CONTEXTUALIZATION OF ALLIANCE FOR WATER STEWARDSHIP (AWS) STANDARD GUIDANCE IMPLEMENTATION IN INDONESIA

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This Additional Notes on the Contextualization of AWS Guideline Implementation in Indonesia is developed by AWS Indonesia as part of a set of reports from the ‘Boosting sustainability practice and performance at landscape level through good water stewardship 2020-2022’ project.

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The views expressed in this publication are those of the author(s) and do not necessarily represent those of the ISEAL Secretariat, ISEAL members, or donor entities to the ISEAL Innovations Fund.

Additional Notes on the Contextualization of AWS Guideline Implementation in Indonesia:

This document contains some information adapted to the Indonesian context. The information is put in boxes at each step to support the implementation of the AWS Standards by sites. The information does not change the content and intent of the AWS Standard and AWS Standard Guidance and is only complementary information on water stewardship in Indonesia.

Indonesia is facing the problem of water security, which, if left unchecked, could hinder its long-term development. The Medium-term National Development Plan (RPJMN) IV 2020 - 2024 asserts this in the chapter State Natural Resources Carrying Capacity and Environmental Carrying Capacity related to Water Availability in Indonesia, which is increasingly critical. As a whole, the national water reserves are still considered safe, however there are problems of accessibility, continuity, as well as quality that continue to be below standard. The proportion of water crisis areas nationally is projected to increase from 6.0 percent in 2000 to 9.6 percent in 2045.

Issues and challenges regarding sustainable groundwater and raw water management in the document Narrative of the National Medium-Term Development Plan (RPJMN) IV 2020–2024 continue to evolve. These issues include: (i) uneven distribution of raw water availability between regions; (ii) high population growth with 60 percent of the population concentrated on the island of Java; (iii) still dominant allocation of water for irrigation; (iv) high exploitation of groundwater; (v) high water pollution in 65 percent of the river basins; and (vi) the development of 10 agglomeration areas. This condition causes water stress as the demand for raw water is very high compared to the increase of raw water supply capacity.

Strategic activities in raw water supply related to the challenges mentioned above in the 2020–2024 RPJMN include: (i) fulfilling the raw water supply deficit; (ii) controlling groundwater extraction; (iii) increasing investment in drinking water supply through the participation of the private sector/businesses; (iv) as well as increasing the efficiency of water resources management through the use of technology.

Priority programs to strengthen economic resilience for quality growth in the development matrix of the 2020–2024 RPJMN are focused on: (i) increasing water quantity/security to support economic growth with priority activities concerning the use of protected areas; (ii) sustainable forest management; (iii) water supply for agriculture; (iv) provision of raw water for priority areas; maintenance, restoration, and conservation of water resources and their ecosystems including revitalization of lakes and green infrastructure; (v) development of multipurpose reservoirs. The priority program for increasing disaster and climate resilience, and priority activities to increase climate resilience are carried out through priority projects to protect water security in climate risk areas.
Referring to strategic issues, the challenges of sustainable groundwater and raw water management that are still limited, as well as the Government of Indonesia's priority development programs, the AWS Standard can be introduced for adoption and implementation as a whole, where the AWS Standard can provide support in improving water availability and environmental conditions, and to help actors in the industrial sector and various types of organizations to understand water–related issues and risks and how to engage in dealing with them.
The water governance landscape in Indonesia is organized into four levels: national, provincial, district, and village or local. There are various ministries and departments responsible for water management and governance at the national level, which in practice can lead to confusion or overlapping of roles, responsibilities and duties. The formal responsibilities deriving from different government authorities are not clearly defined and there is inconsistency among jurisdictions, as well as overlap between different government ministries and agencies.

Decentralization has given provincial governments more authority in managing natural resources including water, but some national policies apply universally. The division of roles and responsibilities between the central and local governments in Indonesia is regulated in Law no. 23/2014 which places great emphasis on decentralization to achieve equitable development. The central government is responsible for designing the national development agenda and implementing it in national strategic areas in the context of water governance. Local governments have responsibility for overseeing (and often, directly implementing) water management and water allocation within their jurisdictions.

Overview of Key Stakeholders Related to Water Management and Governance in Indonesia

Table 1. Stakeholders Related to Water Management and Governance in Indonesia

<table>
<thead>
<tr>
<th>Main Stakeholders</th>
<th>Responsibilities related to Water Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Ministry of National Development (BAPPENAS)</td>
<td>BAPPENAS through the Directorate of Water and Irrigation has the task of coordinating, formulating and implementing policies as well as monitoring, evaluating, and controlling national development planning in the water and irrigation sector. This function includes the development of regulatory, institutional and funding frameworks.</td>
</tr>
<tr>
<td>Main Stakeholders</td>
<td>Responsibilities related to Water Governance</td>
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<tr>
<td>------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Ministry of Public Works and Public Housing (MPWH), including the Watershed Organization (BBWS) and the Water Resources Management Coordination Team (TKPSDA)</td>
<td>MPWH is responsible for the development and construction of water facilities, starting from the supply and distribution of water (together with State-Owned Enterprises, Water Utilities (PDAM)), wastewater treatment plants, and water storage infrastructure.</td>
</tr>
<tr>
<td>Ministry of Environment and Forestry (MoEF), including the Watershed Forum and the Watershed and Protected Forest Management Center (BPDAS–HL)</td>
<td>MoEF takes the ecosystem as a starting point. MoEF combines three main functions affecting the water sector: (a) responsible for managing catchments, which are key to the water cycle and water risk management; (b) play a key role in the preparation of zoning and spatial plans for forest areas that are highly relevant to water resources management; and (c) be responsible for monitoring water quality and wastewater disposal and issuance of permits and enforcement of discharge standards (particularly for industrial and plantation disposal). The MoEF is also responsible for Environmental Impact Analysis (AMDAL) which includes standards governing water management for projects in Indonesia.</td>
</tr>
<tr>
<td>Ministry of Energy and Mineral Resources (MEMR)</td>
<td>MEMR is responsible for the management and monitoring of groundwater, both quantity and quality; permits for boring and groundwater use.</td>
</tr>
</tbody>
</table>
## Water Governance Landscape in Indonesia

