 13 digits]
A-8a	Name of the PDAM where you work	_____
A-8	What is your position in this PDAM?	• Research and Development Manager...1 • Other, specify (_____)...-96
A-9	Gender?	• Woman...1 • Man...0 • Other, specify (_____)...-96

B. BACKGROUND OF RESPONDENTS AND PROFILE OF RAW WATER SOURCES

Enumerator read aloud: *To start, I will ask some questions about the raw water sources which your PDAM currently uses.*

Question	Question Text	Response Options
B-1	Where do PDAMs currently take water as a source of raw water? **Enumerator instructions:** *Read each response option and select all that apply.*	• River, across several provinces...A • River across multiple cities/districts within one province...B • River within city/district boundary...C • Lake, across several cities/districts within one province...D • Lake within city/district boundary...E • Spring within city/district boundary...F • Aquifer/groundwater...G • Other, specify..(_____) ...V
Item B-2.1 repeated for each type of source selected in B-1.		
B-2.1	How many of this type of water source does your PDAM currently use as a raw water source?	_ [Constrain value 1-10]
Items B-2.1.1 through B-2.1.4.1 repeated for each raw water source. B-2.1.1 entries correspond to source type A, B-2.2.1 to source type B, etc.		
B-2.1.1	What is the name of this water source?	_____
B-2.1.2	To the best of your knowledge, in which watershed (Wilayah Sungai) does this source fall?	• Alas – Singkil…1 • Batang Natal - Batang Batahan…2 • Rokan…3 • Cidanau - Ciujung – Cidurian…4 • Kepulauan Seribu…5 • Ciliwung – Cisadane…6 • Cimanuk – Cisanggarung…7 • Citanduy…8 • Progo - Opak – Serang…9 • Bengawan Solo…10 • Palu – Lariang…11 • Kalukku – Karama…12 • Pompengan – Larona…13 • Saddang…14 • Towari – Lasusua…15 • Wampu – Besitang…16 • Bah Bolon…17 • Nias…18 • Sibundong - Batang Toru…19 • Barumun – Kualuh…20 • Batang Angkola - Batang Gadis…21 • Cibaliung – Cisawarna…22 • Ciliman – Cibungur…23

Question	Question Text	Response Options
		Cisadea – Cibareno…24 • Ciwulan – Cilaki…25 • Pemali – Comal…26 • Bodri – Kuto…27 • Madura – Bawean…28 • Welang – Rejoso…29 • Bondoyudo – Bedadung…30 • Pekalen – Sampean…31 • Baru – Bajulmati…32 • Other, specify: (_____)…-96 [Relevant only if answer to B-1 is A, B, C, D, E, or F.]
B-2.1.3	How much water would you estimate your PDAM has used from this source in the most recent rainy season? **Enumerator instructions:** *Allow to reference documentation if it is available, and otherwise ask for their best estimate.*	_____ [liters or cubic meters]/[seconds or days]
B-2.1. 3.1	Information obtained based on? **Enumerator instructions:** *Do not read aloud. Please verify if response was based on documentation or estimate.*	• Respondent estimated answer...1 • Respondent's answer based on documents/data but documents were not shown...2 • Respondent's answer is based on documents/data and documents are not shown...3
B-2.1.4	How much water would you estimate the PDAM abstracted from this source in the last dry season?	_____ [liters or cubic meters]/[seconds or days]
B-2.1.4.1	Information obtained based on? **Enumerator instructions:** *Do not read aloud. Please verify if response was based on documentation or estimate.*	• Respondent estimated answer...1 • Respondent's answer based on documents/data but documents were not shown...2 • Respondent's answer is based on documents/data and documents are shown...3
B-3.1	Thinking of all the water sources currently used by the PDAM, to what extent do you agree with this statement: "The water available from the PDAM's raw water sources is sufficient to meet current consumer demand BOTH during normal rainy season conditions and normal dry season conditions?"	• Strongly disagree...1 • Disagree...2 • Neutral...3 • Agree...4 □ **B-3.2** • Strongly agree...5 □ **B-3.2** • Don't know...-98

Question	Question Text	Response Options
	Enumerator instructions: *Read each response option.*	
B-3.1a	Under what conditions is the available water from the PDAM raw source insufficient to meet normal consumer demand?	• Normal rainy season conditions…1 • Normal dry season conditions…2 • Insufficient for both the normal rainy season or the normal dry season…3
B-3.2	Thinking of all the water sources currently used by the PDAM, to what extent do you agree with this statement: "The water available from my PDAM's raw water sources is sufficient to meet current consumer demand even under extreme conditions such as floods, extreme storms, landslides in the rainy season and droughts or fires in the dry season?"	• Strongly disagree...1 • Disagree...2 • Neutral...3 • Agree...4 → **B-3.3** • Strongly agree...5 → **B-3.3** • Don't know...-98
B-3.2a	Under what extreme conditions is the water available from the PDAM's raw source insufficient to meet consumer demand?	• Extreme rainy season conditions…1 • Extreme dry season conditions…2 • Insufficient for both the extreme rainy season or the extreme dry season…3
B-3.3	Thinking of all the water sources currently used by the PDAM, to what extent do you agree with this statement: "The quality of water from PDAM raw water sources that have been treated following standard treatment procedures is safe for distribution during both normal rainy season conditions and normal dry season conditions?"	• Strongly disagree...1 • Disagree...2 • Neutral...3 • Agree...4 → **B-3.4** • Strongly agree...5 → **B-3.4** • Don't know...-98
B-3.3a	Under what conditions is the quality of water from PDAM raw sources that has been treated by following standard treatment procedures, not/less safe for distribution?	• Normal rainy season conditions…1 • Normal dry season conditions…2 • Unsafe for both normal rainy seasons and normal dry seasons…3
B-3.4	Thinking of all the water sources currently used by the PDAM, to what extent do you agree with this statement:	• Strongly disagree...1 • Disagree...2 • Neutral...3 • Agree...4 → **Module C** • Strongly agree...5 → **Module C** • Don't know...-98

Question	Question Text	Response Options
	"The quality of water from the PDAM's raw water sources that have been treated by following standard treatment procedures, is safe for distribution even under extreme conditions such as floods, extreme storms, landslides in the rainy season and droughts or fires in the dry season?"	
B-3.4a	Under what extreme seasonal conditions is the quality of water that has been treated following standardized treatment procedures not/less safe for distribution?	• Extreme rainy season conditions…1 • Extreme dry season conditions…2 • Not safe for both extreme rainy seasons or extreme dry seasons…3

C. RISK IDENTIFICATION

Enumerator read aloud: *Now I will ask some questions regarding hazards which present risks to your PDAMs ability to provide water services.*

Question	Question Text	Response Options
C-1	List the three types of hazards that pose the greatest risk to your institution's ability to provide reliable water services. **Enumerator instructions:** *respondents should select up to three, but can name fewer*	• Floods...A • Typhoons/extreme storms...B • Droughts...C • Landslides...D • Wildfires...E • Earthquakes...F • Volcanos...G • Tsunamis...H • Seawater intrusion...I • Land subsidence...J • Industrial contamination ...K • Agricultural contamination...L • Failure in municipal electric system...M • Other, specify (_____)...V
Items below repeated for each hazard named in C-1.		
C-2.1.1	How often has this hazard affected your water services in the past 5 years? **Enumerator instructions:** *Enter "-98" if respondent does not know.*	___ times [Constrain value 1-50 times]
C-2.1.2	Taking into account historical trends and the possible influence of climate change, in your opinion, how likely is this hazard to affect water service provision in the next 5 years?	• Not expected to occur…1 • Very unlikely, only in exceptional circumstances…2 • Might occur at least once…3 • Reasonably likely that it occurs at least once…4 • Almost certain to occur at least once…5 • Don't Know…-98
C-2.1.3.1	To the best of your knowledge, is your water abstraction, transmission, treatment and distribution infrastructure designed to avoid or reduce the effects of this hazard over its designed lifetime?	• Yes...1 → **C-2.1.4** • No...0 • Don't know...-98
C-2.1.3.2	Which infrastructure is not designed to avoid or reduce the impact of these hazards over its lifetime? **Enumerator instructions:** *Select all that apply.*	• Abstraction...A • Transmission...B • Treatment...C • Reservoir and distribution...D • Other, specify (_____)...V

Question	Question Text	Response Options
C-2.1.4	What is the most probable consequence of this hazard on water quality?	• Water unsafe to drink for less than a day...1 • Water unsafe to drink for more than one day but less than a week...2 • Water unsafe to drink for more than one week but less than a month...3 • Water unsafe to drink for more than a month...4
C-2.1.5	What is the most probable consequence of this hazard on the availability of water services?	• Water service unavailable for less than one day...1 • Water service unavailable for more than one day but less than one week...2 • Water service unavailable for more than one week but less than one month...3 • Water service unavailable for more than one month...4
C-2.1.6	What is the most severe consequence of this hazard on water quality?	• Water unsafe to drink for less than a day...1 • Water unsafe to drink for more than one day but less than a week...2 • Water unsafe to drink for more than one week but less than a month...3 • Water unsafe to drink for more than a month...4
C-2.1.7	What is the most severe consequence of this hazard on availability of water service?	• Water service unavailable for less than one day...1 • Water service unavailable for more than one day but less than one week...2 • Water service unavailable for more than one week but less than one month...3 • Water service unavailable for more than one month...4

D. USE OF RISK DATA

Enumerator read aloud: *I will now ask about the data your PDAM uses to identify and monitor potential risks to your water services.*

Question	Question Text	Response Options
D-1	Does your PDAM monitor 'real time' data on the quantity of water available at your main raw water source?	• Yes...1 • No...0 → D-2 • Don't know...-98 → D-2
D-1.1	Which data sources do you use to monitor the quantity of water available from your main raw water source? **Enumerator instructions:** *Read all options and select all that apply.*	• PDAM Master meter with data logger installed...A • B(B)WS river flow meter...B • PJT river flow meter...C • Other, specify (_____)...V
D-1.2	How frequently is the monitoring done? **Enumerator:** *allow respondent to answer as they like and then note units in response.*	_____ times per [day/week/month]
D-1.3	Is the monitoring equipment generally functioning?	• Yes...1 • No...0 • Don't know... -98
D-2	Does your PDAM monitor available water quality data from key raw water sources in *'real time'*?	• Yes...1 • No...0 → D-3 • Don't know...-98 → D-3
D-2.1	Which data sources do you use to monitor the *quality* of water available from your main raw water source? **Enumerator instructions:** *Read all options and select all that apply.*	• PDAM laboratory testing with manual logbook...A • PDAM laboratory testing entered in MIS...B • Testing from local Ministry of Environment and Forestry...C • Testing from PJT...D • Other, specify (_____)... V
D-2.2	How frequently is the monitoring done? **Enumerator instructions:** *allow respondent to answer as they like and then note units in response.*	_____ times per [day/week/month]
D-2.3	Does monitoring equipment work in general?	• Yes...1 • No...0 • Don't know...-98

Question	Question Text	Response Options
D-3	Does your PDAM monitor early warning systems for hydrometeorological disasters like extreme storms that pose risks to water services?	• Yes...1 • No...0 → D-4 • Not applicable (these don't pose a risk...97 → D-4 • Don't know…-98 → D-4
D-3.1	Which early warning systems do you monitor?	• BMKG early warning system...1 • Other, specify (_____)... -96
D-4	Does your district monitor early warning systems for geological disasters such as volcanic eruptions and earthquakes that pose risks to water services?	• Yes...1 • No...0 → **Module E** • Not applicable (these don't pose a risk)... -97 → **Module E** • Don't know... -98 → **Module E**
D-4.1	Which early warning systems do you monitor?	• InaTEWS • InAWARE • Other, specify (_____)... -96

E. PLANNING FOR RISK MITIGATION AND AVOIDANCE

Enumerator read aloud: *I am now going to ask some questions related to your PDAM's planning to ensure continued water service in a variety of different circumstances.*

Question	Question Text	Response Options
E-1	Does your PDAM have a Water Safety Plan or Business Continuity Plan which was updated in the past 5 years?	• Neither...0 → **E-5** • Business Plan only...1 • Water Safety Plan only...2 • Both...3 • Don't know...-98 → **E-5**
E-1.1	Does the PDAM have a special team dedicated to implementing its Water Security Plan and/or Business Continuity Plan?	• Neither...0 • Business Continuity Plan only...1 • Water Security Plan only...2 • Both exist...3 • Don't know...-98
E-1.2	How would you rate your PDAM's implementation of its Water Safety Plan?	• Not at all adhered to plan...1 • Barely adhere to plan...2 • Somewhat adhere to plan...3 • Mostly adhere to the plan...4 • Fully adhere to plan...5 • Don't know...-98
E-1.3	How would you rate the implementation of the Business Continuity Plan at the PDAM where you work?	• Not at all adhered to plan...1 • Barely adhere to plan...2 • Somewhat adhere to plan...3 • Mostly adhere to the plan...4 • Fully adhere to plan...5 • Don't know...-98
E-2	Which potential hazards to water services has the PDAM planned to mitigate and prevent, and are set out in the RPAM or PDAM Business Plan? **Enumerator instructions:** *Read all options and select all that apply.*	• Floods...A • Typhoons/extreme storms...B • Droughts...C • Landslides...D • Wildfires...E • Earthquakes...F • Volcanos...G • Tsunamis...H • Seawater intrusion...I • Land subsidence...J • Industrial contamination ...K • Agricultural contamination...L • Failure in municipal electric system...M • Other, specify (_____)...V
E-3	To what extent do you agree with the following statement: "I am confident that the RPAM and/or Business Plan is adequate to avoid or reduce the duration of interruptions to water services in the event of	• Strongly disagree...1 • Disagree...2 • Neutral...3 • Agree...4 • Strongly agree...5

Question	Question Text	Response Options
	hazards that we commonly face on an annual basis"	
E-4	To what extent do you agree with the following statement: "I am confident that the RPAM and/or PDAM Business Plan is adequate to avoid or reduce the duration of disruptions to water services in the event of the most severe hazards, which are only encountered once every five to ten years."	• Strongly disagree...1 • Disagree...2 • Neutral...3 • Agree...4 • Strongly agree...5
E-5a	Has the PDAM joined a Working Group/Coordination Group with other institutions in managing water resources and avoiding or mitigating risks to these water resources?	• Yes...1 • No...0 → **Module F**
E-5	Which institutions have joined the PDAM in a Working Group/Coordination Group to manage the water source? **Enumerator instructions:** *Read all options and select all that apply.*	• Bupati or Walikota…A • Provincial Government…B • B(B)WS…C • Local energy and mining agency/body…D • Local environment and forestry agency/department…E • Local health agency/department…F • Local public works and housing agency/ department…G • Bappeda…H • Provincial Disaster Management Agency (BPBD)…I • Other, please specify (_____)...V
E-5.1	How often do the PDAM and the other institutions in the Working Group coordinate for the purpose of monitoring potential hazards and avoiding or mitigating risks to the PDAM's raw water sources?	• Less than once per year...1 • 1-3 times per year...2 • 1-2 times per quarter...3 • 1 time per month...4 • 2-3 times per month...5 • 1-3 times per week...6 • More than three times per week...7
E-5. 2	To what extent do you agree with the following statement: "The PDAM and other institutions in the water management Working Group have a common understanding of the hazards to PDAM water	• Strongly disagree...1 • Disagree...2 • Neutral...3 • Agree...4 → **E-5.3** • Strongly agree...5 → **E-5.3**

