Evidence
UI GreenMetric Questionnaire

University : Universitas Muhammadiyah Semarang
Country : Semarang, Central Java, Indonesia
Web Address : https://greenmetric.unimus.ac.id/

[4] Water (WR)

[4.1] Water Conservation Program Implementation (WR.1)

Universitas Muhammadiyah Semarang (UNIMUS) has a high commitment to maintaining the sustainability of water resources and supporting the achievement of the Sustainable Development Goals (SDG 6 – Clean Water and Sanitation) through various water conservation programs in the campus environment. This effort is carried out by integrating aspects of green infrastructure, water management technology, and environmental education into campus operational activities. The following is a description of the programs that have been implemented:

1. Provision of large green open land.
   UNIMUS provides various green open spaces (RTH) areas in the campus environment as an important part of the water conservation system. This area includes parks, green paths, and vegetation around the building that serves to increase water absorption into the soil and reduce rainwater runoff.
   Plants planted in the green area of the campus also play a role in maintaining soil moisture, filtering air pollutants, and creating a cool and comfortable microclimate for the academic community. Thus, green open spaces double as ecological and educational elements, demonstrating UNIMUS's commitment to a sustainable campus.
2. The use of road and parking hardeners that can absorb rainwater with paving and paving grass blocks.
   To support natural water absorption, UNIMUS uses porous pavement materials such as paving blocks and paving grass rock in road and parking areas.
   This material allows rainwater to seep directly into the soil through the gaps between the surfaces, thus reducing inundation and surface runoff. In addition, the use of these materials also helps recharge groundwater reserves (recharge) and supports the campus's natural drainage system.
   This step is part of the eco-campus design innovation that is applied in every construction and renovation of campus facilities.
3. The creation of a reservoir where rainwater is channeled and infused in a channel, and is accommodated in an artificial reservoir, and is diffused.
   UNIMUS built an artificial reservoir as a means of collecting rainwater from the roofs of buildings and open areas. The rainwater that flows into the reservoir will go through a process of natural filtration and sedimentation, then be absorbed into the soil or reused for non-potable activities such as garden watering and campus area cleanliness.
   This reservoir not only functions as a container for water conservation but also as a means of learning and research for students, especially in the fields of environmental engineering and civil engineering. Thus, this program contributes to Integrated Water Resources Management in the campus environment.
4. Manufacture of infiltration wells.
   To strengthen the groundwater conservation system, UNIMUS built some infiltration wells at various strategic points on campus. These wells serve to collect rainwater and return it to the deep soil layer, thus maintaining the balance of groundwater reserves and preventing local flooding.
   Infiltration wells also help stabilize the hydrological conditions of the area, maintain soil moisture, and reduce the temperature of the surrounding environment. This program demonstrates UNIMUS' concern for sustainable water management and is oriented towards the balance of the campus ecosystem.

5. Integrated Waste Drainage and Treatment System in Each Campus Building.
   Each building in UNIMUS has been equipped with a separate drainage system for rainwater and domestic wastewater. Before being disposed of, wastewater from toilets and laboratories is treated through a Wastewater Treatment Plant (WWTP) system and modern biofilter technology.
   Water from WWTP that has met environmental standards is then reabsorbed into the soil or used for garden watering and campus greening.
   With this system, UNIMUS not only reduces environmental pollution, but also saves clean water consumption, creates a closed-loop system, and supports the principle of reduce, reuse, recycle (3R) in water management.

Reservoir of Rainwater Infiltration of University of Muhammadiyah Semarang

Utilization of Reservoir Water for Garden Watering

Use of Grass Block

Preparation of Infiltration Wells

Bio Filter University of Muhammadiyah Semarang

WWTP from Processing in Bio Filter

Retention Pond Control From WWTP

Channel Shelter from Impregnated WWTP Retention Pond

Watering Plants Using a Springler Regulated with a Gate Valve

Evidence
UI GreenMetric Questionnaire

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[4] Water (WR)

[4.2] Implementation of the Recycled Water Utilization Program

1. Construction of Infiltration Reservoirs and Rainwater Utilization
   Universitas Muhammadiyah Semarang (UNIMUS) is committed to the conservation of water resources through the construction of infiltration ponds in the campus area as part of an integrated water conservation system. This reservoir serves to accommodate and hold the flow of rainwater so that it does not flow directly into drainage channels or ground surfaces, which can cause runoff and local flooding.
   In addition to collecting rainwater, this reservoir also plays an important role in increasing water infiltration into the soil, maintaining groundwater balance, and supporting the natural hydrological cycle in the campus environment. The water stored in the reservoir is filtered naturally through the process of sedimentation and filtration before being reused for various non-potable purposes, such as garden watering, greening, and cleanliness of the campus environment.