<table>
<thead>
<tr>
<th>Main Stakeholders</th>
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<tbody>
<tr>
<td>Ministry of Health (MoH)</td>
<td>MoH is responsible for setting standards and monitoring of drinking water quality, also dealing with issues related to WASH.</td>
</tr>
<tr>
<td>National Water Resource Council (NWRC)</td>
<td>NWRC is a non-structural institution that serves as a forum for coordinating water resource management at the national, provincial and river basin levels. It has the duty to provide advice and consideration to the President in the determining and implementing national policies in the water resources management sector. NWRC members include representatives from the central government, regions and non-government elements. The central government consists of 13 ministries, namely BAPPENAS, Ministry of Trade, Ministry of Environment and Forestry, Ministry of Agriculture, Ministry of Health, Ministry of Transportation, Ministry of Energy and Mineral Resources, Ministry of Maritime Affairs and Fisheries, Ministry of Education, Culture, Research and Higher Education, Meteorological and Geophysics Agency (BMKG), and Indonesian Institute of Sciences (LIPI).</td>
</tr>
<tr>
<td>Provincial and City/District Government</td>
<td>Plays a role in overseeing and implementing water-related programs and regulations in each region by referring to the regulations that apply at the central government level.</td>
</tr>
</tbody>
</table>
## Water Governance Landscape in Indonesia

### National
- National Development Agency
- Ministry of Public Works and Housing
- Ministry of Environment and Forestry
- Ministry of Health
- Ministry of Energy and Mineral Resources

### Catchment
- River Basin Agency (B/ZBS) & Water Resources Management Coordination Team (TKPSDA)
- Catchment and Protected Forest Management Agency (BPAS-IL)
- Catchment Forum (Forum DAS)
- Water services operator (e.g. Jasa Tirta I and II)

### Province
- Province Development Agency
- Public Works and Spatial Planning Office
- Environment Office
- Forestry Office
- Workforce & Energy and Mineral Resources
- Health Office
- Disaster Management Agency

### Kabupaten
- District Development Agency
- Public Works Office
- Environment Office
- Health Office
- Disaster Management Agency
- Drinking Water Company (PDAM)
- General Services Agency (BLUD)

### Legend
- Development planning
- Surface water resources management
- Drinking water supply and sanitation services provider
- Groundwater resources management
- Water quality management
- Forestry and water resources conservation
- Water related disaster mitigation and prevention
- Public and private sector collaboration platform
National level statutory laws regulate the roles of each stakeholder regarding water. The four main laws in the water sector are the Job Creation Law (11/2020), the Water Resources Law (17/2019), the Environmental Protection and Management Law (32/2009) and the Spatial Planning (26/2007). The Water Resources Law regulates the management of water resources in general. The Environmental Protection and Management Act regulates the preservation of environmental functions and the prevention of pollution and/or environmental damage. The Spatial Planning Law includes the carrying capacity of natural resources in spatial development planning. Several other regulations in the form of Government Regulations, Presidential Regulations, and Ministerial Regulations discuss various issues related to water in greater depth, such as water quality and pollution, ecosystem services, environmental conservation and others.

### Table 2. Key Laws and Regulations Regarding Water Stewardship in Indonesia

<table>
<thead>
<tr>
<th>No.</th>
<th>Law/Regulation</th>
<th>Concerning</th>
<th>Good Water Governance</th>
<th>Sustainable Water Balance</th>
<th>Good Water Quality</th>
<th>IWRA</th>
<th>WASH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Law No. 11/2020</td>
<td>Job Creation</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td>Law No. 17/2019</td>
<td>Water Resources</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>3.</td>
<td>Law No. 32/2009</td>
<td>Environmental Protection and Management</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Law No. 26/2007</td>
<td>Spatial Planning</td>
<td>✓</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
# Water Policy in Indonesia: A Brief Analysis from the AWS Standard Perspective

<table>
<thead>
<tr>
<th>No.</th>
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<th>WASH</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>GR No. 42/2008</td>
<td>Water Resource Management</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>GR No. 21/2021</td>
<td>Spatial Planning Organization</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>7.</td>
<td>GR No. 22/2021</td>
<td>Implementation of Environmental Protection and Management</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>GR No. 121/2015</td>
<td>Exploitation of Water Resources</td>
<td></td>
<td>✓</td>
<td></td>
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</tr>
<tr>
<td>9.</td>
<td>Presidential Reg. No.120/2020</td>
<td>Badan Restorasi Gambut dan Mangrove</td>
<td></td>
<td></td>
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<td>✓</td>
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<tr>
<td>10.</td>
<td>MEMR Regulation No.20/2017</td>
<td>Guidelines for Determining Groundwater Acquisition Value</td>
<td></td>
<td></td>
<td>✓</td>
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<td></td>
</tr>
<tr>
<td>11.</td>
<td>MoH Reg. No. 492/2010</td>
<td>Quality Requirements</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Some of the terminology used in Indonesia for accurate data collection related to catchment area boundaries are as follows:

Catchment area\(^1\) is a land area that is topographically bounded by mountain ridges. A catchment area collects and stores rainwater that is then drained to the sea via a river network.

River Basin (Wilayah Sungai – WS)\(^2\) is a unitary area for managing water resources in one or more watersheds and/or small islands with area of less than or equal to 2,000 km\(^2\). A river basin can cover areas across countries, provinces, districts/cities and within one district/city.

Watershed (Daerah Aliran Sungai – DAS)\(^3\) is a land area which is a unit with rivers and their tributaries. Watershed functions to collect, store, and drain water that comes from rainfall to lakes or to the sea naturally, whose land boundary is a topographical separator and the boundary at sea to water areas that are still affected by activities on land.