Question	Question Text	Response Options
	services, including their likelihood and potential consequences."	
E-5.2.1	Which institutions do you think do not have the same understanding as your PDAM about the dangers to PDAM water services? **Enumerator:** *Read options and select all that apply.*	• Bupati or Walikota…A • Provincial Government…B • B(B)WS…C • Local energy and mining agency/body…D • Local environment and forestry agency/department…E • Local health agency/department…F • Local public works and housing agency/ department…G • Bappeda…H • Provincial Disaster Management Agency (BPBD)…I • Other, please specify (_____)...V
E-5. 3	To what extent do you agree with the following statement: "The PDAM and other institutions in the water management Working Group coordinate effectively to avoid and/or mitigate risks to PDAM water services."	• Strongly disagree...1 • Disagree...2 • Neutral...3 • Agree...4 → **Module F** • Strongly agree...5 → **Module F**
E-5.3.1	Which institutions do you believe have not effectively coordinated with the PDAM to avoid and/or mitigate risks to PDAM water services?	• Bupati or Walikota…A • Provincial Government…B • B(B)WS…C • Local energy and mining agency/body…D • Local environment and forestry agency/department…E • Local health agency/department…F • Local public works and housing agency/ department…G • Bappeda…H • Provincial Disaster Management Agency (BPBD)…I • Other, please specify (_____)...V

F. FINANCE FOR RISK MITIGATION AND AVOIDANCE

Enumerator read aloud: *I am now going to ask some questions related to your PDAM's financial position to ensure continued water service in a variety of different circumstances.*

Question	Question Text	Response Options
F-1	What external sources of investment are you aware of that could be pursued to fund resilience activities? **Enumerator instructions:** *Read each option and select all that apply.*	• Private...A • Kabupaten/Kota government...B • Provincial government...C • National government...D • Domestic donor agencies...E • Foreign donor agencies...F • Other, specify (_____)...V
F-2	Of these sources, which have provided investment to your PDAM in the past five years?	• Private...A • Kabupaten/Kota government...B • Provincial government...C • National government...D • Domestic donor agencies...E • Foreign donor agencies...F • Other, specify (_____)...V • None…Z □ **F.3**
Repeat items F-2.1-F-2.2 for each source indicated in F-2.		
F-2.1.1	Out of the following options, which best describes the purpose of the [investment]? **Enumerator instructions:** *Read options aloud.* [Question text should update dynamically based on responses to F-2]	• Risk prevention...1 • Risk mitigation...2 • Disaster management...3 • Disaster recovery...4
F-2.1.2	What was the approximate amount of the [investment]? **Enumerator instructions:** *Enter -98 if respondent does not know.* [Question text should update dynamically based on responses to F-2]	_____IDR
F-3	Does the PDAM budget include an allocation for risk prevention and mitigation?	• Yes...1 • No...0 ? **F-4**
F-3.1.1	What was the amount for the last fiscal year? **Enumerator instructions:** *Enter -98 if respondent does not know.*	_____IDR
F-3.1.2	**Enumerator instructions:** *Ask if the respondent can demonstrate documented*	• No, respondent did not share documented proof...0

Question	Question Text	Response Options
	proof of this allocation in their annual budget (RKAP) and enter the details here.	• Yes, the respondent shared documented proof, specify (_____)...1
F-3.2.1	Is this budget exclusively used for risk prevention and mitigation, or can it be used for other purposes?	• Yes, exclusively for risk prevention and mitigation...1 • No, it can be used for other purposes...0 ⍰ F-4
F-3.2.2	What is the reason that the budget cannot be used for other purposes?	• Local government regulations protect this budget...1 • PDAM's standard operating procedures protect this budget...2 • Norms/Expectations – everyone knows this budget is protected...3 • Other, specify (_____)...-96
F-4	Does the PDAM budget include contingency funding for disaster response and recovery?	• Yes...1 • No...0 ⍰ Module G • Don't know...98
F-4.1	Is this budget the same as the one set aside for risk prevention and mitigation, or is it different?	• The same budget...1 ⍰ Module G • Different budget...2
F-4.2.1	What was the amount for the last fiscal year? **Enumerator instructions:** *Enter -98 if respondent does not know.*	_____IDR
F-4.2.2	**Enumerator instructions:** *Ask if the respondent can demonstrate documented proof of this allocation in their annual budget (RKAP) and enter the details here.*	• No, respondent did not share documented proof...0 • Yes, the respondent shared documented proof, specify (_____)...1
F-4.3.1	Is this budget exclusively used for disaster response and recovery, or can it be used for other purposes?	• Yes, specifically for disaster response and recovery...1 • No, it can be used for other purposes... 0 ⍰ **Module G**
F-4.3.2	What is the reason that the budget cannot be used for other purposes?	• Local government regulations protect this budget...1 • PDAM's standard operating procedures protect this budget...2 • Norms/Expectations – everyone knows this budget is protected...3 • Other, specify (_____)...-96

G. PDAM STAFFING AND WOMEN'S PARTICIPATION

Enumerator read aloud: *I will now ask some questions about staffing arrangements at your PDAM, including the participation of women in various roles in the PDAM.*

Question	Question Text	Response Options
G-1	How many years has the current managing director of the PDAM been serving in this role? **Enumerator instructions:** *Enter 0 for less than one year and -98 for "Don't know"*	___years
G-2	Does PDAM elect President Director by going through the following procedures :	
G-2a	Through a competitive selection process	• Yes...1 • No...0
G-2b	Limiting the term of office to two terms	• Yes...1 • No...0
G-2c	Limiting the term of office to 4 years	• Yes...1 • No...0
G-3.1	In this PDAM, which of the following roles are filled by women? **Enumerator instructions:** *Read all options and select all that apply.*	• Director / President Director...A • Operations Director...B • Technical Director…C • Finance Director...D • Human Resources Director...E • Member of PDAM Supervisory Board...F • Other Division Heads, please specify (_____)...V • None…W
G-5	To what extent do you agree with the following statement: "The PDAM has an adequate amount of staff with appropriate skills to avoid or reduce the duration of disruptions to water services in the event of hazards that we commonly deal with on an annual basis."	• Strongly disagree...1 • Agree...2 • Neutral...3 • Agree...4 → **G-6** • Strongly agree...5 → **G-6**
G-5.1	Please explain why you don't agree with the statement.	_____
G-6	To what extent do you agree with the following statement: "The PDAM has an adequate amount of staff with appropriate skills to avoid or reduce the duration of disruptions to water services in the event of the most severe hazards, which we face only once every five to ten years."	• Strongly disagree...1 • Agree...2 • Neutral...3 • Agree...4 → **G-7** • Strongly agree...5 → **G-7**

Question	Question Text	Response Options
G-6.1	Please explain why you don't agree with the statement.	_____
G-7	What proportion of your PDAM's technical personnel are women? **Enumerator instructions:** *Allow to reference documentation if it is available, and otherwise ask for their best estimate. Technical personnel include engineers, operators, lab technicians, etc.*	_____percent
G-7.1	Do men and women technical personnel have equal participation in PDAM capacity building programs?	• Women have much higher participation...1 • Women have somewhat higher participation...2 • Men and women participate equally...3 • Men have somewhat higher participation...4 • Men have much higher participation ...5
G-7.2	Do men and women technical personnel have equal opportunities for promotion and advancement?	• Women have many more opportunities...1 • Women have a few more opportunities...2 • Men and women have equal opportunities...3 • Men have a few more opportunities ...4 • Men have many more opportunities ...5
G-8	What proportion of PDAM non-technical personnel are women? **Enumerator instructions:** *Allow to reference documentation if it is available, and otherwise ask for their best estimate. Non-technical personnel include managers, administrative staff, customer service staff, other front office staff, etc.*	_____percent
G-8.1	Do men and women non-technical personnel have equal participation in PDAM capacity building programs?	• Women have much higher participation...1 • Women have somewhat higher participation...2 • Men and women participate equally...3 • Men have somewhat higher participation...4 • Men have much higher participation ...5
G-8.2	Do men and women non-technical personnel have equal opportunities for promotion and advancement?	• Women have many more opportunities...1 • Women have a few more opportunities...2 • Men and women have equal opportunities...3 • Men have a few more opportunities...4 • Men have many more opportunities...5
G-9	Do your PDAM's standard operating procedures (SOPs) include considerations of gender equality and social inclusion?	• Yes...1 • No...0 • Don't know...-98
G-10	Do your PDAM's customer service standards include considerations for gender equality and/or social inclusion?	• Yes...1 • No...0 • Don't know...-98

Question	Question Text	Response Options
G-11	How many of your colleagues in the PDAM do you believe would agree with the following statement: "Women and men are equally capable of performing executive leadership roles required for a PDAM's successful operation."	• Almost none would agree...1 • Only some would agree...2 • About as many would agree as would disagree...3 • Most would agree...4 • Almost all would agree...5
G-12	How many of your colleagues in the PDAM do you believe would agree with the following statement: "Women and men are equally capable of performing technical roles required for a PDAM's successful operation."	• Almost none would agree...1 • Only some would agree...2 • About as many would agree as would disagree...3 • Most would agree...4 • Almost all would agree...5
G-13	How many of your colleagues in the PDAM do you believe would agree with the following statement: "Women and men are equally capable of performing non-technical roles required for a PDAM's successful operation."	• Almost none would agree...1 • Only some would agree...2 • About as many would agree as would disagree...3 • Most would agree...4 • Almost all would agree...5
G-14	How many of your colleagues in the PDAM do you believe would agree with the following statement: "A similar number of women and men should serve in PDAM executive leadership roles, as long as they have adequate training for their role."	• Almost none would agree...1 • Only some would agree...2 • About as many would agree as would disagree...3 • Most would agree...4 • Almost all would agree...5
G-15	How many of your colleagues in the PDAM do you believe would agree with the following statement: "A similar number of women and men should serve in technical roles, as long as they have adequate training for their role."	• Almost none would agree...1 • Only some would agree...2 • About as many would agree as would disagree...3 • Most would agree...4 • Almost all would agree...5
G-16	How many of your colleagues in the PDAM do you believe would agree with the following statement: "A similar number of women and men should serve in non-technical roles, as long as they have adequate training for their role."	• Almost none would agree...1 • Only some would agree...2 • About as many would agree as would disagree...3 • Most would agree...4 • Almost all would agree...5

H. GOVERNMENT COMMITMENT

Enumerator read aloud: *We are almost finished. I am going to ask some final questions now about your PDAM's interaction with your counterparts in the [kota/kabupaten] government.*

Question	Question Text	Response Options
H-1	To what extent do you agree with the following statement: "The Regional Head in this kabupaten/kota is very supportive of our PDAM, and committed to ensuring we can provide quality water services to our citizens."	• Strongly disagree...1 • Agree...2 • Neutral...3 • Agree...4 → **H-2** • Strongly agree...5 → **H-2**
H-1.1	Please explain why you do not agree.	_____
H-2	Has the local government approved tariffs which are sufficient to cover your PDAM's operating costs?	• Yes...1 • No...0 • Don't know...-98
H-3	Has the local government provided adequate subsidies to ensure your PDAM reaches full cost recovery?	• Yes...1 • No...0 • Don't know...-98
H-4	Has the current Bupati/Walikota supported drafting regional regulations on drinking water tariffs?	• Yes...1 • No...0 • Don't know...98

I. WATER QUALITY TESTING COMPLIANCE

Enumerator read: We are almost finished. I am going to ask some final questions now about your PDAM's role in ensuring water quality at the point of use.

Question	Question Text	Response Options
I-1	Does your PDAM test water quality directly at the point of use?	• Yes...1 • No...0 → **J-1**
I-2	For which users is water quality tested at the point of use? **Enumerator instructions:** *Read each option and select all that apply.*	• Domestic users...A • Non-domestic users...B • Other, specify (_____)...V
Repeat questions below for each user named in I-2		
I-2.1.1	Which parameters are monitored at the point of use? **Enumerator instructions:** *Read each option and select all that apply.*	• Chemical parameters...A • Microbiological parameters...B • Physical parameters...C • Don't now...Y
I-2.1.2.c	How many samples are taken to test chemical parameters? **Enumerator instructions:** *This is the number of domestic users (i.e., households), non-domestic users (i.e., businesses), etc. which have samples taken.*	_____ samples [Only relevant if chemical parameters (1) selected for I-2.1.1]
I-2.1.3.c	How often is water quality sampling for chemical parameter testing?	• Once per month...1 • Once per 3 months...2 • Once a year...3 • Other, specify (_____)...-96 [Applies only if chemical parameter (1) is selected in I-2.1.1]
I-2.1.2.m	How many samples are taken to test microbiological parameters? **Enumerator instructions:** *This is the number of domestic users (i.e., households), non-domestic users (i.e., businesses), etc. which have samples taken.*	_____ samples [Only relevant if microbiological parameters (2) selected for I-2.1.1]
I-2.1.3.m	How often is water quality sampling for microbiological parameter testing?	• Once per month...1 • Once per 3 months...2 • Once a year...3 • Other, specify (_____)...-96 [Applies only if chemical parameter (1) is selected in I-2.1.1]
I-2.1.2.p	How many samples are taken for physical parameter testing? **Enumerator instructions:** *This is the number of domestic users (i.e., households), non-domestic users (i.e., businesses), etc. which have samples taken.*	_____samples [Only relevant if physical parameters (3) selected for I-2.1.1]

Question	Question Text	Response Options
I-2.1.3.p	How often is water quality sampling for physical parameter testing?	• Once per month...1 • Once per 3 months...2 • Once a year...3 • Other, specify (____)...-96 [Only relevant if physical parameters (3) selected for I-2.1.1]

J. CONCLUSION AND DISPOSITION OF THE CASE

Enumerator read aloud: *The interview is now complete. Thank you very much for your time and responses. If you have any questions, please contact Article 33 at 0878 7578 2721.*

Question	Question Text	Response Options
Enumerator: All these questions to be completed after dismissing respondent but before leaving the premises. None of these questions should be read aloud.		
J-1	What is the final status of this interview?	• Complete interview...1 • Partial interview (re-visit)...2 • Partial interview (no re-visit)...3 • Refusal...4 • Break-off...5 • Non-contact, unable to access housing unit...6 • Non-contact, no one at the residence...7 • Non-contact, respondent not available...8 • Unknown if housing unit...9 • Unknown if eligible respondent present...10 • Dropped out of sample...11 • Not a housing unit...12 • Unoccupied housing unit...13 • Other, please specify (_____)...-96
J-2.1	In your opinion, was the respondent cooperative and engaged?	• Yes...1 → **I-3.1** • No... 0
J-2.2	Please explain	_____
J-3.1	In your opinion, did the respondent answer questions honestly and accurately to the best of their ability?	• Yes...1 → I-4.1 • No...0
J-3.2	Please explain	_____
J-4.1	Was anyone beside the respondent present during the interview?	• Yes...1 → **I-5.1** • No...0
J-4.2	Who was present?	_____
J-5.1	Did the respondent consult anyone else to answer questions?	• Yes...1 • No...0
J-5.2	Who did they consult?	_____

LG SURVEY – BAHASA INDONESIA

0. INFORMASI WAWANCARA

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
0-1	Nama pewawancara	[daftar yang sudah diisi sebelumnya]
0-2	Provinsi	• Sumatera Utara…12 • Jawa Barat…32 • Jawa Tengah…33 • Jawa Timur…35 • Banten…36 • Sulawesi Selatan…73
0-3	Kabupaten/Kota	[Opsi dibatasi hanya berisi provinsi terpilih yang memungkinkan]
0-4	Koordinat garis lintang	[Idealnya ditangkap secara otomatis]
0-5	Koordinat garis lintang	[Idealnya ditangkap secara otomatis]

A. PERSETUJUAN DAN PROFIL RESPONDEN

Enumerator membaca dengan keras: Halo. Saya [NAMA PEWAWANCARA] dari Artikel Tiga Tiga. Saya datang untuk melakukan survei terkait pengelolaan sumber daya air dan layanan air di [kabupaten/kota] Ibu/Bpk.