2. Utilization of Treated Water WWTP and Biofilter
   In addition to rainwater management, UNIMUS also implements a domestic wastewater treatment system through Wastewater Treatment Plants (WWTP) and Biofilters. Liquid waste from toilet and laboratory activities is processed first to meet environmental quality standards.
   The treated water from WWTP is then drained to the reservoir or special distribution channel, where the water is stored to be reused as a secondary water source. This utilization is mainly used for watering plants, green areas, and the needs of the campus environment.
   With biofilter technology and multi-level settling, this system is able to significantly reduce the levels of organic matter and microorganisms, so that the treated water is safe to use for non-consumption activities. This program not only reduces the use of clean water from PDAM, but also contributes to the efficiency of water resources, the reduction of liquid waste, and the preservation of the campus environment in a sustainable manner.
   This activity reflects UNIMUS' commitment to the implementation of SDG 6 (Clean Water and Decent Sanitation), SDG 7 (Clean and Affordable Energy) through energy efficiency in water treatment systems, and SDG 12 (Responsible Consumption and Production).

Reservoir Reservoir Catchment Rainwater and water from WWTP or Bio Filter Universitas Muhammadiyah Semarang

Bio Filter Reservoir on the Floor

Placement of Control Pools or Retention Pools

Retention Pond Control From WWTP

Channel Shelter from Impregnated WWTP Retention Pond

Plant Watering Reservoirs Covered by Vegetation

Evidence
UI GreenMetric Questionnaire

University : Universitas Muhammadiyah Semarang
Country : Semarang, Central Java, Indonesia
Web Address : https://greenmetric.unimus.ac.id/

[4] Water (WR)

[4.3] Water Efficient Appliances Usage (WR.3)

Universitas Muhammadiyah Semarang has implemented the use of water-saving devices, such as:

1. Buildings in Unimus have implemented the use of Water Saving Equipment, the use of eco closet and urinal buttons with automatic buttons, each tap pressed will release water as needed, when removed it automatically stops flowing without having to close the faucet.
2. Automatic irrigation system for watering plants such as Springler, regulated with a Gate Valve.
3. Rainwater harvesting system, such as a reservoir: collecting rainwater to water plants or clean the campus area. Before being used for watering the plant, water is first put into the reservoir.
4. Education and increase awareness of campus residents to save water by installing water-saving campaign boards on bathroom doors, bathroom area walls, and bathroom walls.
5. Water monitoring system. In each Unimus Building, there is a digital water meter to monitor water consumption and detect leaks as an effort to improve water use efficiency.

Low-Pressure Eco Flush in Every Unimus Building

Low-Pressure Eco Flush in Every Unimus Building

Watering Plants Using a Springler Regulated with a Gate Valve

Reservoir of Rainwater Infiltration

Use of a reservoir for watering plants (condition of the reservoir covered by vegetation)

Educational Boards or Water-Saving Campaigns

Digital Water Meters are Installed in Every Unimus Building

Evidence
UI GreenMetric Questionnaire

University : Universitas Muhammadiyah Semarang
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[4] Water (WR)

[4.4] Consumption of treated water (WR.4)

Consumption of Treated water

The clean water installation, which is consumed by students and staff, is located on campus and is packaged in glass, bottles, and gallon packaging.

Evidence
UI GreenMetric Questionnaire

University : Universitas Muhammadiyah Semarang
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[4] Water (WR)

[4.5] Water Pollution Control in The Campus Area (WR.5)

In an effort to control water pollution in the campus area, the Universitas Muhammadiyah Semarang conducts:

1. Monitoring wastewater quality once every 1 month.
2. In each campus building of the UNIMUS, there is a separate sewer system. Before being infiltrated, toilet waste and feces are treated with a bio filter, waste, and WWTP, before the water is absorbed and also used in watering plants. The results of waste treatment with bio filters are treated back at WWTP and then flow into retention ponds to control water before being absorbed, drained into reservoirs, or returned to natural channels/rivers.
3. UNIMUS in collaboration with PT. Arah Environmental Indonesia's direction in the management of laboratory liquid waste and B3 waste. Laboratory liquid waste and B3 waste from the UNIMUS campus were handed over to PT Arah Environmental Indonesia to be managed by PT. Arah Environmental Indonesia.
4. The water sources used come from PDAM and deep wells. Protection of water sources in deep wells by planting protective vegetation around water sources to prevent erosion and waste infiltration, and creating a protected zone around the embankment.