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1. [http://bank-data.bpiw.pu.go.id/dictionary](http://bank-data.bpiw.pu.go.id/dictionary)
2. [https://data.pu.go.id/dataset/wilayah-sungai](https://data.pu.go.id/dataset/wilayah-sungai)
The physical scope of sites in Indonesia must be mapped in accordance with the boundaries of the administrative area taking into account the boundaries of the site, water-related infrastructure, water sources used, water service providers, wastewater disposal points, groundwater basin locations, watersheds, and the River Basin.

Sites need to conduct mapping and identification of stakeholders with reference to the Guidelines for the Preparation of Water Resources Management Plans involving the provincial and local governments as well as other stakeholders. This is done at the time of collecting data and information on water resources through Community Consultation Meetings (PKM) and Coordination Forums initiated by the Office in charge of water resources.

[^4]: https://sda.pu.go.id/assets/files/PermenPU02-2013.pdf
Data collection related to sites includes water balance data, water quality data derived from results of routine inspections or from AMDAL documents, data on important water-related areas issued by government agencies, water governance data, WASH data for proper sanitation coverage, data on water-related costs, revenues and co-value creation.

The Water Resources Management Coordination Team (TKPSDA) is a forum for coordinating the management of water resources at the river basin level in Indonesia. The team consists of stakeholders consisting of government and non-government elements in an equal number on the basis of the principle of representation. TKPSDA carries out a coordination function through consultation with relevant parties needed for integrated management of water resources in the River Basin and to achieve understanding between sectors, regions and stakeholders; integration and alignment of interests in the management of water resources in the River Basin; and activities for monitoring and evaluating the implementation of programs and plans for water resources management activities in the River Basin. Key stakeholders to be involved in coordination and communication include the Environment Agency, Public Works Agency, Regional Development Planning Agency (BAPPEDA), Associations, Regional Disaster Management Agency (BPBD), indigenous communities, environmental activists and other relevant stakeholders.
STEP 1: GATHER AND UNDERSTAND

1.2 UNDERSTAND RELEVANT STAKEHOLDERS

Stakeholders involved in the management of water resources in the regions can refer to the elucidation attached to the Regulation of the Minister of Public Works No. 2/2013 concerning Guidelines for the Preparation of Water Resources Management Plans. The guidelines provide detailed information on the stakeholders who are invited to the Community Consultation Meeting (PKM) by River Basin (WS). Thirty-three agencies or institutions from the central to district/city levels were identified representing elements of the government, community, and society as presented in Appendix Table 4.

This meeting aims to obtain input, responses, corrections, clarifications according to the expectations and desires of stakeholders in water resources management. The results are then compiled in a collective agreement to then be used as input in data analysis and preparation of water resources management plans.
Government regulations in Indonesia that regulate the form of stakeholder consultation on water management activities are as follows:

- Government Regulation No. 122/2015 concerning Drinking Water Supply System Article 62 regarding supervision and consultation guidance
- Regulation of the Minister of Public Works No. 12/2014 concerning the Implementation of the Urban Drainage System Article 32 regarding the provision of guidance, supervision and consultation on the implementation of the urban drainage system.
- Law No. 17/2019 concerning Water Resources explains the engagement of stakeholders in the management of water resources.
- Minister of Forestry Regulation No. 39/2009 concerning Guidelines for the Preparation of Integrated Watershed Management Plans. In the appendix to Chapter 2 regarding the principles of integrated watershed management and an explanation regarding stakeholders and their respective roles.
Important data related to water stewardship in Indonesia include water balance data, water quality data, water access and sanitation data. Operational area water quality data can be obtained from environmental documents that include AMDAL, RKL/RPL Reports, and UKL/UPL.

The amount of water needed for an site depends on the production process both in terms of type and capacity of the production process. This needs to be known to be able to evaluate and analyze the water balance.

Raw Water (Rain water / Reservoir) → Input Water (Processing Unit) → Storage → Process → Output Water
Considerations to be made in sites in Indonesia related to water quality data are as follows:

- Organizations or sites need to conduct regular tests on the quality of the water taken and discharged into water bodies in accordance with the quality standard parameters specified in government regulations and included in the AMDAL or RKL–RPL documents. The output parameters of wastewater quality standards for business fields or sites can refer to the Regulation of the Minister of the Environment No. 5/2014 concerning Wastewater Quality Standards.

- Organizations need to conduct an inventory of water quality data in time series on all water sources, for both surface water (surface water bodies) and groundwater sources used. Especially for water sources in the form of springs, it is necessary to determine the level of damage to the springs according to the criteria set by the government.

- Organizations or sites need to monitor the quality of wastewater including wastewater from domestic activities (toilet) and effluent from Wastewater Treatment Plants (WWTP/STP) before being discharged into receiving water bodies (rivers). Site water quality data can be obtained from periodic monitoring reports on the implementation of RKL/RPL, ANDAL, UKL/UPL in the operational phase. The quality standard refers to the Regulation of the Minister of Environment and Forestry Number P.68/Menhk/Setjen/Kum.1/8/2016.

- A site must obtain technical approval from the government regarding the Wastewater Quality Standard and Hazardous Waste Management and not exceed the Pollution Load Capacity (DTPB) of the environment around the site. This is in accordance with what is stipulated in Government Regulation Number 22/2021 concerning the Implementation of Environmental Protection and Management.
STEP 1: GATHER AND UNDERSTAND

1.3 GATHER WATER-RELATED DATA FOR THE SITE

Organizations or sites in the territory of Indonesia which produce hazardous waste\(^5\) in their business processes need to ensure special handling and temporary storage of the waste in a hazardous waste storage facility that has already obtained approval from the relevant agency to reduce the risk of environmental pollution.