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
A-1	Selamat pagi/siang. Perkenalkan nama saya *[**NAMA PEWAWANCARA**]* dari Article 33 Indonesia, sebuah Lembaga riset sosial di Jakarta. Lembaga kami saat ini sedang melakukan melakukan survei mengenai penyediaan layanan air dan praktik pengelolaan sumber daya air di beberapa kota dan kabupaten di Indonesia. Studi ini didanai oleh United States Agency for International Development (USAID), sebuah badan pemerintah AS yang membantu proyek-proyek pembangunan di Indonesia, dan dilaksanakan oleh NORC dari Universitas Chicago, AS, Tetra Tech ARD, dan Article 33 Indonesia. Studi ini juga didukung oleh Bappenas dan Kementerian Pekerjaan Umum dan Perumahan Rakyat (PUPR). Bpk/Ibu terpilih untuk diwawancara karena peran Bpk/Ibu yang kami yakini mengetahui perencanaan yang diperlukan untuk berbagai jenis layanan air di kabupaten/kota ini. Jika Ibu/Bpk setuju untuk berpartisipasi dalam wawancara ini, kami akan mengajukan pertanyaan tentang sumber air baku yang digunakan penyedia layanan air di kabupaten/kota Ibu/Bpk dan tentang cara pemerintah kabupaten/kota Ibu/Bpk mengidentifikasi dan mengatasi risiko pada layanan air di kabupaten/kota. Kami juga akan menanyakan pendapat Ibu/Bpk tentang topik-topik terkait gender di lembaga WASH. Wawancara ini diperkirakan memakan waktu sekitar tiga puluh menit. Setiap informasi yang Ibu/Bpk berikan yang dapat mengidentifikasi Ibu/Bpk akan dijaga kerahasiaannya oleh pihak yang melakukan studi ini. Peneliti akan menggunakan data untuk tujuan analisis statistik saja. Informasi dari wawancara ini hanya akan disajikan bersamaan dengan informasi dari wawancara lain dalam studi ini. Studi ini tidak akan mempublikasikan informasi apa pun tentang Ibu/Bpk atau pemerintah kabupaten/kota Ibu/Bpk secara khusus. Partisipasi Ibu/Bpk bersifat sukarela dan Ibu/Bpk dapat memilih untuk tidak menjawab salah satu atau semua pertanyaan dengan alasan apa pun. Ibu/Bpk dapat memilih untuk tidak berpartisipasi tanpa konsekuensi apa pun. Kami memperkirakan bahwa tidak ada risiko jika Ibu/Bpk berpartisipasi. Ibu/Bpk tidak akan menerima keuntungan atau kompensasi apa pun dari berpartisipasi Ibu/Bpk. Kami tidak akan membagikan jawaban Ibu/Bpk kepada rekan kerja Ibu/Bpk di pemerintah kabupaten/kota, jadi jangan ragu untuk menyampaikan pendapat jujur Ibu/Bpk. Jika Ibu/Bpk memiliki pertanyaan, kekhawatiran, atau keluhan tentang studi atau hak Ibu/Bpk sebagai peserta, Ibu/Bpk dapat menghubungi [MASUKKAN NAMA KONTAK ARTIKEL TIGA TIGA DAN DETAIL]. Jika Ibu/Bpk memiliki pertanyaan untuk saya, jangan ragu untuk bertanya setiap saat selama wawancara.	
A-2	Dalam beberapa kata saja, tolong jelaskan pemahaman Ibu/Bpk tentang tujuan wawancara hari ini dan konfirmasikan siapa yang akan Ibu/Bpk hubungi jika Ibu/Bpk memiliki pertanyaan.	_____
A-3	Apakah Ibu/Bpk memiliki pertanyaan tentang studi?	*Enumerator: Jawab pertanyaan, jika ada* • Ya…1 • Tidak…0

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
A-4	Apakah Ibu/Bpk setuju untuk berpartisipasi?	• Ya…1 • Tidak…0 [Jika 'Tidak', Lompat ke Modul I]
A-5	Saya bermaksud untuk merekam audio bagian dari wawancara ini untuk tujuan pengendalian mutu. Saya akan merekam hanya dengan seizin Ibu/Bpk. Apakah Ibu/Bpk setuju wawancara ini direkam?	• Ya…1 • Tidak…0
A-6	Untuk pengendalian mutu, seorang pengawas dari Artikel Tiga Tiga akan menghubungi beberapa rumah tangga yang berpartisipasi dalam survei ini untuk mengkonfirmasi jawaban mereka pada pertanyaan survei Panggilan ini akan berlangsung maksimal ten menit. Apakah Ibu/Bpk mengizinkan kami untuk menghubungi Ibu/Bpk, jika perlu?	• Ya…1 • Tidak…0 [Jika 'Tidak', Lompat ke A-8]
A-7.1	Nama Responden	_____
A-7.2	Nomor Telepon Responden (rumah)	_ _ _ _ _ _ _ _ _ _ _ [Dibatasi hingga 11 digit]
A-7.3	Nomor Telepon Responden (HP)	_ _ _ _ _ _ _ _ _ _ _ _ _ [Dibatasi hingga 13 digit]
A-8.1	Apa peran responden di Bappeda? *Enumerator: Responden yang dimaksud adalah penanggung jawab sumber daya air, yang memegang jabatan Subdirektur Sumber Daya Air atau sejenisnya*	_____
A-8.2	Apakah responden mewakili Bappeda pada Pokja AMPL/PPAS kabupaten/kota	• Ya…1 • Tidak…0
A-9	Apa jenis kelamin Ibu/Bpk?	• Perempuan…1 • Laki-laki…0 • Lainnya, sebutkan (_____)…-96

B. LATAR BELAKANG RESPONDEN DAN PROFIL SUMBER AIR BAKU

Enumerator membaca dengan keras: Mula-mula, saya akan mengajukan beberapa pertanyaan tentang sumber air baku yang digunakan penyedia layanan air di kabupaten/kota Ibu/Bpk.

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
B-1	Mana di antaraberikut ini yang merupakan sumber air baku bagi setidaknya satu penyedia layanan air di kabupaten/Kota Ibu/Bpk? Sumber air dapat dimanfaatkan PDAM, penyedia layanan air berbasis masyarakat dan/atau penyedia layanan air swasta. *Enumerator: Baca opsi jawaban dengan keras dan pilih semua yang sesuai*	• Sungai, melintasi beberapa provinsi...A • Sungai melintasi beberapa kabupaten/kota dalam satu provinsi...B • Sungai dalam batas kabupaten/kota...C • Danau, melintasi beberapa kabupaten/kota dalam satu provinsi...D • Danau dalam batas kabupaten/kota...E • Mata air dalam batas kabupaten/kota...F • Akuifer/air tanah...G • Lainnya, sebutkan.. (_____)...V
Item B-2.1.1 dan B-2.1.2 diulang untuk setiap jenis sumber yang dipilih di B-1.		
B-2.1.1	Ada berapa jenis sumber yang digunakan sebagai sumber air baku oleh penyedia layanan air minum di kota ini?	—— ____ [Nilai dibatasi 1-10]
B-2.1.2	Jenis penyedia layanan apa yang menggunakan sumber ini di kabupaten/kota Ibu/Bpk? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• PDAM…A • Penyedia layanan air berbasis masyarakat…B • Penyedia layanan air swasta…C • Badan Layanan Umum Daerah (BLUD)… D • Unit Pelaksana Teknis Daerah (UPTD)… E • Bumdes… F • Lainnya, sebutkan (_____)…V
B-3.1	Dengan mempertimbangkan semua sumber air kabupaten/kota seluruhnya, sejauh mana Ibu/Bpk setuju dengan pernyataan ini: "Air yang tersedia dari sumber air baku di kabupaten/kota saya, cukup untuk memenuhi permintaan konsumen saat ini baik selama kondisi musim hujan normal maupun kondisi musim kemarau normal"	• Sangat Tidak Setuju…1 • Agak tidak setuju…2 • Netral…3 • Agak setuju…4 [Lompat ke B-3.2] • Sangat Setuju…5 [Lompat ke B-3.2] • Tidak Tahu…-98 [Lompat ke B-3.2]
B-3.1.1	Menurut Ibu/Bpk, pengguna mana yang jumlah permintaannya tidak tercukupi baik selama musim hujan normal ataupun musim kemarau normal? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Pengguna PDAM…A • Pengguna layanan air berbasis masyarakat…B • Pengguna layanan air swasta…C • Lainnya, sebutkan (_____)…V
B-3.2	Dengan mempertimbangkan semua sumber air kabupaten/kota seluruhnya, sejauh mana Ibu/Bpk setuju dengan pernyataan ini: "Air yang tersedia dari sumber air baku di kabupaten/kota saya cukup untuk memenuhi permintaan konsumen saat ini bahkan pada kondisi ekstrim seperti banjir, badai ekstrim, tanah longsor pada musim hujan dan kekeringan atau kebakaran di musim kemarau?"	• Sangat Tidak Setuju…1 • Agak tidak setuju…2 • Netral…3 • Agak setuju…4 [Lompat ke B-3.3] • Sangat Setuju…5 [Lompat ke B-3.3] • Tidak Tahu…-98 [Lompat ke B-3.3]

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
B-3.2.1	Menurut Ibu/Bpk, pengguna mana yang jumlah permintaannya tidak tercukupi saat kondisi musim ekstrem? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Pengguna PDAM…A • Pengguna layanan air berbasis masyarakat…B • Pengguna layanan air swasta…C • Lainnya, sebutkan (_____)…V
B-3.3	Dengan mempertimbangkan semua sumber air kabupaten/kota seluruhnya, sejauh mana Ibu/Bpk setuju dengan pernyataan ini: "*Kualitas* air dari sumber air baku di kabupaten/kota saya yang diolah dengan mengikuti prosedur pengolahan standar, sudah aman untuk didistribusikan baik selama kondisi musim hujan normal maupun kondisi musim kemarau normal?"	• Sangat Tidak Setuju…1 • Agak tidak setuju…2 • Netral…3 • Agak setuju…4[Lompat ke B-3.4] • Sangat Setuju…5[Lompat ke B-3.4] • Tidak Tahu…-98[Lompat ke B-3.4]
B-3.3.1	Menurut Ibu/Bpk, untuk pengguna mana kualitas air yang yang diolah dengan mengikuti prosedur pengolahan standar, tidak/kurang aman untuk didistribusikan saat musim hujan normal ataupun musim kemarau normal? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Pengguna PDAM…A • Pengguna layanan air berbasis masyarakat…B • Pengguna layanan air swasta…C • Lainnya, sebutkan (_____)…V
B-3.4	Dengan mempertimbangkan semua sumber air kabupaten/kota seluruhnya, sejauh mana Ibu/Bpk setuju dengan pernyataan ini: "Kualitas air dari sumber air baku di kabupaten/kota saya yang sudah diolah dengan mengikuti prosedur pengolahan standar, aman untuk didistribusikan bahkan pada saat kondisi ekstrim seperti banjir, badai ekstrim, tanah longsor pada musim hujan, dan kekeringan atau kebakaran saat musim kemarau ?"	• Sangat Tidak Setuju…1 • Agak tidak setuju…2 • Netral…3 • Agak setuju…4 [Lompat ke B-3.5] • Sangat Setuju…5 [Lompat ke B-3.5] • Tidak Tahu…-98 [Lompat ke B-3.5]
B-3.4.1	Menurut Ibu/Bpk, untuk pengguna mana kualitas air yang diolah dengan mengikuti prosedur pengolahan standar tidak/kurang aman untuk didistribusikan saat kondisi musim ekstrem? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Pengguna PDAM…A • Pengguna layanan air berbasis masyarakat…B • Pengguna layanan air swasta…C • Lainnya, sebutkan (_____)…V

C. IDENTIFIKASI RISIKO

Enumerator membaca dengan keras: Saya akan mengajukan beberapa pertanyaan mengenai bahaya yang menimbulkan risiko terhadap kemampuan penyedia layanan air menyediakan layanan air di kabupaten/kota Ibu/Bpk.