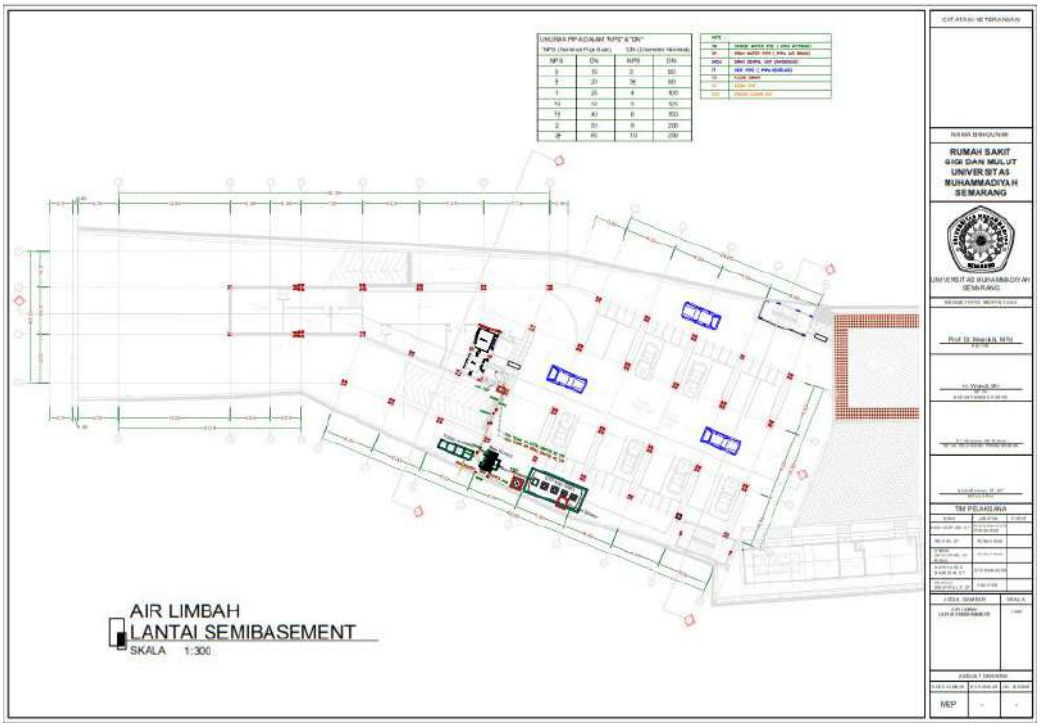
Bio Filter

WWTP from Processing in Bio Filter

Retention Pond Control From WWTP

Channel Shelter from Impregnated WWTP Retention Pond

Reservoir Reservoir Catchment Rainwater and Water from WWTP or Bio Filter



Laboratory Wastewater Treatment Overview

BERITA ACARA PENGANGKUTAN
FAKULTAS ILMU KEPERAWATAN DAN KESEHATAN UNIVERSITAS MUHAMMAD

Hi **FAKULTAS ILMU KEPERAWATAN DAN KESEHATAN UNIVERSITAS MUHAMMAD**

Terima kasih telah bekerjasama dengan PT Arah Environmental Indonesia, hari ini **(Selasa/19 Agus 2025)** petugas kami telah menyelesaikan pengangkutan Limbah B3 yang Anda hasilkan, dengan informasi sebagai berikut:

INFORMASI PENGANGKUTAN

Hari/Tanggal	: **Selasa/19 Agus 2025**
Jam Mulai s/d Selesai Pengangkutan	: **11:11 s/d 11:23**
Nama Penghasil	: **FAKULTAS ILMU KEPERAWATAN DAN KESEHATAN UNIVERSITAS MUHAMMAD**
Alamat Pengangkutan	: **Jl. Kedungmundu Raya No. 18 Kedungmundu, Tembalang, Semarang, Jawa Tengah 50273**
Jenis Layanan	: **PAKET - B**
Nama Petugas Penghasil	: **ARDI**
Nama Petugas Pengangkut	: **Syafarudin (Smrg)/DIDIK**
Nomor Polisi Armada	: **B.9872.SXR**
Nama Akun Pengangkut (SPEED)	:
Nomor Rekomendasi Pengangkutan	: **S.802/PSLB3-PLB3/PK/PLB.3/09/2022**

RINCIAN LIMBAH B3

Nomor Dokumen	Kode/Nama/Jenis Limbah	Berat (Kg)	Berat (Ton)	Keterangan
WW900128436	A337-1 - Padat/ A337-1 | Fasyankes - Limbah Infeksius (Medis Padat)/ Padat	67.55	0.067550	7 plastik

RINCIAN BERDASARKAN KODE LIMBAH B3

Nomor Dokumen	Kode/Nama/Jenis Limbah	Berat (Kg)	Berat (Ton)	Keterangan
WW900128436	A337-1	67.55	0.067550	7 plastik