Licensing documents that can help identify potential sources of pollution and assess the risk of impacts on the environment by organizations and business actors at the site level include:

- Environmental Approvals including AMDAL and RKL/RPL and UKL/UPL Reports
- Permit to Use Surface Water Resources
- PROPER
- WWTP Operator Certification
- Hazardous Waste Temporary Storage Permit
- IPLC

Important Water Related Areas (IWRA) in Indonesia are relevantly explained by the following regulations:

- Law no. 32/2009 concerning Environmental Protection and Management.
- Law no. 37/2014 concerning Soil and Water Conservation
- Law no. 17/2019 concerning Water Resources

The types of areas that are considered IWRA can be seen through the agencies or institutions listed in Appendix Table 5 of this document.

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\(^5\)Hazardous and toxic waste (B3 waste) is the residue of businesses and/or activities containing hazardous and toxic material. The Indonesian acronym B3 stands for Bahan Berbahaya dan Beracun (Hazardous and Toxic Material) and include substances, energy, and/or other components which due to their nature, concentration and/or quantity either directly or indirectly can pollute and/or damage the environment, endangering the environment, health and human survival, and other living things.
The main reference in setting standards for feasible water, sanitation and hygiene (WASH) facilities in Indonesia is MoH Regulation No. 70/2016 concerning Standards and Requirements for Health in the Industrial Work Environment by the Ministry of Health. Some of the regulations that can be used as a reference for the requirements for fulfilling drinking water and sanitation facilities in sites are:

- MoH Regulation No. 70/2016 concerning Standards and Requirements for Health in the Industrial Work Environment including provisions on water quality standards for drinking water and sanitation, as well as the feasibility of WASH facilities including the quality and ratio between WASH facilities and workers, WASH facilities in industrial environments (factories).
- MoH Regulation No. 48/2016 concerning Occupational Safety and Health Standards for Offices, including drinking water quality standards and WASH facilities for office work environments or office buildings.
- MoH Regulation No. 492/2010 concerning Drinking Water Quality Requirements.
- MPWH Regulation No. 4/2017 concerning the Implementation of Domestic Wastewater Management System.

Online data sources on household-level sanitation information in Indonesia are available on the MoH’s Community-Based Total Sanitation Evaluation Monitoring (STBM) website. The data for the Five Pillars of STBM includes data: coverage of healthy latrines, hand washing behavior with soap (CTPS), household food and beverage management, household waste management, and household liquid waste management.

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8http://monev.stbm.kemkes.go.id/monev/
Data related to water in water catchment areas in Indonesia can be obtained from:

- MoEF for data such as data on watershed management and forest rehabilitation; pollution control data and environmental damage
- MPWH for data such as river basin data; and watershed data, and
- MEMR for data such as groundwater basin, conservation zone data.

Note: The data are not always available for all water catchment areas in Indonesia.

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10 [https://data.pu.go.id/](https://data.pu.go.id/)
Organizations or management of sites in Indonesia can join the Watershed Management Communication Forum as a stakeholder forum in each watershed and in the local administrative area. The establishment of watershed communication forums refers to the Minister of Forestry Regulation No. 61/2013. Initiatives from the private sector/corporations to activate communication forums for watershed management in the regions will be strategic to raise common concerns about water governance in the relevant watersheds. Evidence of engagement in sites include facilitating forum meetings, corporate action plans listed in the FKP DAS annual action plan, and documentation and reports on the implementation of corporate action plans in watersheds.

The main Indonesian government agencies that businesses can engage with to support good water governance in their catchment areas are:

- MoEF related to water resources protection areas.
- Water Resources Management (PSDA) related to the area of water resources protection.
- Ministry of Public Works and Housing regarding the area of water resources protection.
- Ministry of Energy and Mineral Resources regarding conservation and damage in protected areas for groundwater.
Planning documents related to water management that can be used as references for users of AWS water Standard in sites in Indonesia are as follows:

- Documents of Strategy and Plans or Patterns and Plans for Water Resources Management can be found at River Basin Organizations (B/BWS) or the online library of the Ministry of Public Works and Housing.
- Water-related disaster mitigation and management documents included in the Provincial or District Medium Term Development Plan (RPJM) can be obtained at the Provincial or District Development Planning Agency (BAPPEDA).
- Planning documents and documentation of Watershed Forum activities can be found at the District BAPPEDA.
- Water Supply System Master Plan documents can be obtained at the District BAPPEDA.
- District/City Sanitation Strategy documents can be found at the District/City BAPPEDA.
Minister of Public Works Regulation No. 2/2013 concerning Guidelines for the Preparation of Water Resources Management Plans can be used as reference related to water management which includes water resource management plans in river areas across districts/cities or within one district/city in Indonesia. The Watershed Management Agency and related agencies in the region prepare an Integrated Watershed Management Plan (RPDAST) that involves various stakeholders in the watershed in question.

This document serves as reference for the Provinces and Regencies/Cities for the preparation of the Regional Development Work Plans (RKPD) related to environmental management. Organizations or sites can use the RPDAS document and its derivative plans as a reference.

Reference documents related to water governance that can be used as a reference for sites can refer to Appendix Table 6.
The minimum licensing documents that must be available in every site in Indonesia as a form of legal compliance are as follows:

- Environmental Approval, namely, an AMDAL document containing RKL/RPL and UKL/UPL documents
- Statement of Ability for Environmental Management and Monitoring (SPPL)
- Liquid Waste Disposal Permit
- Groundwater and/or Surface Water (River) Extraction Permit

Some specific legal requirements documents and related permits or standards that can be applied to a site can be referred to in Table 7 in the annex to this manual. It should be noted that the list in the table is not complete and is subject to change following regulatory changes, particularly those related to the Water Resources Law (Law No. 17/2019). The list of authorities under indicator 1.5.1 can be used as a reference for the latest permits and standards.