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
C-1	Sebutkan tiga bahaya yang menimbulkan risiko terbesar terhadap kemampuan penyedia layanan air dalam menyediakan layanan air yang dapat dilbu/Bpklkan di kabupaten/kota. *Enumerator: Responden harus memilih maksimal tiga, tetapi dapat menyebutkan kurang dari tiga*	• Banjir…A • Topan/badai ekstrim…B • Kekeringan…C • Tanah longsor…D • Kebakaran hutan…E • Gempa bumi…F • Gunung berapi…G • Tsunami…H • Intrusi air laut…I • Penurunan tanah…J • Kontaminasi industri…K • Kontaminasi pertanian…L • Kegagalan sistem listrik kota…M • Lainnya, sebutkan (_____)…V
Item di bawah diulang untuk setiap bahaya yang disebutkan dalam C-1.		
C-2.1.1	Seberapa sering bahaya ini memengaruhi layanan air di kabupaten/kota Ibu/Bpk dalam 5 tahun terakhir? *Enumerator: Isi "-98" bila responden tidak tahu*	__ kali [Nilai dibatasi 0-50 kali]
C-2.1.2	Mempertimbangkan tren historis dan kemungkinan pengaruh perubahan iklim, seberapa besar kemungkinan bahaya ini memengaruhi penyediaan layanan air dalam 5 tahun ke depan?	• Diperkirakan tidak terjadi…1 Kecil kemungkinan terjadi akan, hanya dalam keadaan luar biasa…2 • Mungkin terjadi setidaknya sekali…3 • Kemungkinan besar terjadi setidaknya sekali…4 • Hampir pasti terjadi setidaknya sekali…5
C-2.1.4	Apa konsekuensi yang paling mungkin terjadi dari bahaya ini terhadap mutu air?	• Air tidak aman untuk diminum kurang dari satu hari…1 • Air yang tidak aman untuk diminum lebih dari satu hari tetapi kurang dari satu minggu…2 • Air yang tidak aman untuk diminum lebih dari satu minggu tetapi kurang dari satu bulan…3 • Air tidak aman untuk diminum lebih dari satu bulan…4
C-2.1.5	Apa konsekuensi yang paling mungkin terjadi dari bahaya ini terhadap ketersediaan layanan air?	• Layanan air tidak tersedia kurang dari satu hari…1 • Layanan air tidak tersedia lebih dari satu hari tetapi kurang dari satu minggu…2

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
		• Layanan air tidak tersedia lebih dari satu minggu tetapi kurang dari satu bulan…3 • Layanan air tidak tersedia lebih dari satu bulan…4
C-2.1.6	Apa konsekuensi yang paling buruk dari bahaya ini terhadap mutu air?	• Air tidak aman untuk diminum kurang dari satu hari…1 • Air yang tidak aman untuk diminum lebih dari satu hari tetapi kurang dari satu minggu…2 • Air yang tidak aman untuk diminum lebih dari satu minggu tetapi kurang dari satu bulan…3 • Air tidak aman untuk diminum lebih dari satu bulan…4
C-2.1.7	Apa konsekuensi yang paling buruk dari bahaya ini terhadap ketersediaan layanan air?	• Layanan air tidak tersedia kurang dari satu hari…1 • Layanan air tidak tersedia lebih dari satu hari tetapi kurang dari satu minggu…2 • Layanan air tidak tersedia lebih dari satu minggu tetapi kurang dari satu bulan…3 • Layanan air tidak tersedia lebih dari satu bulan…4

D. PENGGUNAAN DATA RISIKO

Enumerator membaca dengan keras: Saya akan bertanya tentang data yang digunakan lembaga Ibu/Bpk untuk mengidentifikasi dan memantau potensi risiko pada layanan air Ibu/Bpk

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
D-1	Apakah pemerintah kabupaten/kota Ibu/Bpk memantau data *kuantitas* air yang tersedia dari sumber air baku utama Ibu/Bpk secara *real time*?	• Ya…1 • Tidak…0 [Lompat ke D-2] • Tidak tahu…-98 [Lompat ke D-2]
D-1.1	Sumber data apa yang Ibu/Bpk gunakan untuk memantau *kuantitas* air yang tersedia dari sumber air baku utama Ibu/Bpk? *Enumerator: Baca semua opsi dan pilih semua yang sesuai*	• Meteran PDAM Induk dengan logger data yang terpasang…A • Meteran aliran sungai B(B)WS…B • Pengukur aliran sungai PJT…C • Lainnya, sebutkan (_____)…V
D-1.2	Seberapa sering pemantauan dilakukan? *Enumerator: biarkan responden untuk menjawab sesuka mereka dan kemudian catat unit pada jawabannya*	_____ kali per [hari/minggu/bulan]
D-1.3	Apakah peralatan pemantauan berfungsi secara umum?	• Ya…1 • Tidak…0 • Tidak tahu…-98
D-2	Apakah kabupaten/kota Ibu/Bpk memantau secara *real time* mutu air yang tersedia dari sumber air baku utama Ibu/Bpk?	• Ya…1 • Tidak…0 [Lompat ke D-3] • Tidak tahu…-98 [Lompat ke D-3]
D-2.1	Sumber data apa yang Ibu/Bpk gunakan untuk memantau *mutu* air yang tersedia dari sumber air baku utama Ibu/Bpk? *Enumerator: Baca semua opsi dan pilih semua yang sesuai*	• Pengujian laboratorium PDAM dengan logbook yang diisi secara manual…1 • Pengujian laboratorium PDAM yang dimasukkan ke dalam sistem informasi manajemen…2 • Pengujian dari Kementerian Lingkungan Hidup dan Kehutanan setempat…3 • Pengujian dari PJT…4 • Lainnya, sebutkan (_____)…-96
D-2.2	Seberapa sering pemantauan dilakukan? *Enumerator: biarkan responden untuk menjawab sesuka mereka dan kemudian catat unit pada jawabannya*	_____ kali per [hari/minggu/bulan]

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
D-2.3	Apakah peralatan pemantauan berfungsi secara umum?	• Ya…1 • Tidak…0 • Tidak tahu…-98
D-3	Apakah kabupaten/kotaIbu/Bpk memantau sistem peringatan dini untuk bencana hidrometeorologi seperti badai ekstrem yang menimbulkan risiko terhadap layanan air?	• Ya…1 • Tidak…0 [Lompat ke D-4] • Tidak berlaku (tidak menimbulkan risiko)…-97 [Lompat ke D-4] • Tidak tahu…-98 [Lompat ke D-4]
D-3.1	Sistem peringatan dini mana yang Ibu/Bpk pantau? *Enumerator: Baca semua opsi dan pilih semua yang sesuai*	• Sistem peringatan dini BMKG…A • Lainnya, sebutkan (_____)…V
D-4	Apakah kabupaten/kota Ibu/Bpk memantau sistem peringatan dini untuk bencana geologi seperti letusan gunung berapi dan gempa bumi menimbulkan risiko terhadap layanan air?	• Ya…1 • Tidak…0 [Lompat ke Modul E] • Tidak berlaku (ini tidak menimbulkan risiko)…-97 [Lompat ke Modul E] • Tidak tahu…-98[Lompat ke Modul E]
D-4.1	Sistem peringatan dini mana yang Ibu/Bpk pantau? *Enumerator: Baca semua opsi dan pilih semua yang sesuai*	• InaTEWS…A • InAWARE…B • Lainnya, sebutkan (_____)…V

E. PERENCANAAN MITIGASI DAN PENGHINDARAN RISIKO

Enumerator membaca dengan keras: Sekarang saya akan mengajukan beberapa pertanyaan terkait perencanaan pemerintah kabupaten/kota untuk memastikan layanan air yang berkelanjutan pada berbagai situasi yang berbeda.

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
E-1	Apakah pemerintah kabupaten/kota Ibu/Bpk memiliki rencana pengamanan air minum yang meliputi tanggung jawab untuk memastikan pengawasan yang memadai atas PDAM, layanan air berbasis masyarakat, dan swasta yang diperbarui dalam 5 tahun terakhir?	• Tidak…0 [Lompat ke E-5] • Ya, tapi tidak untuk ketiga jenis layanan air tersebut…1 • Ya, untuk ketiga jenis layanan air tersebut…2 [Lompat ke E-2] • Tidak Tahu…-98[Lompat ke E-5]
E-1.1	Manakah dari penyedia layanan berikut yang tercakup dalam rencana pengamanan air minum Ibu/Bpk? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• PDAM…A • Penyedia layanan air berbasis masyarakat…B • Penyedia layanan air swasta…C • Badan Layanan Umum Daerah (BLUD)…D • Unit Pelaksana Teknis Daerah (UPTD)…E • Bumdes… F • Lainnya, sebutkan (_____)…V
E-2	Potensi bahaya apa pada layanan air di kabupaten/kota Ibu/Bpk yang tercakup dalam rencana mitigasi dan penghindaran risiko dalam rencana pengamanan air minum Ibu/Bpk? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Banjir…A • Topan/badai ekstrim…B • Kekeringan…C • Tanah longsor…D • Kebakaran hutan…E • Gempa bumi…F • Gunung berapi…G • Tsunami…H • Intrusi air laut…I • Penurunan tanah…J • Kontaminasi industri…K • Kontaminasi pertanian…L • Kegagalan sistem listrik kota…M • Lainnya, sebutkan (_____)…V
E-3	Sejauh mana Ibu/Bpk setuju dengan pernyataan berikut: "Saya yakin bahwa rencana keamanan air kabupaten/kota memadai untuk menghindari atau mengurangi durasi gangguan pada layanan air jika terjadi bahaya yang biasa kami hadapi setiap tahun"	• Sangat Tidak Setuju…1 • Agak Tidak Setuju…2 • Netral…3 • Agak Setuju…4 [Lompat ke E-4] • Sangat Setuju…5[Lompat ke E-4]
E-3.1	Pengguna mana yang menurut Ibu/Bpk paling mungkin akan mengalami gangguan? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Pengguna PDAM…A • Pengguna layanan air berbasis masyarakat…B • Pengguna layanan air swasta…C • Lainnya, sebutkan (_____)…V

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
E-4	Sejauh mana Ibu/Bpk setuju dengan pernyataan berikut: "Saya yakin bahwa rencana keamanan air kabupaten/kota memadai untuk menghindari atau mengurangi durasi gangguan pada layanan air jika terjadi bahaya yang paling buruk, yang kami hadapi hanya satu kali setiap lima atau sepuluh tahun"	• Sangat Tidak Setuju…1 • Agak Tidak Setuju…2 • Netral…3 • Agak Setuju…4 [Lompat ke E-5] • Sangat Setuju…5 [Lompat ke E-5]
E-4.1	Pengguna mana yang menurut Ibu/Bpk paling mungkin akan mengalami gangguan? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• PDAM…A • Penyedia layanan air berbasis masyarakat…B • Penyedia layanan air swasta…C • Badan Layanan Umum Daerah (BLUD)…D • Unit Pelaksana Teknis Daerah (UPTD)…E • Bumdes… F • Lainnya, sebutkan (_____)…V
E-5a	Apakah Bappeda sudah tergabung dalam suatu Kelompok Kerja/Kelompok Koordinasi dengan Lembaga-lembaga lain dalam mengelola sumber daya air dan menghindari atau memitigasi risiko terhadap sumber-sumber air tersebut?	• Ya…1 • Tidak…0
E-5	Lembaga mana saja yang sudah tergabung dengan Bappeda dalam suatu Kelompok Kerja pengelola sumber air tersebut? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Bupati atau Walikota…A • Pemerintah provinsi…B • B(B)WS…C • Dinas energi dan pertambangan…D • Dinas lingkungan hidup dan kehutanan…E • Dinas kesehatan…F • Dinas pekerjaan umum dan perumahan rakyat…G • PDAM…H • Badan Penanggulangan Bencana Daerah (BPBD)…I • Lainnya, sebutkan (_____)…V
Ulangi pertanyaan E-5.1.1 hingga E-5.1.4 untuk setiap lembaga yang disebutkan pada E-5.		
E-5.1	Seberapa sering Bappeda dan lembaga-lembaga lain yang tergabung dalam Kelompok Kerja tersebut melakukan koordinasi untuk tujuan pemantauan potensi bahaya pada layanan air minum di kabupaten/kota?	• Kurang dari sekali per tahun…1 • 1-3 kali per tahun…2 • 1-2 kali per kuartal…3 • 1 kali per bulan…4 • 2-3 kali per bulan…5 • 1-3 kali per minggu …6 • Lebih dari 3 kali per minggu…7
E-5.2	Sejauh mana Ibu/Bpk setuju dengan pernyataan berikut: "Bappeda dan lembaga-lembaga lain yang tergabung dalam Kelompok Kerja pengelolaan air memiliki pemahaman yang sama tentang bahaya pada layanan air di kabupaten/kota, termasuk kemungkinan dan konsekuensi potensialnya"	• Sangat Tidak Setuju…1 • Agak Tidak Setuju…2 • Netral…3 • Agak Setuju…4 □ E-5.3 • Sangat Setuju…5 □ E-5.3

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
E-5.2.1	Lembaga mana yang menurut Bapak/Ibu belum memiliki pemahaman yang sama dengan Bappeda tentang bahaya terhadap layanan air di kabupaten/kota ini *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Bupati atau Walikota…A • Pemerintah provinsi…B • B(B)WS…C • Dinas energi dan pertambangan…D • Dinas lingkungan hidup dan kehutanan…E • Dinas kesehatan…F • Dinas pekerjaan umum dan perumahan rakyat…G • PDAM…H • Badan Penanggulangan Bencana Daerah (BPBD)…I • Lainnya, sebutkan (_____)…V
E-5.3	Sejauh mana Ibu/Bpk setuju dengan pernyataan berikut: "Bappeda dan lembaga-lembaga lain yang tergabung dalam Kelompok Kerja pengelolaan air sudah berkoordinasi secara efektif untuk menghindari dan/atau memitigasi risiko pada layanan air minum di kabupaten/kota ini"	• Sangat Tidak Setuju…1 • Agak Tidak Setuju…2 • Netral…3 • Agak Setuju…4 □ Module F • Sangat Setuju…5 □ Module F
E-5.3.1	Lembaga mana yang menurut Bapak/Ibu belum berkoordinasi secara efektif dengan Bappeda untuk menghindari atau memitigasi risiko terhadap layanan air di kabupaten/kota ini *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Bupati atau Walikota…A • Pemerintah provinsi…B • B(B)WS…C • Dinas energi dan pertambangan…D • Dinas lingkungan hidup dan kehutanan…E • Dinas kesehatan…F • Dinas pekerjaan umum dan perumahan rakyat…G • PDAM…H • Badan Penanggulangan Bencana Daerah (BPBD)…I • Lainnya, sebutkan (_____)…V

F. PEMBIAYAAN MITIGASI DAN PENGHINDARAN RISIKO

Enumerator membaca dengan keras: Sekarang saya akan mengajukan beberapa pertanyaan terkait posisi keuangan pemerintah kabupaten/kota untuk memastikan layanan air yang berkelanjutan pada berbagai situasi yang berbeda.