**) Dokumen ini dapat digunakan sebagai referensi untuk penginputan data ke Manifes Elektronik (Festronik) yang terdapat pada laman SPEED* https://simpel.menlhk.go.id/

Minutes of B3 Waste Transportation by PT. Arah Environmental Indonesia

Evidence
UI GreenMetric Questionnaire

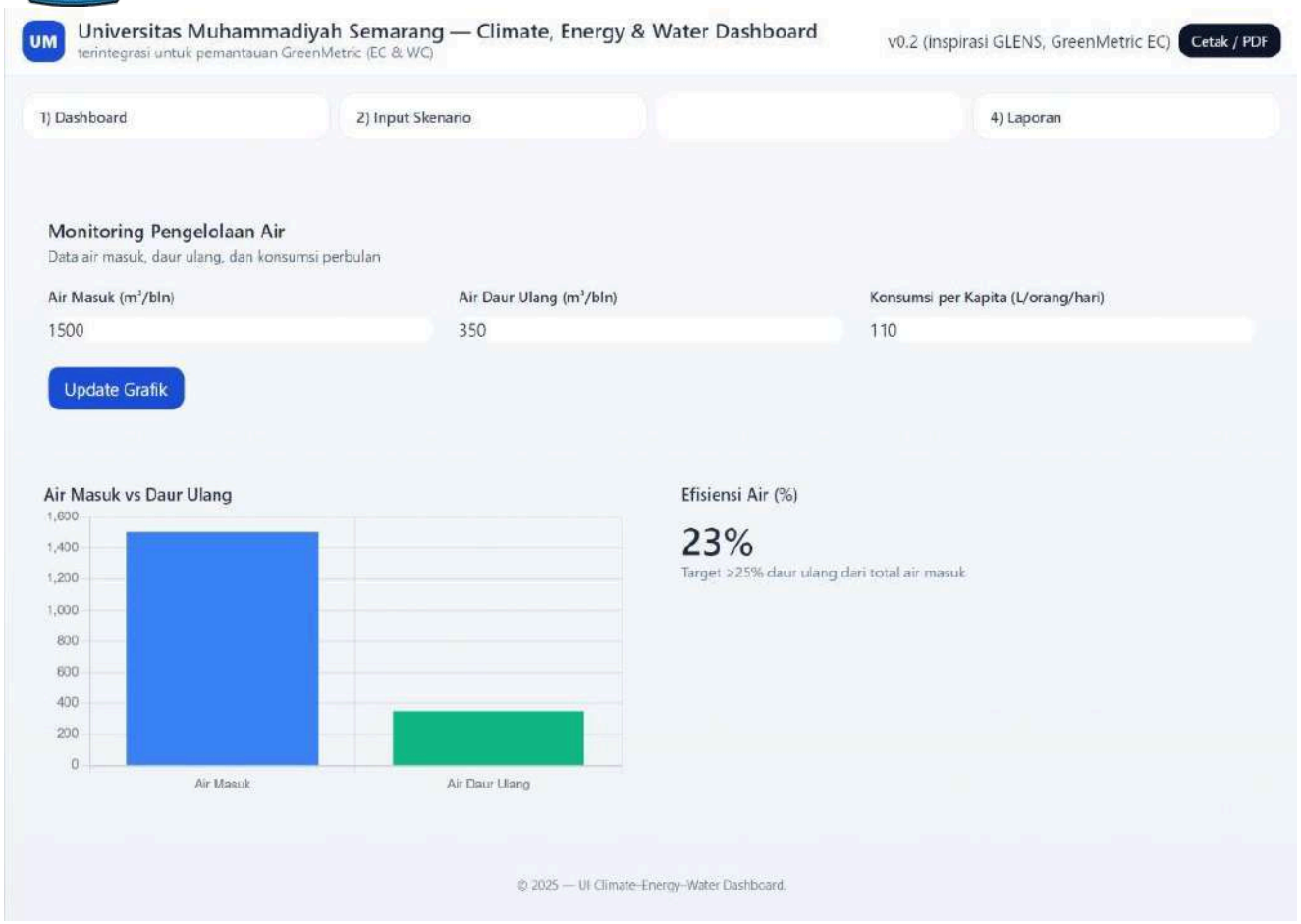
University : Universitas Muhammadiyah Semarang
Country : Semarang, Central Java, Indonesia
Web Address : https://greenmetric.unimus.ac.id/

[4] Water (WR)

[4.6] Planning, implementation, monitoring and/or evaluation of all programs related to Water Management through the utilization of Information and Communication Technology (ICT) (WR.6)

Unimus has an integrated system called Integrated Service Information System (SIPINTER) with an address sipinter.unimus.ac.id. This system is designed to facilitate and accelerate various academic and administrative processes as well as improve the quality of services at Unimus. SIPINTER was developed to create an integrated and technology-based work environment as an example of water management.
Universitas Muhammadiyah Semarang has developed the Climate, Energy & Water Dashboard as part of an Information and Communication Technology (ICT) based monitoring system to support efficient and sustainable management of water resources. This dashboard is a digital tool that is integrated with the UI Greenmetric assessment system, especially in the Water Conservation (WC) and Energy & Climate Change (EC) categories.