Some of the legal requirements and permits related to water that must be met by sites, organizations, or institutions in Indonesia can refer to several regulations in Appendix 1 of this guidebook.
Surface water in Indonesia is calculated based on one watershed unit (WS) carried out by watershed managers, namely B/BWS, BPSDA, or District/City Irrigation Service. Surface Water Balance data can be obtained through the Annual Water Allocation Plan (RAAT) or Detailed Water Allocation Plan (RAAR) documents issued by B/BWS.

The calculation of the groundwater balance is determined based on the Groundwater Basin (CAT) map issued by the Provincial Energy and Mineral Resources Office, including its monitoring system through the presence of control wells to obtain data on fluctuations in groundwater level changes.

Information for SDA users regarding the availability and demand for water and regional water balance in a river basin or watershed can refer to the Annual Water Allocation Plan (RAAT) and Detailed Water Allocation Plan (RAAR) documents issued by the local Water Resources Management Agency.

The main source of online data on water balance information in the catchment area is available on the Ministry of Public Works and Housing’s Online Library\(^\text{12}\) website regarding the Strategy and/or Pattern and Plan for Water Resources Management.

\(^{12}\)https://sda.pu.go.id/produk/kategori/pola_pengelolaan_sda
STEP 1: GATHER AND UNDERSTAND

1.5 GATHER WATER RELATED DATA FOR THE CATCHMENT

Data related to pollution load allocation and Pollutant Load Carrying Capacity (DTBP) in the Indonesian context can be used as a reference for water quality in water catchment areas. This DTBP data is only available for 15 Priority Watersheds through a water quality monitoring system that has been developed by the Directorate of Water Pollution Control by the Ministry of Environment and Forestry since 2015 until now.

In Indonesia, the forms and types of significant violations related to water include:

- Destruction of areas of high value associated with water sources and springs
- Wastewater contamination into water bodies and springs.
- Disposal of solid waste into water bodies and springs causing siltation.

The main online data source on water quality information in the catchment area is available on River and Lake Water Quality Status which can be accessed at https://ppkl.menlhk.go.id/onlimo-2018/
STEP 1: GATHER AND UNDERSTAND

1.5 GATHER WATER RELATED DATA FOR THE CatchMENT

Speaking of the context in Indonesia, information on various water-related infrastructures, both existing and planned, can be found in the Water Resources Management Pattern and Plan documents listed in the Annual Water Allocation Plan/RAAT and the Annual Reservoir Operation Plan (RTOW), which has been mutually agreed upon by the Water Resources Management Coordination Team (TKPSDA). These documents can be obtained at B/BWS or BPSDA.

Data on the feasibility, adequacy, and safety of drinking water and sanitation (WASH) services in Indonesia can refer to the EHRA (Environmental Health Risk Assessment) Study and City Sanitation Strategy Document (SSK) in the Residential Sanitation Development Acceleration Program (PPSP) and the RISPAM Document (Drinking Water Supply System Master Plan) in each District/City. Documents related to SSK and EHRA Studies can be accessed through the Nawasis portal\textsuperscript{13}.

Online data sources on household-level sanitation information in Indonesia are available on the Ministry of Health’s Community-Based Total Sanitation Evaluation Monitoring (STBM) website\textsuperscript{14}. Data on the Five Pillars of STBM includes: coverage of healthy latrines, hand washing with soap behavior (CTPS), household food and beverage management, household waste management, and household liquid waste management.

\textsuperscript{13}http://portal.nawasis.info
\textsuperscript{14}http://monev.stbm.kemkes.go.id/monev/
The Strategic Life Scope Study document at the provincial or district and city levels in Indonesia can be used as a reference to predict problems that will arise in the future. Control wells built by the government can help obtain data on groundwater level fluctuations that can help project trends and problems in the hydrological system in an area related to the ability to maintain forests (watershed) for the infiltration process and the amount of groundwater abstraction.

A future issue that also needs attention is the increase in the runoff coefficient for the watershed due to increased land use change and climate change factors. There needs to be a collective target for reducing the watershed runoff coefficient and a specific time frame with the construction of Rainwater Storage and Infiltration Facilities (RSIF).
Regulatory references regarding plans to mitigate water–related risks in Indonesia may refer to:

- Government Regulation no. 22/2021 concerning the Implementation of Environmental Protection and Management, CHAPTER II concerning the Protection and Management of Water Quality
- Regulation of the Minister of Public Works and Housing No. 16/2013 concerning Guidelines for Disaster Emergency Management Due to Water Damage
- Government Regulation no. 21/2008 concerning the Implementation of Disaster Management, related to disaster risk and mitigation.

Best practice information regarding water governance in water catchment areas in Indonesia can be obtained from the UPT/PSDA Office in the District/City, but it should be noted that this information is not always available.
STEP 1: GATHER AND UNDERSTAND

1.7 UNDERSTAND THE SITE’S WATER RISKS AND OPPORTUNITIES

Some examples of best practices that can be applied in Indonesia for the provision of WASH:

- Designing WASH facilities that can be used by people with disabilities and seniors
- Running a hygiene behavior change program in the workplace
- Designing separate toilet facilities for women and men with menstrual hygiene management (MHM) for women
- Design and implement WASH training for workers on a regular basis
- Sites participate in the provision of equal and adequate WASH services based on considerations from the results of the EHRA study documents, SSK and Program Memorandums from the PPSP Program for each district/city within the watershed boundaries
Commitment and planning of water stewardship in sites or organizations towards water and wastewater management in Indonesia is recommended to be disclosed to the public and government through relevant stakeholders. The stakeholders in question are the Environmental Agency, Public Works Agency, TKPSDA, B/BWS, BPBD, Company/Business Associations, Watershed Management Communication Forum, environmental care communities, PDAM, and other identified stakeholders. This commitment and planning is also aligned with the local government development water management plan derived through the regional RKP, especially to create a water stewardship strategy and plan that covers the risks and challenges related to water in sites and catchment areas.
Organization shall establish, implement, and maintain processes for consultation (seeking review before making a decision) and participation (involvement in decision making) for consideration of interests and input from stakeholders.