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
F-1	Sumber investasi eksternal apa yang Ibu/Bpk ketahui dapat diupayakan untuk mendanai kegiatan untuk menghindari, memitigasi, atau memberikan reaksi cepat atas gangguan-gangguan terhadap pelayanan air tingkat daerah? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Swasta…A • Pemerintah Kabupaten/Kota…B • Pemerintah Provinsi…C • Pemerintah Pusat…D • Lembaga Donor Dalam Negeri…E • Lembaga Donor Asing…F • Lainnya, sebutkan (_____)…V
F-2	Dari sumber-sumber tersebut, manakah yang telah memberikan investasi kepada pemerintah kabupaten/kota dalam lima tahun terakhir?	• Swasta…A • Pemerintah Kabupaten/Kota…B • Pemerintah Provinsi…C • Pemerintah Pusat…D • Lembaga Donor Dalam Negeri…E • Lembaga Donor Asing…F • Lainnya, sebutkan (_____)…V ☐ Tidak ada…Z [Lompat ke F-3]
Ulangi item F-2.1-F-2.2 untuk setiap sumber yang disebutkan pada F-2.		
F-2.1.1	Dari opsi-opsi berikut, mana yang paling tepat menggambarkan tujuan [investasi]? *Enumerator: Baca opsi dengan keras.* [Teks pertanyaan harus diperbarui secara dinamis berdasarkan jawaban pada F-2]	• Pencegahan Risiko…1 • Mitigasi Risiko…2 • Penanggulangan Bencana…3 • Pemulihan Bencana…4
F-2.1.2	Berapa perkiraan jumlah [investasi]? *Enumerator: Isi -98 bila responden tidak tahu.* [Teks pertanyaan harus diperbarui secara dinamis berdasarkan jawaban pada F-2]	_____ IDR
F-3	Apakah anggaran pemerintah kabupaten/kota Ibu/Bpk mencakup alokasi untuk pencegahan dan mitigasi risiko?	• Ya…1 • Tidak…0 [Lompat ke F-4]
F-3.1.1	Berapa besarannya untuk tahun anggaran terakhir? *Enumerator: Isi -98 bila responden tidak tahu.*	_____ IDR
F-3.1.2	*Enumerator: Tanyakan apakah responden dapat menunjukkan bukti yang terdokumentasi dari alokasi ini pada anggaran tahunan mereka dan masukkan perinciannya di sini*	• Tidak, responden tidak menunjukkan bukti yang terdokumentasi…0 • Ya, responden menunjukkan bukti yang terdokumentasi, sebutkan (_____)…1

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
F-3.2.1	Apakah anggaran ini khusus digunakan untuk pencegahan dan mitigasi risiko, atau dapat digunakan untuk tujuan lain?	• Ya, khusus untuk pencegahan dan mitigasi risiko…1 • Tidak, dapat digunakan untuk keperluan lain…0 [Lompat ke F-4]
F-3.2.2	Apa alasan anggaran tidak dapat digunakan untuk tujuan lain?	• Peraturan pemerintah daerah melindungi anggaran ini…1 • Prosedur operasional stIbu/Bpkr pemerintah daerah melindungi anggaran ini…2 • Norma/Ekspektasi – semua orang tahu anggaran ini dilindungi…3 • Lainnya, sebutkan (_____)…-96
F-4	Apakah anggaran pemerintah kabupaten/kota Ibu/Bpk mencakup dana darurat untuk penanggulangan dan pemulihan bencana?	• Ya…1 • Tidak…0 [Lompat ke Modul G] • Tidak Tahu… 98
F-4.1	Apakah anggaran ini sama dengan yang disediakan untuk pencegahan dan mitigasi risiko, atau berbeda?	• Anggaran yang sama… …1 [Lompat ke Modul G] • Anggaran yang berbeda…2
F-4.2.1	Berapa besarannya untuk tahun anggaran terakhir? *Enumerator: Isi -98 bila responden tidak tahu.*	_____ IDR
F-4.2.2	*Enumerator: Tanyakan apakah responden dapat menunjukkan bukti yang terdokumentasi dari alokasi ini pada anggaran tahunan mereka dan masukkan perinciannya di sini*	• Tidak, responden tidak menunjukkan bukti yang terdokumentasi…0 • Ya, responden menunjukkan bukti yang terdokumentasi, sebutkan (_____)…1
F-4.3.1	Apakah anggaran ini khusus digunakan untuk penanggulangan dan pemulihan bencana, atau dapat digunakan untuk tujuan lain?	• Ya, khusus untuk penanggulangan dan pemulihan bencana…1 • Tidak, dapat digunakan untuk keperluan lain…0 [Lompat ke Module G]
F-4.3.2	Apa alasan anggaran tidak dapat digunakan untuk tujuan lain?	• Peraturan pemerintah daerah melindungi anggaran ini…1 • Prosedur operasional stIbu/Bpkr pemerintah daerah melindungi anggaran ini…2 • Norma/Ekspektasi – semua orang tahu anggaran ini dilindungi…3 • Lainnya, sebutkan (_____)…-96

G. PARTISIPASI PEREMPUAN DI LEMBAGA WASH

Enumerator membaca dengan keras: Sekarang saya akan mengajukan beberapa pertanyaan tentang partisipasi perempuan pada Pokja PKP kabupaten/kota Ibu/Bpk

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
G-1	Apakah ada anggota perempuan pada Pokja PKP yang bertanggung jawab atas koordinasi penyediaan layanan air di kabupaten/kota Ibu/Bpk?	• Ya…1 • Tidak…0 [Lompat ke G-3] • Tidak Tahu…-98[Lompat ke G-3]
G-2	Manakah di antara lembaga berikut pada Pokja PKP kabupaten/kota yang diwakili oleh perempuan? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Bappeda…A • Dinas energi dan pertambangan…B • Dinas lingkungan hidup dan kehutanan…C • Dinas kesehatan…D • Dinas pekerjaan umum dan perumahan rakyat…E • Lainnya, sebutkan (_____)…V
G-3	Berapa banyak perwakilan di Pokja PKP kabupaten/kota Ibu/Bpk yang akan setuju dengan pernyataan berikut: "Perempuan dan laki-laki sama-sama mampu mewakili lembaganya jika diperlukan demi keberhasilan operasional Pokja PKP"	• Hampir tidak ada yang akan setuju…1 • Hanya beberapa yang akan setuju…2 • Yang setuju dan tidak setuju akan sama banyak…3 • Sebagian besar akan setuju…4 • Hampir semua akan setuju…5
G-4	Berapa banyak perwakilan di Pokja PKP Ibu/Bpk yang akan setuju dengan pernyataan berikut: "Jumlah perempuan dan laki-laki yang yang menjadi perwakilan Pokja PKP harus hampir sama, selama mereka telah mengikuti pelatihan yang memadai untuk peran mereka"	• Hampir tidak ada yang akan setuju…1 • Hanya beberapa yang akan setuju…2 • Yang setuju dan tidak setuju akan sama banyak…3 • Sebagian besar akan setuju…4 • Hampir semua akan setuju…5

H. KEPATUHAN PENGUJIAN MUTU AIR

Enumerator membaca: Kami sudah hampir selesai. Saya akan mengajukan beberapa pertanyaan terakhir tentang peran kabupaten/kota Ibu/Bpk dalam memastikan kualitas air di titik penggunaan.

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
H-1	Selain PDAM, mana di antara lembaga berikut ini yang bertanggung jawab untuk memantau kepatuhan terhadap pengujian kualitas air di titik penggunaan?	• Tidak ada pemantauan kualitas air di titik penggunaan di kabupaten/kota ini…0 • Labkesda…1 • Lab Swasta…2 • Lainnya, sebutkan (_____)…-96
H-2	Untuk pengguna mana pengujian kualitas air di titik penggunaan dilakukan? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Pengguna PDAM untuk rumah tangga…A • Pengguna PDAM untuk selain rumah tangga…B • Pengguna layanan air berbasis masyarakat…C • Pengguna layanan air swasta…D • Lainnya, sebutkan (_____)…V
Ulangi pertanyaan di bawah untuk setiap pengguna yang disebutkan di H-2.		
H-2.1.1	Parameter apa yang dipantau di titik penggunaan? *Enumerator: Baca setiap opsi dengan keras dan pilih semua yang sesuai*	• Kimia …A • Mikrobiologi …B • Fisik… C • Tidak tahu…V
H-2.1.2c	Berapa sampel yang diambil untuk pengujian parameter kimia? *Enumerator: Ini adalah jumlah pengguna rumah tangga, pengguna non-rumah tangga (yaitu, bisnis), dst. yang telah diambil sampelnya.*	_____ sampel [Hanya berlaku jika parameter kimia terpilih di H-2.1.1]
H-2.1.3c	Seberapa sering sampel kualitas air diambil?	• Satu kali per bulan…1 • Satu kali per kuartal…2 • Satu kali per tahun…3 • Lainnya, sebutkan (_____)…-96 [Hanya berlaku jika parameter kimia terpilih di H-2.1.1]
H-2.1.2m	Berapa sampel yang diambil untuk pengujian parameter mikrobiologi? *Enumerator: Ini adalah jumlah pengguna rumah tangga, pengguna non-rumah tangga (yaitu, bisnis), dst. yang telah diambil sampelnya.*	_____ sampel [Hanya berlaku jika parameter mikrobiologi terpilih di H-2.1.1]
H-2.1.3c	Seberapa sering sampel kualitas air diambil?	• Satu kali per bulan…1 • Satu kali per kuartal…2 • Satu kali per tahun…3 • Lainnya, sebutkan (_____)…-96

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
		[Hanya berlaku jika parameter mikrobiologi terpilih di H-2.1.1]
H-2.1.2p	Berapa sampel yang diambil untuk pengujian parameter fisik? *Enumerator: Ini adalah jumlah pengguna rumah tangga, pengguna non-rumah tangga (yaitu, bisnis), dst. yang telah diambil sampelnya.*	_____ sampel [Hanya berlaku jika parameter fisik terpilih di H-2.1.1]
H-2.1.3p	Seberapa sering sampel mutu air diambil?	• Satu kali per bulan…1 • Satu kali per kuartal…2 • Satu kali per tahun…3 • Lainnya, sebutkan (_____)…-96 [Hanya berlaku jika parameter fisik terpilih di H-2.1.1]

I. KESIMPULAN DAN DISPOSISI KASUS

Enumerator membaca dengan keras: Wawancara sudah selesai. Terima kasih banyak atas waktu dan jawaban Ibu/Bpk. Jika Ibu/Bpk memiliki pertanyaan, harap hubungi Artikel Tiga Tiga di 0878 7578 2721.

Pertanyaan	Teks Pertanyaan	Opsi Jawaban
Enumerator: Semua pertanyaan ini harus diisi setelah menyelesaikan wawancara dengan responden tetapi sebelum meninggalkan. Pertanyaan ini tidak dibacakan dengan keras.		
I-1	Apa status akhir dari wawancara ini?	• Wawancara lengkap…1 • Wawancara sebagian (kunjungan kembali)…2 • Wawancara sebagian (tidak perlu kunjungan ulang)…3 • Penolakan…4 • Terhenti…5 • Tidak ada kontak, responden tidak di tempat…8 • Tidak diketahui apakah responden yang memenuhi syarat ada di tempat …10 • Lainnya, sebutkan (_____)…-96
I-2.1	Menurut Ibu/Bpk, apakah responden kooperatif dan antusias?	• Ya…1 [Lompat ke I-3.1] • Tidak…0
I-2.2	Jelaskan	_____
I-3.1	Menurut Ibu/Bpk, apakah responden menjawab pertanyaan dengan jujur dan akurat sesuai kemampuan terbaiknya?	• Ya…1 [Lompat ke I-4.1] • Tidak…0
I-3.2	Tolong jelaskan	_____
I-4.1	Apakah ada orang selain responden yang hadir selama wawancara?	• Ya…1 [Lompat ke I-5.1] • Tidak…0
I-4.2	Siapa yang hadir?	_____
I-5.1	Apakah responden berkonsultasi dengan orang lain untuk menjawab pertanyaan?	• Ya…1 [Lompat ke I-6.1] • Tidak…0
I-5.2	Kepada siapa responden berkonsultasi?	_____

LG SURVEY - ENGLISH

INTERVIEW INFORMATION

Question	Question Text	Answer Options
0-1	Interviewer name	[pre-populated list]
0-2	Province	• North Sumatra...12 • West Java...32 • Central Java...33 • East Java...35 • Banten...36 • South Sulawesi...73
0-3	Kabupaten/Kota	[Restricted option contains only selected possible provinces]
0-4	GPS Longitude	_____
0-5	GPS Longitude	_____

A. CONSENT AND RESPONDENT PROFILE

Enumerator read aloud: Hello. I am [THE INTERVIEWER'S NAME] from Article 33. I am here to conduct a survey on water resource management and water services in your [Kabupaten/Kota].

Question	Question Text	Response Options
A-1	Good morning/afternoon. My name is [INTERVIEWER NAME] from Article 33 Indonesia, a social research organization based in Jakarta. Our organization is currently conducting a survey on water service provision and water resources management practices in several cities and districts in Indonesia. The study is funded by the United States Agency for International Development (USAID), a US government agency that assists development projects in Indonesia, and is implemented by NORC of the University of Chicago, USA, Tetra Tech ARD, and Article 33 Indonesia. The study was also supported by Bappenas and the Ministry of Public Works and Housing (PUPR). You were selected to be interviewed because of your role in what we believe to be the planning required for different types of water services in your city/district. If you agree to participate in this interview, we will ask questions about the raw water sources used by water service providers in your city/district and about how your city/district government identifies and addresses risks to water services in the city/district. We will also ask your opinion on gender-related topics in WASH institutions. This interview is expected to take about 30 minutes. Any information you provide that could identify you will be kept confidential by those conducting this study. Researchers will use the data for statistical analysis purposes only. Information from this interview will only be presented together with from other interviews in this study. The study will not publicize any information about you or your city/district government specifically. Your participation is voluntary and you may choose not to answer any or all questions for any reason. You may choose not to participate without any consequences. We anticipate no risks if you participate. You will not receive any benefit or compensation from your participation. We will not share your answers with any of your colleagues in the city/district government, so please do not hesitate to express your honest opinion. If you have any questions, concerns, or complaints about the study or your rights as a participant, you may contact [INSERT ARTICLE 33 CONTACT NAME AND DETAILS]. If you have any questions for me, please feel free to ask at any time during the interview.	
A-2	In just a few words, please describe your understanding of the purpose of the interview today and confirm who you will contact if you have any questions.	_____
A-3	Do you have any questions about the study?	**Enumerator instructions:** *Respond to any questions, if there are any.* • Yes...1 • No...0
A-4	Do you agree to participate?	• Yes...1 • No...0 ☐ **Module I**
A-5	May I record part of this interview strictly for quality control purposes?	• Yes...1 • No...0

Question	Question Text	Response Options
A-6	May I contact you after this interview if we find that some information is missing or must be confirmed?	• Yes...1 • No...0 ☐ **A-8**
A-7.1	Respondent Name	_____
A-7.2	Respondent Phone Number (home)	_ _ _ _ _ _ _ _ _ _ _ [Constrained to 11 digits]
A-7.3	Respondent's Phone Number (cell phone)	_ _ _ _ _ _ _ _ _ _ _ _ _ [Constrained to 13 digits]
A-8.1	What is the respondent's role in the Bappeda? *Enumerator: The intended respondent is the person in charge of water resources, typically titled Sub-Director of Water Resources or similar.*	_____
A-8.2	Does the respondent represent the Bappeda on the city/district Pokja AMPL/PPAS?	• Yes...1 • No...0
A-9	What is your gender?	• Woman...1 • Man.. 0 • Other, specify(_____)... -96

B. RESPONDENT BACKGROUND AND RAW WATER SOURCE PROFILE

Enumerator read aloud: To start, I will ask some questions about the raw water sources that are used by water service providers in your Kabupaten/Kota.