Development of Climate, Energy and Water Dashboard in Integrated Service Information System (SIPINTER)



Development of Climate, Energy and Water Dashboard in Integrated Service Information System (SIPINTER)

1. Functions and Objectives
   This dashboard is designed to :
   - Monitor real-time data on incoming water usage, recycled water, and per capita water consumption in the campus environment.
   - Analyze water efficiency based on the comparison between the volume of water recycled and the total water used. Supporting data-driven decision-making in campus water planning and management.
   - Provide automated reporting for internal and external reporting needs, such as accreditation or sustainability assessments

2. Monitoring Results (Data on Dashboard)
   Based on the dashboard display:
   Water Intake: 1,500 m^3/month
   Recycled Water: 350 m^3/month
   Per Capita Consumption: 110 liters/person/day
   Water Efficiency: 23%
   This means that of the total water intake each month, 23% is recycled for reuse, whether for garden watering, environmental sanitation, or other non-potable purposes.

3. Efficiency Analysis
   The efficiency target set is ≥25% recycled water from the total incoming water. The 23% score shows that the campus is close to the efficiency target, but still needs to optimize the water recycling system to be more optimal. Through this digital data analysis, managers can identify areas with greater potential for water savings, as well as set efficiency improvement strategies, for example:
   - Increasing the capacity of the campus wastewater treatment plant (WWTP).
   - Using an IoT system to automatically regulate water usage.
   - Encouraging water-saving behavior among academics through publicly displayed data

4. Visual Dashboard Description
   The bar graph section shows the comparison between the volume of Inlet Water (blue color) and Recycled Water (green color). This visualization helps users quickly understand the proportion of water utilization. On the right side, there is a Water Efficiency (%) indicator which displays the number 23%, accompanied by an explanation of the efficiency target. This simple yet informative view makes it easy for users to read trends and evaluate water management performance on a regular basis

5. Meaning and Impact
   The use of this dashboard shows that the University of Muhammadiyah Semarang has implemented the principles of ICT-based smart water management. This system not only helps in strategic decision-making, but is also a tangible proof of the university's commitment to supporting the 6th SDGs (Clean Water and Decent Sanitation) and the 12th SDGs (Responsible Consumption and Production).
   In addition to developing the Climate, Energy & Water Dashboard as part of an Information and Communication Technology (ICT)-based monitoring system, UNIMUS also plans, implements, monitors, and/or evaluates all programs related to Water Management using the development of a comprehensive Sintaset (Asset Management System). This program aims to manage devices related to water management, such as water conservation devices, water-saving devices, wastewater treatment devices, and consumption water treatment devices..

Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	Development of a comprehensive Sintaset (Asset Management System)	Development of Sintaset, including the integration of the system with other modules (finance, procurement) and the use of advanced technology (e.g., AI for asset monitoring)	Development plan documents, new feature blueprint	July 2025 - September 2025	ICT Department, Finance Department, Asset Management
Implementation	Implementation of New Features and System Integration	Integrating new features into Sintaset, such as AI-based asset monitoring, automated reporting, and integration with finance and procurement systems	Implementation reports, system integration documentation, and data on system usage	October 2025 - December 2025	ICT Department, Finance Department, Asset Management
Monitoring	Monitoring of Sintaset System Usage and New Feature Performance	Monitoring system usage and performance to ensure smooth functioning and identify areas for improvement	Monitoring reports, system performance metrics, and user feedback	January 2025 - Ongoing	ICT Department, Asset Management, Finance Department
Evaluation	Evaluation of Sintaset's Impact on Asset Management	Collecting feedback from system users (staff, asset managers, and other stakeholders) to assess	Survey results, evaluation reports, system usage analysis reports	Mei 2026	ICT Department, Asset Management

Development of the UNIMUS Asset System (SINTASET)

Benefits of Sintaset Development:

1. **Enhanced Asset Management Efficiency**: Integration with financial and procurement systems will streamline the asset management process, ensuring that asset records are kept more accurate and well-documented.
2. **Improved Asset Monitoring**: AI-based monitoring will provide real-time insights into the condition of assets, enabling quicker detection of issues and more efficient maintenance.
3. **Faster and More Accurate Reporting**: The automated reporting feature will speed up the creation of asset status reports and provide more precise data to support decision-making.
4. **Transparency and Security**: The more integrated system will increase transparency in asset management, while ensuring the security and reliability of asset data.