References to regulations regarding the consensus with stakeholders on water stewardship plan in Indonesia refer to:

- Government Regulation No. 22/2021 concerning the Implementation of Environmental Protection and Management
STEP 3: IMPLEMENT

GENERAL GUIDANCE FOR STEP 3

Implementation of water stewardship in sites or organizations and catchment areas in Indonesia should be informed to the government through TKPSDA, Watershed Management Communication Forum, Environmental Service, Public Works Agency, B/BWS and relevant stakeholders.
STEP 3: IMPLEMENT

3.1 IMPLEMENT PLAN TO PARTICIPATE POSITIVELY IN CATCHMENT GOVERNANCE

Law No. 17/2019 regarding Water Resources, article 8 of the People's Right to Water regulates the priority of the right to water in Indonesia. Sites need to first consider the needs for water resources which are of higher priority, including basic daily needs, smallholder agriculture, the environment, non-business, drinking water, and BUMN/D/Des.

The active role of a site institution/organization in Indonesia can refer to several publicly available documents such as:

- UKL/UPL Document
- Annual report on monitoring and management of High Conservation Value (HCV) and High Carbon Stock (HCS) areas
- Third party certification audit reports

Institutions or companies can also include a summary of stakeholder engagement activities or “stakeholder engagements” on their website under certain conditions.
STEP 3: IMPLEMENT

3.2 IMPLEMENT SYSTEM TO COMPLY WITH WATER-RELATED LEGAL AND REGULATORY REQUIREMENTS AND RESPECT WATER RIGHTS

Sites or business actors in Indonesia can check the allocation of water in the RAAT/RAAR and calculate the fulfillment of needs prioritized by law in the RAAT/RAAR. Sites can also conduct dialogue with relevant stakeholders, to determine whether their needs are reflected in the RAAT/RAAR and to document potential conflicts and problems in water allocation, especially during the dry season.
References to regulations regarding the implementation of best practices for water quality for business actors in Indonesia refer to:

- Law No. 32/2009 on Environmental Protection and Management, which regulates water quality management, monitoring and law enforcement against private parties
- Law No. 17/2019 concerning Water Resources related to water quality management and annual status reporting of water quality
- Regulation of the Minister of the Environment No. 5/2014 concerning Wastewater Quality Standards
- Government Regulation No. 82/2001 on Water Quality Management and Water Pollution Control
STEP 3: IMPLEMENT

3.5 IMPLEMENT PLAN TO MAINTAIN OR IMPROVE THE SITE’S AND/OR CATCHMENT’S IMPORTANT WATER RELATED AREAS

Users of the AWS Standards in Indonesia can refer to the following documents or guidelines as a guide for maintaining, upgrading, and conserving Important Water–Related Areas:

- Government Regulation No. 46/2017 concerning Environmental Economic Instruments, related to environmental service fees
- AMDAL and complementary documents (RKL/RPL, UKL/UPL)
- Annual report on monitoring or management of High Conservation Value (HCV) and High Carbon Stock (HCS) areas

TKPSDA is a representation of watershed level stakeholders in Indonesia. The Watershed Forum may issue a letter acknowledging the positive involvement and contribution of the “site”. Documents such as AMDAL and RKL/RPL and annual reports on monitoring or management of High Conservation Value (HCV) and High Carbon Stock (HCS) areas can be used as a guide to attract input from stakeholders regarding maintenance, rehabilitation or conservation efforts that have been carried out.
STEP 4: EVALUATE

GENERAL GUIDANCE FOR STEP 4

Results of the performance evaluation of the implementation of water stewardship plans in sites and catchments in Indonesia are consulted and communicated with stakeholders (including local governments) through TKPSDA, Watershed Management Communication Forum, Environmental Service, and relevant stakeholders to address water risks and challenges together.
The mechanism for communicating the results of performance on commitments, policies, and water stewardship planning in sites and water catchment areas in Indonesia by the private sector is not yet clearly regulated, but it is recommended that the results of the implementation can be communicated and conveyed to authorized parties such as the Environment Agency, Public Works Agency, TKPSDA, Watershed Management Communication Forum and other relevant parties.
STEP 5: COMMUNICATE AND DISCLOSE

5.2 COMMUNICATE THE WATER STEWARDSHIP PLAN WITH RELEVANT STAKEHOLDERS

The regulation that can be used as a reference regarding the communication process for water stewardship in the Indonesian context is Presidential Regulation No. 33/2011 concerning the National Policy on Water Resources Management (Jaknas PSDA). Communication regarding stewardship plans can also be made through the organization’s website and the TKPSDA website or the Watershed Forum.
## APPENDICES

### Contextualization Document Page 98

**Table 4. Stakeholders Involved in Community Consultation Meetings (PKM)**

<table>
<thead>
<tr>
<th>No</th>
<th>Instansi, Lembaga</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Directorate General of Water Resources</td>
</tr>
<tr>
<td>2</td>
<td>River Basin Organizations</td>
</tr>
<tr>
<td>3</td>
<td>Watershed Management Center</td>
</tr>
<tr>
<td>4</td>
<td>Provincial Development Planning Agency</td>
</tr>
<tr>
<td>5</td>
<td>Provincial Disaster Management Agency</td>
</tr>
<tr>
<td>6</td>
<td>Provincial Agency/Department in charge of the Environment</td>
</tr>
<tr>
<td>7</td>
<td>Provincial Public Works/Water Resources Department</td>
</tr>
<tr>
<td>8</td>
<td>Provincial Public Works/Human Settlements Department</td>
</tr>
<tr>
<td>9</td>
<td>Provincial Water Resources Management Center</td>
</tr>
<tr>
<td>10</td>
<td>Provincial Forestry Service</td>
</tr>
<tr>
<td>11</td>
<td>Provincial Agriculture Service</td>
</tr>
<tr>
<td>12</td>
<td>Provincial Plantation Service</td>
</tr>
<tr>
<td>13</td>
<td>Provincial Transportation Service</td>
</tr>
<tr>
<td>14</td>
<td>Provincial Industry Service</td>
</tr>
<tr>
<td>15</td>
<td>Provincial Mining, Energy and Mineral Resources Office</td>
</tr>
<tr>
<td>16</td>
<td>District/City Regional Development Planning Agency</td>
</tr>
<tr>
<td>17</td>
<td>District/City Disaster Management Agency</td>
</tr>
<tr>
<td>18</td>
<td>District/City Agency/Office in charge of the Environment</td>
</tr>
<tr>
<td>19</td>
<td>District/City Public Works/Water Resources Department</td>
</tr>
<tr>
<td>20</td>
<td>District/City Public Works/Infrastructure Department</td>
</tr>
<tr>
<td>21</td>
<td>District/City Water Utility</td>
</tr>
</tbody>
</table>
Table 4. Stakeholders Involved in Community Consultation Meetings (PKM)

