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## I. PURPOSE

The purpose of these guidelines is to streamline the building standards applied by Mapua University to minimise water usage in the campus.

## II. SCOPE

These guidelines are applicable to all employees, students, tenants and visitors.

## III. DEFINITIONS

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| Water reuse | Method of recycling treated wastewater for beneficial purposes, such as landscape and plant irrigation, hand washing and other non-potable use. |
| Rainwater harvesting | Process of collecting rainwater from surfaces on which rain falls, filtering it and storing it for multiple uses. Rainwater harvesting helps put the supply of water back to normal levels or merely conserve water coming from water providers such as Maynilad and MWSS. It is the collection and storage of water from surfaces that rain has fallen upon. Taking most advantage of the climate and weather condition of a location. |
| Back Washing Method | Cleaning the filter system by reversing the flow of water to remove any debris, build-up, and contaminants and vice versa to clean the pipeline towards the product/treated tank. Before conduct of water station normal operation. |

## IV. RESPONSIBILITY AND AUTHORITY

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| Water Station Personnel | Responsible for collection of discharged water coming fromthe backwash collection system at Mineral Water Station. |
| Housekeeping Supervisor | Responsible for the recording of the amount of recycled water collected from rainwater harvesting system and backwash collection system. |
| Housekeeping Personnel | Responsible for the watering of the landscape areas using the collected recycled water. |
| CDM Head | Responsible in the preparation and updating of monthly monitoring worksheet on re-use water collected from rainwater harvesting system and backwash collection system. |

## V. DETAILS OF REFERENCE GUIDELINES

Water Conservation practices and guidelines being implemented in the University

1. Rainwater Harvesting System

The University has installed a Bestank polyethyllene water storage tank at the rooftop in one of our buildings in the campus (with a total volume capacity of 1 cubic meter or 1000 liters) to collect rainwater.

Rainwater Harvesting System involves harvesting the rain from the roof. The collected rainwater is filtered with a screen to prevent any contaminant such as leaves to enter the drain pipe. Rainwater passes thru the pipe and enters the collection tank where it will be stored and treated if needed. Finally, the rain water passes through the supply faucet. The rainwater collected from the Harvesting System is used for irrigating the landscape and plants at YIC and South Buildings by the housekeeping personnel.

Housekeeping Supervisor assigned at Main Building checks and record the volume of water collected at the Rain Water Collection Tank every last working day of the week wherein the data will be sent to CDMO Head for updating of monthly monitoring worksheet on reuse water collected.

2. Water Station Backwash Collection System

The Bestank Polyethylene Water Storage Tank ( with a total volume capacity of 1 cubic meter or 1,000 liters) was constructed at the exterior side of the existing Mineral Water Station at the Ground Floor West Building to serve as our water station backwash collection tank.

The operation of the Mineral Water Station starts with a pre-operation procedure called back-wash treatment. It removes sediments and contaminants gathered in the filtration system before proceeding to normal run of treating raw water to be potable and safe to drink. This is done 2 to 3 times to make sure that water coming out of the system is free from contaminant.

Before performing back-wash procedure, the initial rinsing of the collection drain pipe shall be performed first before closing the valve located outside the water station and proceed with the back wash waste water collection.

The backwash treatment is scheduled every Monday, Wednesday and Friday before start of each operation. This may vary for best practice depending on the production rate at a basis of for every 150 jugs (5 gallons or 19 liters per jug) or every 750 gallons.

Backwash Collection System process involves bleeding of water going out of the mineral water system and feeding of water through the filtering system and letting it flow for 5 minutes. Then, backwash bleeding is diverted to the collection drain pipe to the collection tank outside the water station and then accessed for use through the supply faucet. The water collected from the Backwash Collection System is used for irrigating the landscape and plants at North Building and near Gymnasium.

Housekeeping Supervisor assigned at West Building checks and record the volume of water collected at the Backwash Collection Tank every last working day of the week, and submit data to CDMO Head for updating of monthly monitoring worksheet on re-use water collected.

3. Installation of water efficient plumbing fixtures

Installation of water efficient plumbing fixtures to reduce the amount of water used without compromising the experience at all. Please see below some of the initiatives done by the University:

- Pressure-Reducing Valves (PRV)– These are valves that were set on our main water line to reduce water pressure. We added water pressure check to regular maintenance checks, and if the PSI that is higher than needed, an PRV is added. This not only cuts water costs but also helps expand the lifespan of pipes.

- High-Efficiency Toilets – the University was able to replace all older models to newer more efficient models which can reduce the number per flush. This can save thousands of gallons a year compared to older toilets.

- Urinal ugrades – replacement of standard urinals with low flush controls. Ensure the controls can be turned off during out-of-school hours and during holidays.

- Water-Saving faucets - Installation of low flow showerheads, on-off valves on showerheads or hoses, water aerators for all faucets in all common comfort rooms to break up the water flowing through the faucet into several small streams while introducing air into the water flow. The aerator also lowers faucet noise and minimizes splashing. The installation of water aerators will be used to conserve both energy and water, and reduce the amount of splashing water coming from the faucet.

4. Water audits

The conduct of regular water audits has been implemented to eliminate water lost or leaks. Below are the activities being done to monitor water leaks:

- Daily monitoring of water in all comfort rooms (faucets , urinals, bidet and water closet, gate valves); Comfort room checklist is being filled out by the housekeeping personnel per common comfort room.

- Yearly water leak testing of the water pipelines

- Immediate repair of water leaks (toilet, faucets, etc.)

- Faucets in the gardens

5. Landscape school grounds

Use mulch around plants and trees to reduce evaporation and weeds and preserve existing plants for shade and moisture retention to reduce the need for irrigation. Plant trees, drought-resistant plants and shrubs.

Purchase and replacement of existing plants with a drought-tolerant plants for the low maintenance landscapes which will thrive with little to no watering.

6. Awareness campaign regarding water conservation in the University

- Raise awareness of the importance of water by creating posters on water use and water saving through email blast and other social media platforms
- Put signs near the basins to remind students and employees to turn off water as soon as they wash their hands

- Signs in all comfort rooms to remind all students and employees to avoid flushing the toilet unnecessarily. Dispose of tissues, sanitary napkin, and other similar waste in the dustbins rather than the toilet.
- Encourage students to use refillable water bottle and educate them to pour leftover water onto the garden.
- Yearly reorientation of all housekeeping personnel regarding the proper way of watering of plants, cleaning of comfort rooms, hallways and ground floor; reminding them to use a broom to clean walkways, driveways, and entrances rather than hosing off these areas
- Yearly review of water action plan on how to save water successfully

## VI. PERFORMANCE INDICATOR

To ensure that the monitoring sheet on reuse water collected from rainwater harvesting system and water station backwash collection system are prepared and updated on time by CDMO Head.

Timely submission of volume of water collected from rainwater harvesting system and water station backwash collection system by housekeeping supervisors.

## VII. REACTION PLAN

Continue applying building standards in Mapua University by creating more projects to help minimize water use.

## VIII. REPORTORIAL REQUIREMENTS

| Report Title | Frequency of Update | Responsible Personnel |
|---|---|---|
| Monitoring of Reuse Water Collected. | Monthly | Housekeeping Supervisors / CDMO Head |
| Checklist of Monitoring of Comfort Rooms | | Housekeeping /Maintenance Personnel |

## IX. REFERENCE DOCUMENTS

| Document Code | Title |
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