Question	Question Text	Response Options
B-1	Which of the following are raw water sources for at least one water service provider in your district/city? Water sources can be utilized by PDAMs, community-based water service providers and/or private water service providers. Enumerator instructions: *Read each response option and select all that apply.*	• River, across several provinces...A • River across multiple cities/districts within one province...B • River within city/district boundary...C • Lake, across several cities/districts within one province...D • Lake within city/district boundary...E • Spring within city/district boundary...F • Aquifer/groundwater...G • Other, specify..(_____) ...V
Items B-2.1.1 and B-2.1.2 are repeated for each type of source selected in B-1.		
B-2.1.1	How many of this type of source is used as a raw water source by water service providers in this city?	__ [Constrain values 1-10]
B-2.1.2	Which types of service providers use this source in your kota/kabupaten? Enumerator instructions: *Read each response option and select all that apply.*	• PDAM...A • Community-based water service provider...B • Private water service provider...C • Regional Public Service Agency (BLUD)...D • Regional Technical Implementation Unit (UPTD)...E • BUMDes...F • Other, specify (_____)...V
B-3.1	Considering all district water sources together, to what extent do you agree with this statement: "The water available from raw water sources in my district is sufficient to meet current consumer demand during both normal rainy season conditions and normal dry season conditions."	• Strongly disagree...1 • Somewhat disagree...2 • Neutral...3 • Somewhat agree...4 ☐ B-3.2 • Strongly agree...5 ☐ B-3.2 • Don't know... -98 ☐ B-3.2
B-3.1.1	In your opinion, which users have insufficient demand during either the normal rainy season or the normal dry season? Enumerator instructions: *Read each response option and select all that apply.*	• PDAM users...A • Community-based water service users...B • Private water service users...C • Other, specify (_____)...V
B-3.2	Thinking of all district water sources together, to what extent do you agree with this statement: "The water available from raw water sources in my district is sufficient to meet current consumer demand even under extreme conditions such as floods, extreme storms,	• Strongly disagree...1 • Somewhat disagree...2 • Neutral...3 • Somewhat agree...4 ☐ B-3.3 • Strongly agree...5 ☐ B-3.3 • Don't know... -98 ☐ B-3.3

Question	Question Text	Response Options
	landslides in the wet season and droughts or fires in the dry season?"	
B-3.2.1	For which users do you think there is insufficient demand during extreme seasonal conditions? Enumerator instructions: *Read each response option and select all that apply.*	• PDAM users...A • Community-based water service users...B • Private water service users...C • Other, specify (_____)... V
B-3.3	Thinking of all Kabupaten/Kota's water sources together, to what extent do you agree with this statement: "The *quality* of water from my Kabupaten/Kota's raw water sources, treated by following standard treatment procedures, is safe for distribution during both normal rainy season conditions and normal dry season conditions?"	• Strongly disagree...1 • Somewhat disagree...2 • Neutral...3 • Somewhat agree...4 ☐ B-3.4 • Strongly agree...5 ☐ B-3.4 • Don't know... -98 ☐ B-3.4
B-3.3.1	In your opinion, for which users is the quality of water not safe for distribution during the normal rainy season or the normal dry season? Enumerator instructions: *Read each response option and select all that apply.*	• PDAM users...A • Community-based water service users...B • Private water service users...C • Other, specify (_____)... V
B-3.4	Thinking of all the Kabupaten/Kota's sources of water together, to what extent do you agree with this statement: "The quality of water from my Kabupaten/Kota's raw water sources that has been treated following standard treatment procedures is safe for distribution even during extreme conditions such as floods, extreme storms, landslides during the rainy season, and droughts or fires during the dry season?"	• Strongly disagree...1 • Somewhat disagree...2 • Neutral...3 • Somewhat agree...4 ☐ B-3.5 • Strongly agree...5 ☐ B-3.5 • Don't know... -98 ☐ B-3.5
B-3.4.1	In your opinion, for which users is the quality of water treated by following standard treatment procedures not/less safe for distribution during extreme seasonal conditions? Enumerator instructions: *Read each response option and select all that apply.*	• PDAM users...A • Community-based water service users...B • Private water service users...C • Other, specify (_____)... V

C. RISK IDENTIFICATION

Enumerator read aloud: Now I will ask some questions regarding hazards which present risks to water service providers' ability to provide water services in your Kabupaten/Kota.

Question	Question Text	Response Options
C-1	List the three hazards that pose the greatest risk to the water service provider's ability to provide potable water services in the district. **Enumerator instructions:** *Respondents should select a maximum of three, but can name fewer than three.*	• Flood…A • Typhoons/extreme storms…B • Droughts…C • Landslides…D • Wildfires…E • Earthquakes…F • Volcanos…G • Tsunamis…H • Seawater Intrusion…I • Land subsidence…J • Industrial contamination…K • Agricultural contamination…L • Failure in municipal electric system…M • Other, specify (_____)…V
Items below repeated for each hazard named in C-1.		
C-2.1.1	How often has this hazard affected water services in your Kabupaten/Kota in the past 5 years? **Enumerator instructions:** *Enter "-98" if respondent does not know.*	_____times [Constrain values 0-50 times]
C-2.1.2	Taking into account historical trends and the possible influence of climate change, how likely is this hazard to affect water service provision in the next 5 years?	• Not expected to occur…1 • Very unlikely, only in exceptional circumstances…2 • Might occur at least once…3 • Very likely that it occurs at least once…4 • Almost certain to occur at least once…5
C-2.1.4	What are the most probable consequences of this hazard on water quality?	• Water unsafe to drink for less than a day...1 • Water unsafe to drink for more than one day but less than a week...2 • Water unsafe to drink for more than one week but less than a month...3 • Water unsafe to drink for more than a month...4
C-2.1.5	What are the most probable consequences of this hazard on the availability of water services?	• Water service unavailable for less than one day...1 • Water service unavailable for more than one day but less than one week...2 • Water service unavailable for more than one week but less than one month...3 • Water service unavailable for more than one month...4
C-2.1.6	What is the most severe consequence of this hazard on water quality?	• Water unsafe to drink for less than a day...1

Question	Question Text	Response Options
		• Water unsafe to drink for more than one day but less than a week...2 • Water unsafe to drink for more than one week but less than a month...3 • Water unsafe to drink for more than a month...4
C-2.1.7	What is the most severe consequence of this hazard on availability of water service?	• Water service unavailable for less than one day...1 • Water service unavailable for more than one day but less than one week...2 • Water service unavailable for more than one week but less than one month...3 • Water service unavailable for more than one month...4

D. RISK DATA USE

Enumerator read aloud: *I will now ask about the data your institution uses to identify and monitor potential risks to your water services.*

Question	Question Text	Response Options
D-1	Does your Kabupaten/Kota government monitor the available water *quantity* data from your main raw water source in *real time?*	• Yes...1 • No...0 → D-2 • Don't know...-98 → D-2
D-1.1	Which data sources do you use to monitor the *quantity* of water available from your main raw water source? Enumerator instructions: *Read all options and select all that apply.*	• PDAM Master meter with data logger installed...A • B(B)WS river flow meter...B • PJT river flow meter...C • Other, specify (_____)...V
D-1.2	How frequently is the monitoring done? Enumerator: *allow respondent to answer as they like and then note units in response.*	_____ times per [day/week/month]
D-1.3	Is the monitoring equipment generally functioning?	• Yes...1 • No...0 • Don't know... -98
D-2	Does your Kabupaten/Kota monitor *in real time* the *quality* of water available from your main raw water source?	• Yes...1 • No...0 → D-3 • Don't know...-98 → D-3
D-2.1	Which data sources do you use to monitor the *quality* of water available from your main raw water source? Enumerator instructions: *Read all options and select all that apply.*	• PDAM laboratory testing with manual logbook...1 • PDAM laboratory testing entered in MIS...2 • Testing from local Ministry of Environment and Forestry...3 • Testing from PJT...4 • Other, specify (_____)... -96
D-2.2	How frequently is the monitoring done? Enumerator instructions: *allow respondent to answer as they like and then note units in response.*	_____ times per [day/week/month]
D-2.3	Is the monitoring equipment generally functioning?	• Yes...1 • No...0 • Don't know... -98
D-3	Does your Kabupaten/Kota monitor early warning systems for hydrometeorological disasters like extreme storms that pose risks to water services?	• Yes...1 • No...0 → D-4 • Not applicable (these don't pose a risk)...97 → D-4 • Don't know…-98 → D-4
D-3.1	Which early warning systems do you monitor?	• BMKG early warning system...A • Other, specify (_____)... V

Question	Question Text	Response Options
	Enumerator instructions: *Read all options and select all that apply.*	
D-4	Does your district monitor early warning systems for geological disasters such as volcanic eruptions and earthquakes that pose risks to water services?	• Yes... 1 • No...0 → Module E • Not applicable (these don't pose a risk)... -97 → Module E • Don't know... -98 → Module E
D-4.1	Which early warning systems do you monitor? Enumerator instructions: *Read all options and select all that apply.*	• InaTEWS…A • InAWARE…B • Other, specify (_____)... V

E. PLANNING FOR RISK MITIGATION AND AVOIDANCE

Enumerator read aloud: *I am now going to ask some questions related to the Kabupaten/Kota government's planning to ensure continued water service in a variety of different circumstances.*

Question	Question Text	Response Options
E-1	Does your Kabupaten/Kota government have a water safety plan covering responsibilities for ensuring the adequate oversight of PDAM, community-based and private water services which was updated within the past 5 years?	• No... 0 → E-5 • Yes, but not for all three types of water services...1 • Yes, for all three types of water services...2 → E-2 • Don't know...-98 → E-5
E-1.1	Which of these service providers does your water safety plan cover? Enumerator instructions: *Read each option and select all that apply.*	• PDAM...A • Community-based water service providers...B • Private water service providers...C • Regional Public Service Agency (BLUD)...D • Regional Technical Implementation Unit (UPTD)...E • BUMDes...F • Other, specify (_____)... V
E-2	Which potential hazards to water services in your Kabupaten/Kota have plans for risk mitigation and avoidance in your water safety plan? Enumerator instructions: *Read each option and select all that apply.*	• Flood…A • Typhoons/extreme storms…B • Droughts…C • Landslides…D • Wildfires…E • Earthquakes…F • Volcanos…G • Tsunamis…H • Seawater Intrusion…I • Land subsidence…J • Industrial contamination…K • Agricultural contamination…L • Failure in municipal electric system…M • Other, specify (_____)…V
E-3	To what extent do you agree with the following statement: "I am confident that the Kabupaten/Kota water safety plan is adequate to avoid or reduce the duration of interruptions to water services in the event of the hazards we commonly face on an annual basis."	• Strongly disagree...1 • Somewhat disagree...2 • Neutral...3 • Somewhat agree...4 → E-4 • Strongly agree...5 → E-4
E-3.1	Which users do you think would be most likely to experience disruptions? Enumerator instructions: *Read each option and select all that apply.*	• PDAM users...A • Community-based water service users...B • Private water service users...C • Other, specify (_____)...V

Question	Question Text	Response Options
E-4	To what extent do you agree with the following statement: "I am confident that the Kabupaten/Kota water safety plan is adequate to avoid or reduce the duration of interruptions to water services in the event of the most severe hazards, which we face only once every five to ten years."	• Strongly disagree...1 • Somewhat disagree...2 • Neutral...3 • Somewhat agree...4 → E-5 • Strongly agree...5 → E-5
E-4.1	Which users do you think would be most likely to experience disruptions? Enumerator instructions: *Read each option and select all that apply.*	• PDAM...A • Community-based water service providers...B • Private water service providers...C • Regional Public Service Agency (BLUD)...D • Regional Technical Implementation Unit (UPTD)...E • BUMDes...F • Other, specify (_____)... V
E-5a	Has Bappeda joined a Working Group/Coordination Group with other institutions to manage water resources and avoid or mitigate risks to them?	• Yes...1 • No... 0
E-5	Which institutions have joined Bappeda in a Working Group to manage the raw water source? Enumerator instructions: *Read each option and select all that apply.*	• Bupati or Walikota…A • Provincial government…B • B(B)WS…C • Energy and mining agency…D • Environment and forestry agency…E • Health agency …F • Public works and housing agency…G • PDAM…H • Regional Disaster Management Agency (BPBD)…I • Other, specify (_____)...V
E-5.1	How often does Bappeda and other agencies in the Working Group coordinate for the purpose of monitoring potential hazards in drinking water services in the Kabupaten/Kota?	• Less than once per year...1 • 1-3 times per year...2 • 1-2 times per quarter...3 • 1 time per month...4 • 2-3 times per month...5 • 1-3 times per week ...6 • More than three times per week...7
E-5.2	To what extent do you agree with the following statement: "Bappeda and other agencies in the water management Working Group have a similar understanding of hazards to water services in the Kabupaten/Kota, including their likelihood and potential consequences."	• Strongly disagree...1 • Somewhat disagree...2 • Neutral...3 • Somewhat agree...4 → E-5.3 • Strongly agree...5 → E-5.3

Question	Question Text	Response Options
E-5.2.1	Which institutions do you think do not have the same understanding as Bappeda about hazards to water services in this Kabupaten/Kota?	• Bupati or Walikota…A • Provincial government…B • B(B)WS…C • Energy and mining agency…D • Environment and forestry agency…E • Health agency…F • Public works and housing agency…G • PDAM…H • Regional Disaster Management Agency (BPBD)…I • Other, specify (_____)...-96
E-5.3	To what extent do you agree with the following statement: "Bappeda and other institutions in the water management Working Group have coordinated effectively to avoid and/or mitigate risks to water services in this Kabupaten/Kota."	• Strongly disagree...1 • Somewhat disagree...2 • Neutral...3 • Somewhat agree...4 □ Module F • Strongly agree...5 □ Module F
E-5.3.1	Which institutions do you believe have not effectively coordinated with Bappeda to avoid or mitigate risks to water services in this district?	• Bupati or Walikota…A • Provincial government…B • B(B)WS…C • Energy and mining agency…D • Environment and forestry agency…E • Health agency…F • Public works and housing agency…G • PDAM…H • Regional Disaster Management Agency (BPBD)…I • Other, specify (_____)...-96