<table>
<thead>
<tr>
<th>No</th>
<th>Instansi, Lembaga</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>District/City Forestry Service</td>
</tr>
<tr>
<td>23</td>
<td>District/City Agriculture Service</td>
</tr>
<tr>
<td>24</td>
<td>District/City Plantation Service</td>
</tr>
<tr>
<td>25</td>
<td>District/City Transportation Service</td>
</tr>
<tr>
<td>26</td>
<td>District/City Industry Service</td>
</tr>
<tr>
<td>27</td>
<td>District/City Mining, Energy and Mineral Resources Service</td>
</tr>
<tr>
<td>28</td>
<td>Water Resources Management Experts/Universities</td>
</tr>
<tr>
<td>29</td>
<td>Water User Community Organizations</td>
</tr>
<tr>
<td>30</td>
<td>Water User Industrial Business Organizations</td>
</tr>
<tr>
<td>31</td>
<td>Non-Governmental Organizations related to Water Resources</td>
</tr>
<tr>
<td>32</td>
<td>Indigenous Peoples Institutions</td>
</tr>
<tr>
<td>33</td>
<td>Institutions responsible for Water Resources Management at the Provincial, District/City levels</td>
</tr>
</tbody>
</table>
Table 5. Important Water–Related Areas can be Accessed Through the Following Agencies or Institutions:

<table>
<thead>
<tr>
<th>IWRA</th>
<th>Relevant ministry</th>
<th>Data source</th>
</tr>
</thead>
</table>
| a. Protected forest area                  | • Ministry of Environment and Forestry  
• Minister of Public Works and Housing  
• Ministry of Energy and Mineral Resources  
• Ministry of Marine Affairs and Fisheries (KKP)  
• Center for Watershed Management (BPDAS),  
• Center for Oceanographic Research LIPI (Indonesian Institute of Sciences)  
| b. Peat protected area                     |                                                                                                                                                                                                              |                                                                                                |
| c. Catchment areas and green open spaces  |                                                                                                                                                                                                              |                                                                                                |
| d. Mangrove area                          |                                                                                                                                                                                                              |                                                                                                |
| e. Beach border                           |                                                                                                                                                                                                              |                                                                                                |
| f. River border                           |                                                                                                                                                                                                              |                                                                                                |
| g. Areas around lakes or reservoirs       |                                                                                                                                                                                                              |                                                                                                |
| h. Wildlife sanctuaries and marine wildlife sanctuaries |                                                                                                                                                                                                              |                                                                                                |
| i. Nature reserves and marine reserves    |                                                                                                                                                                                                              |                                                                                                |
| j. Beaches with mangrove forests          |                                                                                                                                                                                                              |                                                                                                |
| k. National parks and marine national parks |                                                                                                                                                                                                              |                                                                                                |
| l. Botanical gardens                      |                                                                                                                                                                                                              |                                                                                                |
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<table>
<thead>
<tr>
<th>IWRA</th>
<th>Relevant ministry</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>m. Natural tourism parks and marine nature parks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n. Cultural and scientific heritage area</td>
<td></td>
<td></td>
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<tr>
<td>o. Geological reserve area</td>
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<td></td>
</tr>
<tr>
<td>p. Groundwater recharge area</td>
<td></td>
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<tr>
<td>q. Spring borders</td>
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<td></td>
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<tr>
<td>r. Germplasm protected area</td>
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<td></td>
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<tr>
<td>s. Animal refuge area</td>
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<td></td>
</tr>
<tr>
<td>t. Coral reefs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>u. Coastal conservation areas and small islands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>v. Maritime conservation area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>w. Marine conservation area</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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<tr>
<th>IWRA</th>
<th>Relevant ministry</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>x. Corridor area for protected species of marine animals or biota</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6. Reference Documents Related to Water Governance Issued by the Government

<table>
<thead>
<tr>
<th>National</th>
<th>Provincial</th>
<th>B(B)WS</th>
<th>Forum DAS</th>
<th>District</th>
<th>Kota/Kabupaten</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Public Works and Housing – Water Resources Management Patterns and Plans</td>
<td>Provincial Bappeda – Water disaster mitigation and management components included in the Provincial RPJM that have not been (yet) translated into the District RPJM</td>
<td>BBWS – Water Resources Management Patterns and Plans</td>
<td>Watershed Forum activity plan or documentation</td>
<td>District Environmental Office – District Environmental Status</td>
<td>Master Plan for Drinking Water Supply System (RISPAM)</td>
</tr>
<tr>
<td>MoEF – Protection of National Forest Areas</td>
<td>Provincial Bappeda, Provincial Forestry Service – Provincial LAKIP on implementation of watershed related plans and programs</td>
<td></td>
<td></td>
<td></td>
<td>Water Utility (PDAM) Performance Book</td>
</tr>
<tr>
<td>MoEF – Map of watershed boundaries</td>
<td>Provincial Environment Agency – Provincial Environmental Status</td>
<td></td>
<td></td>
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<tr>
<td>MEMR – Map of watershed boundaries</td>
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</tbody>
</table>