1. Planning

In the planning stage, the campus environmental management team identifies water needs based on historical data on water use in various facilities such as laboratories, lecture buildings, dormitories, and green areas. Through the analysis of digital data from the water consumption monitoring system, the campus can determine daily, weekly, and seasonal water usage patterns. Furthermore, strategic planning is made using ICT-based water management software, which contains conservation plans, efficiency targets, and priority installations of water-saving devices and water recycling systems.

2. Implementation

The implementation of the program is carried out by the application of smart water management, such as the installation of digital water meters (smart meters) that are connected to the campus network system. This technology allows for real-time monitoring of water usage and provides automatic alerts in the event of an abnormal leak or spike in water consumption. In addition, the Internet of Things (IoT) system is used to automatically control garden watering based on soil moisture and weather data, making water use more efficient. The data collected from various sensors is sent to a digital dashboard that can be accessed by facility managers for quick and precise decision-making.

3. **Monitoring**

   Monitoring is carried out periodically through an integrated digital platform that displays water usage data from all campus units. With cloud-based systems, the data can be analyzed to identify trends, potential leaks, or areas with high water consumption. The monitoring results are also used to increase the awareness of the academic community through the publication of water consumption data on the campus public information screen, thereby encouraging active participation in maintaining water use efficiency.

4. **Evaluation**

   The evaluation stage is carried out by comparing water use realization data against the planned efficiency target. This evaluation process is carried out using data-driven evaluation resulting from the digital system. From these results, the management team can assess the effectiveness of the program, identify technical obstacles, and design further improvement and innovation steps. This evaluation is also the basis for the preparation of a campus sustainability report that describes water conservation achievements and the campus's contribution to the SDGs agenda.

Evidence
UI GreenMetric Questionnaire

University : Universitas Muhammadiyah Semarang
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[4] Water (WR)

[4.7] Impact of Water Management programs in supporting the Sustainable Development Goals (SDGs)

Reservoir of Rainwater Infiltration of Universitas Muhammadiyah Semarang

Preparation of Infiltration Wells

Use of water-saving fixtures

Installation of water meters and digital monitoring systems

Bio Filter of Universitas Muhammadiyah Semarang

WWTP from Processing in Bio Filter

Educational boards or water-saving campaigns

Description:

Universitas Muhammadiyah Semarang (UNIMUS) has implemented various water management programs that have contributed significantly to the achievement of 17 Sustainable Development Goals (SDGs). These initiatives reflect a strong institutional commitment to water conservation, sustainable use, and climate resilience. Key programs include:

- **Installation of rainwater harvesting systems** in reservoirs and open areas to collect and store rainwater for non-drinking purposes such as irrigation and flushing toilets. It is a real effort in supporting Sustainable Development Goal (SDGs) number 6, which is to ensure the availability and sustainable management of water and sanitation for all. Through this system, rainwater that was previously wasted can be collected and reused for non-drinking purposes such as garden watering, irrigation, and flushing toilets. These efforts help to improve the efficiency of clean water use (Target 6.4), maintain the availability of water sources (Target 6.6), and support integrated water resource management (Target 6.5). In addition, rainwater harvesting also contributes to the reduction of water runoff and potential flooding, thereby supporting the achievement of SDGs 11 (Sustainable Cities and Communities) and SDG's 13 (Handling Climate Change). Thus, the application of this technology is a strategic step towards an environmentally friendly and sustainable campus

- **The construction of infiltration wells and bioretention systems** to reduce surface runoff and increase groundwater replenishment supports SDG 6 (Clean Water and Decent Sanitation) as it helps to replenish groundwater, reduce surface runoff, and maintain the balance of the water cycle.
  In addition, this technology also contributes to SDG 11 (Sustainable Cities and Communities) and SDG 13 (Handling Climate Change) because it reduces flood risk and strengthens environmental resilience to climate change.

- **Use of water-saving fixtures** (low-flow taps, dual flush toilets, waterless urinals) throughout campus buildings to minimize daily water consumption. This effort supports SDG 6 (Clean Water and Decent Sanitation), especially target 6.4 on water use efficiency.
  This step also helps SDG 11 (Sustainable Cities) and SDG 12 (Responsible Consumption) because it reduces pressure on water resources and fosters a water-saving culture in the educational environment.