F. FINANCE FOR RISK MITIGATION AND AVOIDANCE

Enumerator read aloud: *I am now going to ask some questions related to your Kabupaten/Kota government's financial position to ensure continued water service in a variety of different circumstances.*

Question	Question Text	Answer Options
F-1	What sources of external investment are you aware of which can be pursued to fund activities to avoid, mitigate, or quickly respond to interupptions to city-level water services? **Enumerator instructions:** *Read each option and select all that apply.*	• Private...A • Kabupaten/Kota government...B • Provincial government...C • National government...D • Domestic donor agencies...E • Foreign donor agencies...F • Other, specify (_____)...V
F-2	Of these sources, which have provided investment to the Kabupaten/Kota government in the past five years?	• Private...A • Kabupaten/Kota government...B • Provincial government...C • National government...D • Domestic donor agencies...E • Foreign donor agencies...F • Other, specify (_____)...V • None…Z
Repeat items F-2.1-F-2.2 for each source indicated in F-2.		
F-2.1.1	Out of the following options, which best describes the purpose of the [investment]? **Enumerator instructions:** *Read options aloud.* [Question text should update dynamically based on responses to F-2]	• Risk prevention...1 • Risk mitigation...2 • Disaster management...3 • Disaster recovery...4
F-2.1.2	What was the approximate amount of the [investment]? **Enumerator instructions:** *Enter -98 if respondent does not know.* [Question text should update dynamically based on responses to F-2]	_____IDR
F-3	Does your Kabupaten/Kota government's budget include an allocation for risk prevention and mitigation?	• Yes...1 • No...0 **è F-4**
F-3.1.1	What was the amount for the last fiscal year? **Enumerator instructions:** *Enter -98 if respondent does not know.*	_____IDR
F-3.1.2	**Enumerator instructions:** *Ask if the respondent can demonstrate documented proof of this allocation in their annual budget and enter the details here.*	• No, respondent did not share documented proof...0 • Yes, the respondent shared documented proof, specify (_____)...1

Question	Question Text	Answer Options
F-3.2.1	Is this budget exclusively used for risk prevention and mitigation, or can it be used for other purposes?	• Yes, exclusively for risk prevention and mitigation...1 • No, it can be used for other purposes...è **F-4**
F-3.2.2	What is the reason that the budget cannot be used for other purposes?	• Local government regulation protects this budget...1 • Local government standard operating procedures protect this budget...2 • Norm/Expectation – everyone knows this budget is protected...3 • Other, specify (_____)...-96
F-4	Does your Kabupaten/Kota government's budget include contingency funding for disaster response and recovery?	• Yes...1 • No...0 ☐ **Module G** • Don't know...98
F-4.1	Is this budget the same as the one set aside for risk prevention and mitigation, or is it different?	• The same budget...1 ☐ **Module G** • Different budget...2
F-4.2.1	What was the amount for the last fiscal year? **Enumerator instructions:** *Enter -98 if respondent does not know.*	_____IDR
F-4.2.2	**Enumerator instructions:** *Ask if the respondent can demonstrate documented proof of this allocation in their annual budget and enter the details here.*	• No, respondent did not share documented proof...0 • Yes, the respondent shared documented proof, specify (_____)...1
F-4.3.1	Is this budget exclusively used for disaster response and recovery, or can it be used for other purposes?	• Yes, specifically for disaster response and recovery...1 • No, it can be used for other purposes... 0 **è Module G**
F-4.3.2	What is the reason that the budget cannot be used for other purposes?	• Local government regulation protects this budget...1 • Local government standard operating procedures protect this budget...2 • Norm/Expectation – everyone knows this budget is protected...3 • Other, specify (_____)...-96

G. WOMEN'S PARTICIPATION IN WASH INSTITUTIONS

Enumerator read aloud: *I will now ask some questions about women's participation in your Kabupaten/Kota's Pokja AMPL/PPAS.*

Question	Question Text	Response Options
G-1	Is any member of the Pokja AMPL/PPAS responsible for coordination on water service provision in your Kabupaten/Kota a woman?	• Yes...1 • No...0 → **Module G-3** • Don't know...-98 → **Module G-3**
G-2	Which of the following institutions in this Kabupaten/Kota's Pokja AMPL/PPAS are represented by women? **Enumerator instructions:** *Read each option and select all that apply.*	• Bappeda…A • Energy and mining agency…B • Environment and forestry agency…C • Health agency…D • Public works and housing agency…E • Other, specify (_____)...V
G-3	How many of the representatives on your Kabupaten/Kota's Pokja AMPL/PPAS would agree with the following statement: "Women and men are equally capable of representing their institutions as required for the Pokja AMPL/PPAS's successful operation."	• Almost none would agree...1 • Only some would agree...2 • About as many would agree as would disagree...3 • Most would agree...4 • Almost all would agree...5
G-4	How many of the representatives on your Kabupaten/Kota's Pokja AMPL/PPAS would agree with the following statement: "A similar number of women and men should serve as representatives to the Pokja AMPL/PPAS, as long as they have adequate training for their role."	• Almost none would agree...1 • Only some would agree...2 • About as many would agree as would disagree...3 • Most would agree...4 • Almost all would agree...5

H. WATER QUALITY TESTING COMPLIANCE

Enumerator read aloud: *We are almost finished. I am going to ask some final questions now about your Kabupaten/Kota's role in ensuring water quality at the point of use.*

Question	Question Text	Response Options
H-1	Besides the PDAM, which of the following agencies is responsible for monitoring compliance with water quality standards at the point of use?	• There is no water quality monitoring at the point of use in this Kabupaten/Kota...0 • Labkesda...1 • Private lab...2 • Other, specify (_____)...-96
H-2	For which users is water quality testing at the point of use conducted? **Enumerator instructions:** *Read each option and select all that apply.*	• PDAM domestic users…A • PDAM non-domestic users…B • Community-based water services users…C • Private water service users…D • Other, specify (_____)…V
Repeat questions below for each user named in H-2.		
H-2.1.1	What parameters are monitored at the point of use? **Enumerator instructions:** *Read each option and select all that apply.*	• Chemical...A • Microbiological...B • Physical...C • Don't know...V
H-2.1.2c	How many samples are taken to test chemical parameters? **Enumerator instructions:** *This is the number of household users, non-household users (i.e., businesses), etc. that have been sampled.*	_____samples [Only relevant if chemical parameters are selected in H-2.1.1]
H-2.1.3c	How often are water quality samples taken?	• Once per month...1 • Once per quarter...2 • Once per year...3 • Other, specify (_____)... -96 [Only relevant if chemical parameters are selected in H-2.1.1]
H-2.1.2m	How many samples are taken to test microbiological parameters? **Enumerator instructions:** *This is the number of household users, non-household users (i.e., businesses), etc. that have been sampled.*	_____samples [Only relevant if microbiological parameters are selected in H-2.1.1]
H-2.1.3c	How often are water quality samples taken?	• Once per month...1 • Once per quarter...2 • Once per year...3 • Other, specify (_____)... -96 [Only relevant if microbiological parameters are selected in H-2.1.1]

Question	Question Text	Response Options
H-2.1.2p	How many samples are taken to test physical parameters? **Enumerator instructions:** *This is the number of household users, non-household users (i.e., businesses), etc. that have been sampled.*	_____samples [Only relevant if physical parameters are selected in H-2.1.1]
H-2.1.3p	How often are water quality samples taken?	• Once per month...1 • Once per quarter...2 • Once per year...3 • Other, specify (_____)... -96 [Only relevant if physical parameters are selected in H-2.1.1]

I. CONCLUSION AND CASE DISPOSITION

Enumerator read aloud: *The interview is now complete. Thank you very much for your time and responses. If you have any questions, please contact Article 33 at 0878 7578 2721.*

Question	Question Text	Response Options
Enumerator: All these questions to be completed after dismissing respondent but before leaving the premises. None of these questions should be read aloud.		
I-1	What is the final status of this interview?	• Complete interview…1 • Partial interview (re-visit)…2 • Partial interview (no re-visit)…3 • Refusal…4 • Break-off…5 • Non-contact, respondent unavailable…8 • Unknown if eligible respondent present…10 • Other, specify (_____)…-96
I-2.1	In your opinion, was the respondent cooperative and engaged?	• Yes...1 ☐ I-3.1 • No... 0
I-2.2	Please explain	_____
I-3.1	In your opinion, did the respondent answer questions honestly and accurately to the best of their ability?	• Yes...1 ☐ I-4.1 • No...0
I-3.2	Please explain	_____
I-4.1	Was anyone beside the respondent present during the interview?	• Yes...1 ☐ I-5.1 • No...0
I-4.2	Who was present?	_____
I-5.1	Did the respondent consult anyone else to answer questions?	• Yes...1 • No...0
I-5.2	Who did they consult?	_____

PDAM AND LG DOCUMENT SCORING MATRIX

A	PDAM Scoring			
1	Utility Profile	Year Created	Year Ended	Responses
	Name of Utility			
	Planning documents available			
	Business Continuity Plan			
	RPAM			
	Others, specify			
	Scored by			
2	Water Safety Plan Scoring			
	Component			
2.1	Risk Identification			
a	Are hazards to water supply identified based on localized climate projections?			
	3. Yes, it is based on localized climate projection			
	2. Yes, but partially based on localized climate projection			
	1. Yes, but not based on localized climate projection			
	0. No			
2.2	Risk Understanding			
a	Are the scenarios no more that five years old for most likely and severe hazards with instruction for use incorporated in any planning documents?			
	0. No scenarios are included in planning documents			
b	Are identified intervals for updates no longer than five years incorporated in any planning documents?			
	3. Yes			
	2. Yes, intervals are included but are longer than five years			
	1. Plans for updates are included with no specification for timing of updates			
	0. No			

2.3	**Planning for Risk Mitigation and Avoidance**			
a	Have the planning documents included objectives and measures to prevent and/or mitigate risks to water service provision, including target indicators and timeframes for risk avoidance/mitigation?			
	3. Yes			
	2. The planning documents include objectives, measures, and indicators, but are missing timeframes			
	1. The planning documents include objectives, but are missing either measures or indicators			
	0. No			
	TOTAL SCORE			
B	**LG Scoring**			
1	**LG Profile**	**Year Created**	**Year Ended**	**Responses**
	Name of Kabupaten/Kota			
	Planning documents available			
	RISPAM			
	RPAM			
	Others, specify			
	Scored by			
2	**Water Safety Plan Scoring**			
	Component			
2.1	**Risk Identification**			
a	Are hazards to water supply identified based on localized climate projections?			
	3. Yes, it is based on localized climate projection			
	2. Yes, but partially based on localized climate projection			
	1. Yes, but not based on localized climate projection			
	0. No			
2.2	**Risk Understanding**			
a	Are the scenarios no more than five years old for most likely and severe hazards with instruction for use incorporated in any planning documents?			
	0. No scenarios are included in planning documents			

b	Are identified intervals for updates no longer than five years incorporated in any planning documents?
	3. Yes
	2. Yes, intervals are included but are longer than five years
	1. Plans for updates are included with no specification for timing of updates
	0. No
2.3	**Planning for Risk Mitigation and Avoidance**
a	Have the planning documents included objectives and measures to prevent and/or mitigate risks to water service provision, including target indicators and timeframes for risk avoidance/mitigation?
	3. Yes
	2. The planning documents include objectives, measures, and indicators, but are missing timeframes
	1. The planning documents include objectives, but are missing either measures or indicators
	0. No

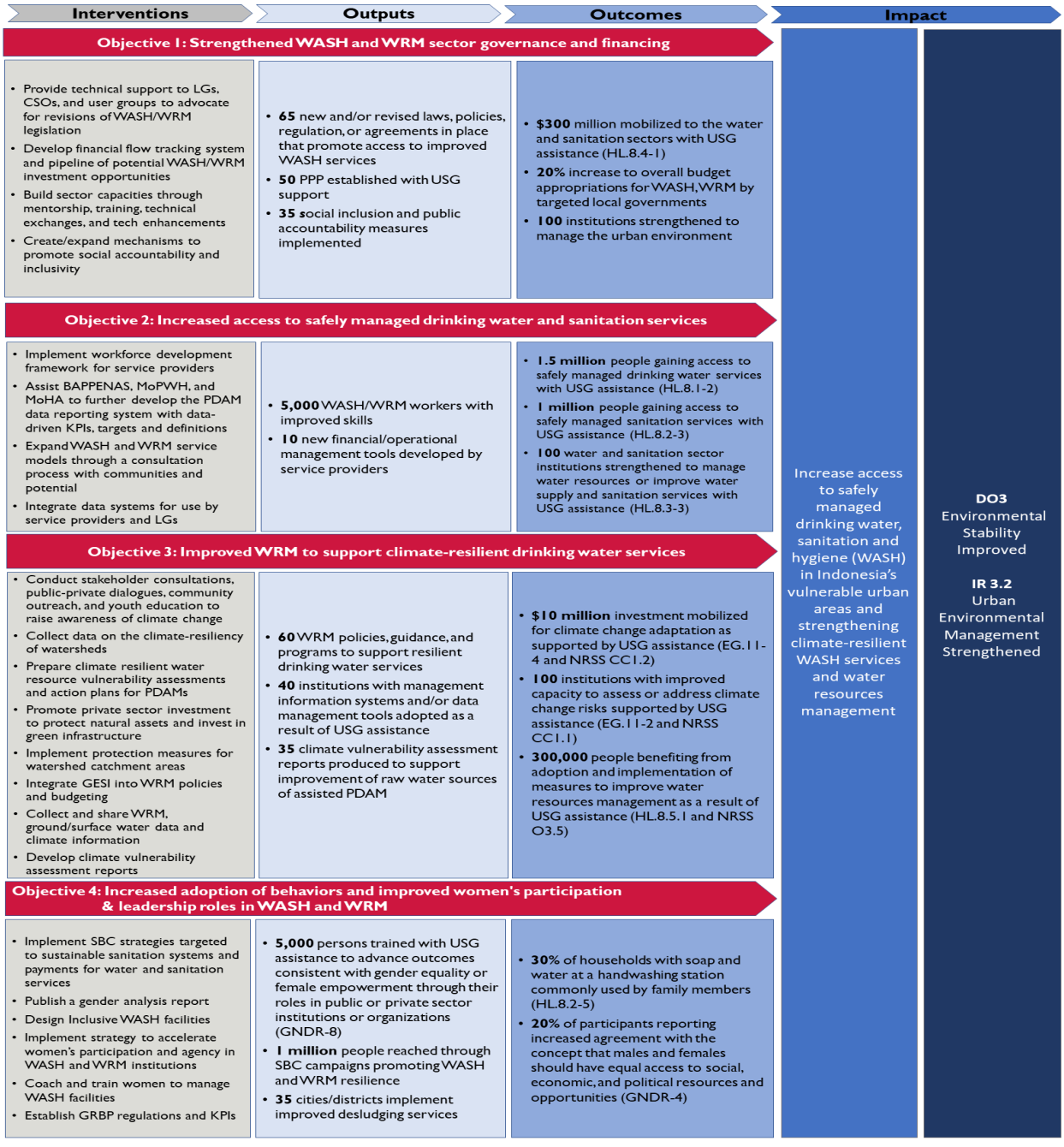
ANNEX V: SOURCES OF INFORMATION

Title/Name	Author/Owning Organization	Use
Primary Data		
Household interviews (with water quality testing)	URBAN WASH	Used to construct evaluation dataset
PDAM interviews	URBAN WASH	Used to construct evaluation dataset
Bapedda interviews	URBAN WASH	Used to construct evaluation dataset
Documentary Evidence		
PDAM Business Plans (where applicable)	PDAMs	Used to construct evaluation dataset
PDAM RPAMS (where applicable)	PDAMs	Used to construct evaluation dataset
PDAM tariff regulations (to calculate metered consumption in cases where it was not listed on bill)	PDAMs and local governments	Used to construct evaluation dataset
Local government RISPAMs	Local governments	Used to construct evaluation dataset
Secondary Data		
PUPR annual Kinerja datasets, 2016-2021	PUPR	2020 used for statistical matching, 2021 used for baseline analysis
2021 Susenas survey	BPS	Used to generate estimates of expenditure deciles for household survey design. Also referenced to inform design of household survey.
2021 PODES survey	BPS	Used for neighborhood matching
IUWASH Tangguh site selection dataset	IUWASH Tangguh	Used for statistical matching

ANNEX VI: ADDITIONAL BACKGROUND INFORMATION

Figure VI-1 is the IUWASH Tangguh Results Framework, as presented in IUWASH Tangguh's Year One Work Plan. The results framework illustrates the intended relationship between interventions, outputs, and outcomes that contribute to IUWASH Tangguh's desired impacts of increased access to safely managed WASH services and strengthened climate-resilient WASH services and WRM.