Some references to government programs on water management on the island of Java:
- Citarum Harum Program – Acceleration of Pollution and Damage Control in the Citarum River Basin can be accessed through http://www.citarum.org/
- Brantas Tuntas Movement – Movement to create a clean and healthy Brantas River environment and ecosystem
Table 7. Documents of Specific Legal Requirements and Related Permits or Standards Applicable to an Operational Area

<table>
<thead>
<tr>
<th>Quality of wastewater or effluent discharged from sites</th>
<th>Groundwater use in sites</th>
<th>Surface Water Use in sites</th>
<th>Allocation of Water Discharge Usage in Sites</th>
<th>Sanitation and hygiene in sites</th>
<th>Protection of forest areas, peat and other related important ecosystems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Approval as a prerequisite for Business Licensing (or as relevant after the Job Creation Law comes into effect)</td>
<td>Groundwater Concession Permit / SIPA (or the relevant one after the Job Creation Law comes into effect) Environmental Approval as a prerequisite for Business Licensing (or as relevant after the Job Creation Law comes into effect) K3L certification in Indonesia, etc.</td>
<td>Permit for Intake and Utilization of Surface Water / SIPPA (or whichever is relevant after the Job Creation Law comes into effect)</td>
<td>Tourism CHSE Certification from the Ministry of Tourism and Creative Industries(^{15})</td>
<td>Environmental Approval as a prerequisite for Business Licensing (or as relevant after the Job Creation Law comes into effect)</td>
<td></td>
</tr>
</tbody>
</table>

\(^{15}\)https://chse.kemenparekraf.go.id/bantuan#topikumum
Some legal requirements and permits related to water that must be met by the site, can refer to several regulations:

**WATER GOVERNANCE**

- Law No. 11/2020 on Job Creation.
- Law No. 24/2007 on Disasters. Regulates water-related disaster management plans at the national, provincial and district levels.
- Government Regulation No. 28/2021 concerning the Implementation of the Industrial Sector. Ensuring industrial sector players implement responsible water use and management in accordance with the Ministry of Industry’s definition of a Green Industry in Indonesia.
- Government Regulation no. 23/2021 concerning Forestry Implementation.
- Government Regulation no. 22/2021 concerning the Implementation of Environmental Protection and Management.
- Government Regulation no. 5/2021 concerning the Implementation of Risk-Based Business Licensing (Environmental and Forestry Sector).
- Government Regulation No. 37/2012 on Watershed Management. Translates the national surface water resources management strategy and catchment planning documents into district development plans.
- Government Regulation No. 21/2008 on Disaster Management.
- Regulation of the Minister of Environment and Forestry No. 3/2014 concerning Company Environmental Management Performance Assessment Program (PROPER).
- Regulation of the Minister of Public Works No. 2/2013 concerning Guidelines for the Preparation of a Resource Management Plan Air.
WATER QUALITY

- Law No. 11/2020 on Job Creation. Regulates water quality management, monitoring and law enforcement against private parties related to environmental permits and regarding water quantity as part of the requirements to develop and maintain an environmental inventory.
- Law No. 37/2014 concerning Conservation of Soil and Water Resources. Regulate the government to develop and implement water quality management and report the annual status of water quality.
- Law No. 32/2009 concerning Environmental Protection and Management.
- Government Regulation No. 22/2021 concerning the Implementation of Environmental Protection and Management (P3LH), Chapter III Water Quality Protection and Management, Chapter IV Environmental Damage Control and Chapter VII Hazardous and Non-Hazardous Waste Management.
- Regulation of the Minister of Environment and Forestry No. P.93/MENLHK/SETJEN/KUM.1/8/2018 concerning Continuous Monitoring of Wastewater Quality in a network for businesses and or activities.

IMPORTANT WATER RELATED AREAS (IWRA)

- Law No. 17/2019 on Water Resources. Mandate given to district governments to identify, map and manage critical water-related ecosystems.
- Law No. 18/2013 concerning Prevention and Eradication of Forest Destruction. Regulates surface water absorption to ensure the availability of natural resources in the long term to support livelihoods.
- Law No. 41/1999 on Forestry. Regulate the protection of forest areas.
WASH

- Law No. 36/2009 on Health. Regulate roles and responsibilities related to access to safe drinking water and adequate sanitation facilities and personal hygiene in maintaining public health.
- Government Regulation No. 122/2015 concerning Drinking Water Supply System. The implementation of SPAM to meet their own needs, business entities are obliged to maintain the preservation of raw water sources.
- Presidential Regulation No. 185/2014 concerning the Acceleration of the Provision of Drinking Water and Sanitation. The provision of drinking water and sanitation can be carried out by business entities in accordance with permits and cooperation scripts.
- Minister of Health Regulation No. 70/2016 concerning Industrial Work Environment Health Standards and Requirements. This regulation includes requirements regarding clean water and sanitation in the work environment.
- Minister of Health Regulation No. 32/2017 concerning Environmental Health Quality Standards and Water Health Requirements for Sanitary Hygiene, Swimming Pools, Solus Per Aqua, and Public Baths.
- Minister of Health Regulation No. 3/2014 concerning Community Based Total Sanitation.
- Minister of Health Regulation No. 492/2010 concerning Drinking Water Quality Requirements.
Regulatory references related to sanctions for violations to regulations related to water management include:

- Law No. 11/2020 on Job Creation Chapter (sanctions) Article 53 concerning the imposition of sanctions on activities that violate provisions in the construction of water resources infrastructure.
- Law No. 32/2009 on Environmental Protection and Management - Chapter 15 on Criminal Provisions in Article 14. This article states that any activity shall be prohibited from violating quality standards.
- Government Regulation No. 22/2021 concerning the Implementation of Environmental Protection and Management Article 514 stipulating sanctions for negligence on exceeding water quality standards.