- **Installation of water meters and digital monitoring systems** to track water usage and detect leaks directly. These efforts support SDG 6 (Clean Water and Decent Sanitation), especially targets 6.4 and 6.5, by improving the efficiency and accuracy of water management.
  In addition, this step is also in line with SDG 9 (Innovation and Infrastructure) and SDG 11 (Sustainable Cities) because it utilizes digital technology to create an efficient, adaptive, and sustainable water system. SDG 12 is also supported by this effort, where monitoring water consumption encourages frugal and responsible behavior in the use of natural resources.

- **Implementation of wastewater treatment systems** for wastewater reuse for watering, gardening, and cleaning. This effort is to support SDGs 6, 12 and 15. Sustainable wastewater management improves water quality by reducing pollution and increasing wastewater recycling
  Wastewater treatment systems purify wastewater so that it can be reused for watering, gardening, or cleaning of campus areas.
  To support SDG 12, this effort encourages economical and circular water consumption patterns through the 3R (Reduce, Reuse, Recycle) principle.
  This effort is also to support SDGs 15, which is to reduce the disposal of liquid waste into the soil and public channels, maintaining the quality of the surrounding environment

- **Awareness campaigns and workshops that promote water-saving habits** among students, staff, and faculty. Water-saving campaign activities and workshops support SDG 6 (Clean Water and Decent Sanitation) by raising awareness to use water efficiently. In addition, this activity also strengthens SDG 4

(Quality Education) because it instills the value of sustainability, SDG 12 (Responsible Consumption) through behavior change, and SDG 17 (Partnership for Goals) through cross-community collaboration on campus.

These efforts directly support SDGs 1,2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17. In detail it can be explained as follows:

- **SDG 1 – Without poverty.**
  The goal of SDG 1 is to end poverty in all forms everywhere.
  Efficient water management helps lower campus operating costs, so funds can be diverted to scholarships, research, and improvements to student facilities.
  Water efficiency and conservation programs can create green jobs for students and the surrounding community (for example, in WWTP management, water system maintenance, or water technology research).
  Good water management also reduces economic risks due to water shortages or facility damage due to leakage and waste.

- **SDG 2 – No hunger**
  The goals of SDG 2 End hunger, achieve food security, and improve nutrition.
  Properly managed campus wastewater prevents river pollution from chemical waste, detergents, or hazardous materials. In controlling water pollution in the campus area, wastewater is treated in WWTP before being returned to natural channels. Water that has returned to clean in natural channels or rivers can be used to meet agricultural irrigation water needs

- **SDG 3 – Supporting public health through access to clean and safe water**
  The goal of SDG 3 is to ensure healthy lives and improve well-being for all ages.
  The provision of clean water and good sanitation on campus prevents diseases caused by contaminated water, such as diarrhea or skin infections.
  Good wastewater management keeps the campus environment healthy and pollution-free.
  Access to clean water also supports mental health and learning comfort for the entire academic community

- **SDG 4 – Providing a learning environment with reliable and sustainable water infrastructure.**
  The goals of SDG 4 ensure inclusive, equitable, and quality education and promote lifelong learning opportunities
  A campus with a good water management system can be a living laboratory for students to learn about water efficiency, conservation, and water treatment technology.
  Encourage research, innovation, and cross-disciplinary learning in the fields of environmental engineering, civil engineering, and sustainability.
  Water-saving awareness campaigns and programs support sustainable character and behavior education for the academic community.

- **SDG 5 – Gender Equality**
  The goal of SDG 5 is to achieve gender equality and empower all women and girls.
  Access to clean water and proper sanitation on campus supports women's comfort and safety, especially in the use of toilets and public spaces.
  The involvement of female students in water management projects and research also increases their participation in the field of environmental science and technology.
  Adequate sanitation facilities reduce gender access inequality in study and work spaces.

- **SDG 6 – Memastikan ketersediaan dan pengelolaan air dan sanitasi yang berkelanjutan untuk semua.**
  The goal of SDG 6 is to ensure the availability and sustainable management of clean water and sanitation for all.

These are the main goals that are most directly related. The implementation of water management systems includes:

- Water saving (water-saving device, usage monitoring).
- Wastewater treatment (WWTP).
- Utilization of rainwater.
- Educate on the importance of clean water and sanitation.

All of these actions support SDG 6 targets such as:
6.1: Universal access to clean water.
6.2: Access to sanitation and hygiene.
6.3: Improvement of water quality through sewage treatment.
6.4: Water use efficiency.