Figure VI-1. USAID IUWASH Tangguh Results Framework



The table below, reproduced from a physical copy shared by IUWASH Tangguh with the evaluation team during a scoping trip in Indonesia, provides a summary of the 38 treatment sites included in IUWASH Tangguh and the type of support they will receive from the Activity.

Table VI-1. Detailed Support Scenarios for Each of IUWASH Tangguh's Partner Cities and Districts

No.	Province	Shortlisted Location		Watershed Area (Bold = Priority DAs)	Type of Scenario Support				
					Cities and districts will receive full support	Cities and district will receive water supply focus	Cities and district will receive sanitation focus	Cities and district will receive WRM focus	Remarks
1	North Sumatra	1	Medan city	Deli			√	√	• Implementation of regular desludging program • Encourage to implement the KKMA developed under IPLUS
2		2	Binjai city			√			• Improve PDAM performance and expansion of piping network under MEBIDANG
3		3	Deli Serdang district			√	√		• Expand the operation of regular desludging • Improve PDAM performance
4		4	Pematang Siantar city	Bah Bolon	√				
5		5	Simalungun district			√		√	• Improve PDAM performance • Conduct climate vulnerability assessment and actions plan
6	Banten	1	Tangerang city	**Cisadane**		√	√		• Expansion of piping network under Karian regional water supply system • Implementation of regular desludging program
7		2	Tangerang district	**Cisadane** and Ciujung		√	√		
8		3	Tangsel district	**Cisadane**		√	√		
9	DKI Jakarta	1	DKI Jakarta province	**Citarum, Ciliwung**			√	√	• Implementation of regular desludging program • Develop partnership upstream and downstream area
10	West Java	1	Bogor district	**Ciliwung, Cisadane**		√	√	√	• Improve PDAM performance (continuation of non-revenue water (NRW) and EE Program under PBG) • Implementation of regular desludging program • Replication of KKMARA to other raw water source
11		2	Depok city			√	√		• Improve PDAM performance (continuation of NRW and EE Program under PBG) • Implementation of regular desludging program

No.	Province	Shortlisted Location		Watershed Area (Bold = Priority DAs)	Type of Scenario Support				Remarks
					Cities and districts will receive full support	Cities and district will receive water supply focus	Cities and district will receive sanitation focus	Cities and district will receive WRM focus	
12	West Kalimantan (satellite)	1	Pontianak city	**Kapuas**	√				
13		2	Kubu Raya district			√			• Improve PDAM performance
14	Central Java	1	Surakarta city	**Bengawan Solo**		√	√		• Improve PDAM performance (continuation of NRW and EE Program under PBG) • Implementation of regular desludging program
15		2	Sukoharjo district			√	√		
16		3	Karanganyar district			√		√	• Improve PDAM performance and expansion of piping network under WOSOSUKAS • Conduct climate vulnerability assessment of PDAM raw water source
17		4	Wonogiri district			√	√		
18		5	Sragen district			√	√		• Improve PDAM performance and expansion of piping network under WOSOSUKAS • Implementation of regular desludging program
19		6	Magelang city	Progo	√				
20		7	Temanggung district			√		√	• Improve PDAM performance • Conduct climate vulnerability assessment of PDAM raw water source
21		8	Salatiga city		√				
22	East Java	1	Surabaya city	**Brantas (hulu dan hilir)**	√				
23		2	Sidoarjo district			√	√		• Improve PDAM performance and expansion of piping network under water supply system • Implementation of regular desludging program
24		3	Gresik district			√	√		
25		4	Malang city		√				

No.	Province	Shortlisted Location		Watershed Area (Bold = Priority DAs)	Type of Scenario Support				Remarks
					Cities and districts will receive full support	Cities and district will receive water supply focus	Cities and district will receive sanitation focus	Cities and district will receive WRM focus	
26		5	Malang district			√		√	• Improve PDAM performance • Conduct climate vulnerability assessment of PDAM raw water source
28		7	Blitar city				√		• Implementation of regular desludging program
29		8	Pasuruan city			√	√		• • Improve PDAM performance and expansion of piping network under UMBULAN water supply system
30		9	Pasuruan district			√		√	• Improve PDAM performance and expansion of piping network under UMBULAN water supply system • Conduct climate vulnerability assessment of PDAM raw water source
31	East Nusa Tenggara (Satellite)	1	Kupang city	Manikin				√	• Conduct climate vulnerability assessment of PDAM raw water source
32		2	Timor Tengah Selatan					√	
33	South Sulawesi	1	Makassar city	**Jeneberang**		√	√		• Improve PDAM performance and expansion of piping network under MAMMINASATA water supply system • Implementation of regular desludging program
34		2	Maros district			√	√		
35		3	Gowa district			√	√		
36		4	Takalar district			√	√		
37		5	Barru district	Karajae		√	√		• Improve PDAM performance (continuation of NRW and EE Program under PBG) • Implementation of regular desludging program
38	Papua (satellite)	1	Jayapura city	Memberamo		√	√		• Improve PDAM performance • Implementation of regular desludging program
39		2	Jayapura district				√		

ANNEX VII: DISCLOSURE OF ANY CONFLICTS OF INTEREST

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ANNEX VIII: EVALUATION TEAM MEMBERS

URBAN WASH implemented this baseline evaluation together with two subcontractors. NORC at the University of Chicago designed the baseline evaluation, gave technical oversight to survey data collection, and led data analysis, reporting, and dissemination. Article 33 Indonesia collected and ensured the quality of survey and water quality data from households, PDAMs, and LGs. The URBAN WASH Chief of Party (COP) Liz Jordan coordinated across the various parties engaged in the evaluation, with the support of URBAN WASH evaluation consultant Doug Krieger, URBAN WASH Project Manager Zach Borrenpohl, and other URBAN WASH project management and operational staff. Mr. Borrenpohl—the Tetra Tech Buy-in Manager—provided overall management with support from the COP. NORC Evaluation Director Miguel Albornoz reported to Dr. Otoo and coordinated NORC's role in evaluation design and implementation. Article 33's Executive Director Santoso reported to Dr. Otoo and coordinated Article 33's role in survey data collection, receiving technical guidance and oversight from Mr. Albornoz. The relationships between these organizations and associated personnel are depicted in Figure VIII-1, with additional details on roles and responsibilities included immediately below in Table VIII-1.

Figure VIII-1. Organogram for Impact Evaluation

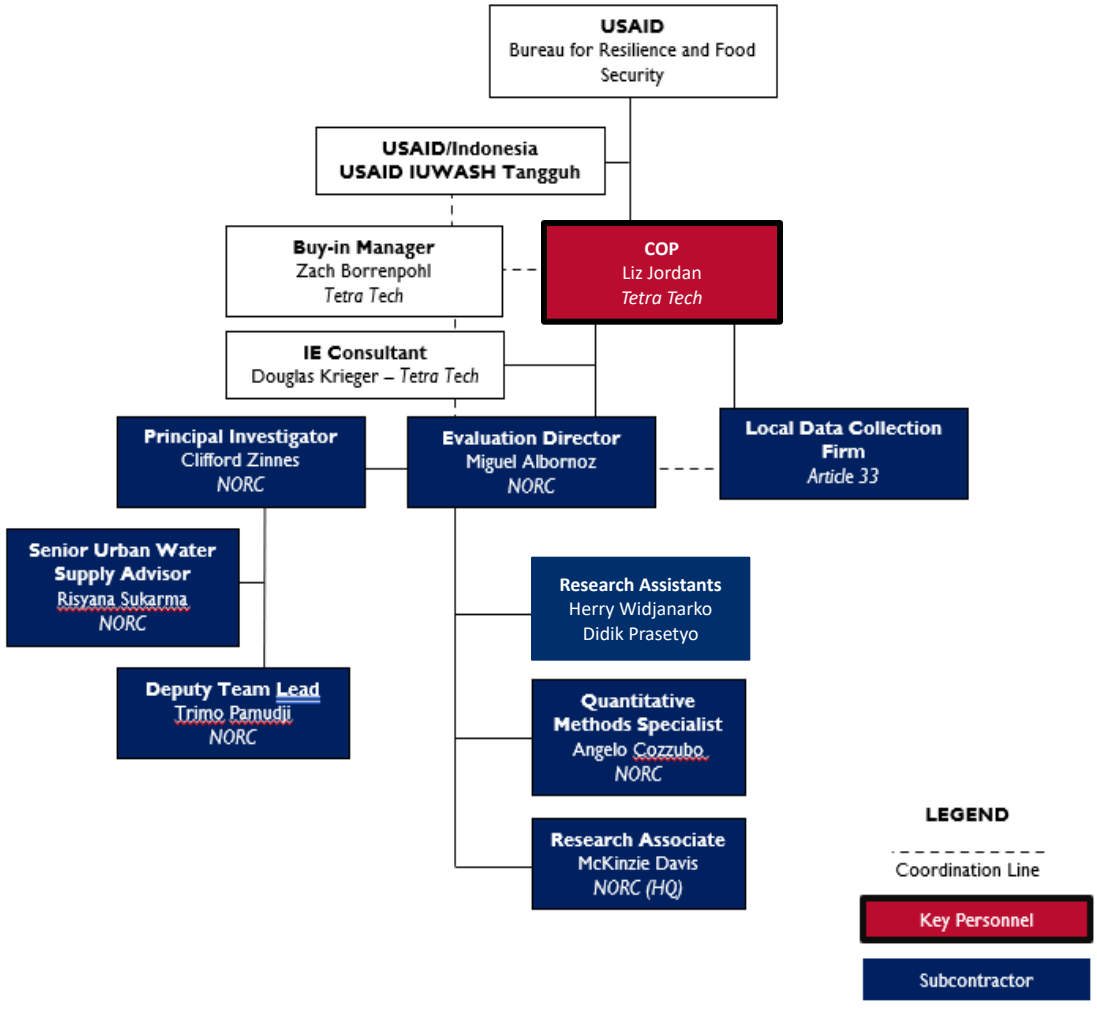

Table VIII-1. Evaluation Team Roles and Responsibilities

Team Member	Role	Responsibilities
Liz Jordan	Chief of Party	Responsible for overall delivery of the evaluation design, data analysis plan, and reporting and dissemination. Supervises and supports the work of the entire evaluation team, with direct oversight of the Evaluation Director and the data collection firm. Provides inputs and support to the final IE products. Supports the review and quality control process for deliverables.
Zach Borrenpohl	Buy-in Activity Manager	Manages and coordinates the evaluation design, data analysis plan, and reporting and dissemination. Provides inputs and support to the final IE products submitted by the COP. Supports the review and quality control process for deliverables.
Douglas Krieger	Impact Evaluation Consultant	Provides inputs and support to the final IE products. Supports the review and quality control process for deliverables.
Clifford Zinnes	Evaluation Team Lead/Principal Investigator	Responsible for providing methodological leadership on all technical aspects of the evaluation design, data analysis plan, and reporting and dissemination. Supervises and supports the work of the entire evaluation team, with direct oversight of the deputy team lead. Provides inputs and data, as requested, to the URBAN WASH COP, and supports the synthesis and interpretation of information. Supports the review and quality control process for NORC deliverables.
Trimo Pamudji	Evaluation Deputy Team Lead	Responsible for providing methodological input and leadership on all technical aspects of the evaluation design, data analysis plan, and reporting and dissemination. Ensures that evaluation findings, conclusions, and recommendations are properly contextualized given local (Indonesian) policies, regulations, and practical considerations. Leads implementation monitoring activities in-country and conduct primary qualitative data collection with WASH institutional personnel.
Risyana Sukarma	Senior Urban Water Supply Advisor	Supports in co-design for determining indicators and data collection methods for key outputs, outcomes, and impacts associated with expertise. Further supports interpretation of results during data analysis, reporting, and dissemination, as needed and relevant to subject matter expertise.
Miguel Albornoz	Evaluation Director	Main point of contact between external stakeholders and NORC. Coordinates all aspects of the evaluation team and effort (technical, management, partnership, etc.). Contributes heavily to evaluation design, analysis, reporting, and dissemination under leadership of principal investigator.
Angelo Cozzubo	Quantitative Methods Specialist	Supports team lead, or delegated responsibility as appropriate, for counterfactual identification strategy, power calculation, sampling, and quantitative measurement, data quality assurance, analysis, and visualization.
McKinzie Davis	Research Associate	Supports all research tasks as necessary and delegated by other team members, supports in design and analysis of qualitative instruments and data as delegated by evaluation director.
Didik Prasetyo and Herry Widjanarko	Local Research Assistant(s)	Supports field data collection and data quality control. May contribute to collection of primary qualitative data, as needed.

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