- **SDG 7 - Clean and Affordable Energy**
  The goals of SDG 7 ensure access to affordable, reliable, sustainable, and modern energy.
  In water management at the University of Muhammadiyah Semarang, energy efficiency in water distribution is essential.
  A good water efficiency system (e.g. water pressure monitoring, leak sensors, and efficient distribution schedules) can save the electrical energy used for water pumping and distribution.
  The less water is wasted, the less energy is needed to pump and process new water.
  An example of water efficiency on the campus of the University of Muhammadiyah Semarang is implementing the use of Water Saving Equipment, the use of eco closet and urinal buttons with automatic buttons, each tap pressed will release water as needed, when removed it automatically stops flowing without having to close the faucet. In addition, there is also an automatic irrigation system, a water-saving campaign and a water use monitoring system.

  The campus is a place for research and learning about the relationship between water and energy — how automatic water saving means energy savings.
  Students can learn energy efficiency technologies in hydraulic systems and water treatment.
  The integration of water and energy management supports the concept of an energy- and resource-efficient campus.

- **SDG 8 – Decent Work and Economic Growth**
  The goals of SDG 8 are to promote inclusive and sustainable economic growth and decent work.
  The water conservation and management program opens green jobs in the fields of engineering, environment, and water system maintenance.
  Water savings lower operational costs, supporting the economic efficiency of the campus.
  Through research and training activities, the campus prepares professional human resources in the field of sustainable water management.

- **SDG 9 – Implementing innovative water management infrastructure**
  The goal of SDG 9 is to encourage technological innovation and sustainable infrastructure development.
  Campuses can be centers for water technology innovations—such as digital leak sensors, water recycling systems, and efficient conduit design.
  The development of green infrastructure such as infiltration parks, biopore wells, and sustainable drainage supports SDG 9.
  Collaboration with the water industry drives sustainable technological innovation.

- **SDG 10 – Reduced Gaps**
  The goal of SDG 10 is to reduce disparities within and between communities.
  Access to clean water and sanitation throughout the campus area ensures justice for all communities, regardless of gender, position, or location.
  Community service programs related to clean water help communities around campuses that lack water.

- **SDG 11 – Improving urban resilience through sustainable water practices**
  The goal of SDG 11 is to create inclusive, safe, resilient, and sustainable cities and settlements.
  Campuses with efficient water systems and sustainable drainage can be a miniature model of a green city.
  Rainwater management, infiltration systems, and wastewater treatment make the campus environment more resilient to floods and droughts

- **SDG 12 – Encourage responsible consumption of natural resources**
  The goal of SDG 12 is to ensure sustainable consumption and production patterns.
  Efficient water management is part of responsible resource consumption.
  Water recycling, liquid waste treatment, and digital monitoring systems drive clean production).

- **SDG 13 – Climate mitigation through adaptive water strategies**
  The goal of SDG 13 is to take urgent action on climate change and its impacts.
  Water efficiency helps reduce carbon emissions from the water distribution and treatment process.
  Drainage systems and rainwater absorption increase resilience to extreme climate change (floods, droughts).
  Water management education and research also contribute to climate adaptation at the local level

- **SDG 14 – Prevent water pollution that impacts aquatic ecosystems**
  The goal of SDG 14 is to conserve and sustainably utilize marine and ocean resources.
  Well-managed campus wastewater prevents pollution of rivers and oceans from chemical waste, detergents, or hazardous materials.
  Campus education and research programs can focus on water quality and its impact on aquatic ecosystems.
  Continuous drainage reduces rainwater runoff that carries pollutants into channels to the ocean.

- **SDG 15 – Protecting terrestrial ecosystems through integrated water management**
  The goal of SDG 15 is to protect, restore, and support the sustainable use of terrestrial ecosystems.
  Water management systems (such as infiltration wells, rain gardens, and biopores) increase water infiltration into the soil, maintain soil moisture, and support campus vegetation.
  Prevent soil erosion and land degradation due to irregular water flow.
  Supporting the sustainability of campus parks, biodiversity and green space.

- **SDG 16 - Peace, Justice, and Resilient Institutions**
  The goal of SDG 16 is to encourage a peaceful, equitable, and institutionalized society.
  Transparent and accountable water management (e.g. water consumption reporting and conservation policies) reflects good governance in the campus environment.
  Involving students, lecturers, and education staff in decision-making about water policy creates participation and a sense of shared responsibility.
  Building a campus culture that is equitable and collaborative in the use of resources.

- **SDG 17 – Strengthening water-related partnerships for sustainable development**

  The goal of SDG 17 is to strengthen the means of implementation and revive global partnerships for sustainable development.

  Campuses can collaborate with governments, industry, and NGOs on research, innovation, or water management projects.

  Partnerships between universities (national and international) strengthen the exchange of knowledge and best practices in water conservation.

  Community service activities are also a form of local partnership for clean water sustainability.