BANGALORE APARTMENTS' FEDERATION

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AquaScholars

Team Prestige Greenwoods

Introduction

Prestige Greenwoods is an urban apartment and society full of lush greenery, from tender young grass and sweet-smelling flowers. It has a total of 159 apartments and is home to a melting pot of cultures from all over the country.

It is an environmentally conscious community that has been composting their wet-waste from as early as 2011. It is one the earliest communities to implement rooftop solar panels for renewable energy generation.

However, when it comes to water, we have a long way to go to implement sustainable water management practices such as reducing and recycling water.

This report outlines the typical patterns of water usage in our apartment, explores existing conservation initiatives, and identifies further opportunities for saving water. The goal is to provide a framework for understanding of water as a resource so that we can do a better job of managing our water.

Our Team

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Contributors

We thank the people who helped us with this project to understand the water usage of our apartment.

1. **PGAOA Management Committee:** The PGAOA committee inspired us to conduct this project. They are responsible for making rules and regulations, overseeing infrastructure, managing finances, implementing community-wide initiatives, and driving awareness campaigns. We hope that this project can help their task.
2. **Facility Management Team/Maintenance Staff:** We thank the maintenance staff especially Mahendra Uncle, housekeeping and gardening staff for showing us the way water is used in our apartment. They are responsible for the operation and maintenance of water infrastructure (pipes, pumps, tanks), detecting and repairing leaks, and implementing conservation measures in common areas.
3. **Residents:** We thank the residents who took part in our door-to-door survey of water usage in PGW. In the end, they are the most important people whose daily habits significantly impact overall water consumption. Their participation was crucial for the success of domestic conservation initiatives.

Approach

1. **Data Collection:** We gathered information from our Maintenance Office on water inflows from various sources.
2. **Resident Surveys & Feedback:** Gather insights from residents about their water filtration method, awareness levels, and suggestions for conservation.

Sources of water

- We learnt that on an average, our apartment uses approximately 80,000 liters of water per day including household use, gardening, housekeeping, swimming pool top-up, etc.
- Our water source is primarily Kaveri water provided by the BWSSB – Bangalore Water Supply and Sewerage Board.
- We also have 3 borewells, however they have been unreliable, out of service or dry for the past few years.
- We have a rainwater harvesting system, but it is mainly used for recharging groundwater.
- Water received from BWSSB is as follows:

Month	Quantity (litres)
January 2025	23,08,000
February 2025	23,51,000
March 2025	24,42,000

- While the above may be meeting our needs, in some months in the past we have received much less than our requirement – for example 16,22,000 litres in November 2019. During that period, tankers were used to support our water needs. However, tankers are much more expensive and harder to get.

Water Management at PGW

Fig 1 - The BWSSB water inlet valve, where water enters the apartment.

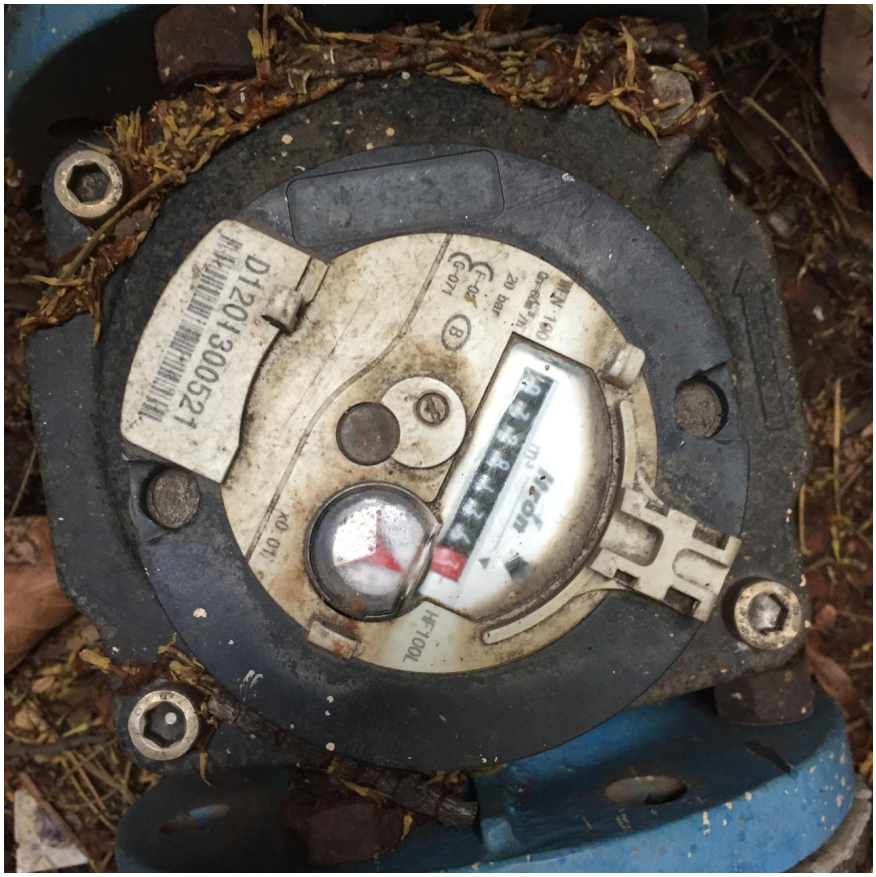


Fig 2 – Our common water meter. PGW does not have apartment-wise water meters. We pay a common fee divided amongst residents for all water consumed.

Fig 3 – The main domestic water sump – underground tank. It is below the play area. Most of us did not know that water is stored here. We wanted to go into the tank but Uncle did not let us. Water comes from the inlet valve into a fire tank and overflows into this. A fire tank is used in case of fire to pump water for firefighting.

Fig 4 – The main pumps that carry water from underground sumps to overhead tanks. There are 4 such pumps that take water to four overhead tanks of the two blocks, Maple and Pine.

Fig 5 – Tanks are fitted with sensors that indicate water levels in them. Uncles operate the pumps based on these levels.

Fig 6 – Red pipes indicate fire safety. This pump operates the water from the fire tanks. A diesel generator and pump is kept ready since during a fire, power may be cut.

Fig 7 – Fire pump operating panel. This is used to operate the pump that provides water in case of fire

Fig 8 – Terrace water tank

Fig 9 – Borewell manhole being uncovered to show us

Fig 10 – One of our Borewells. We had never seen one before.

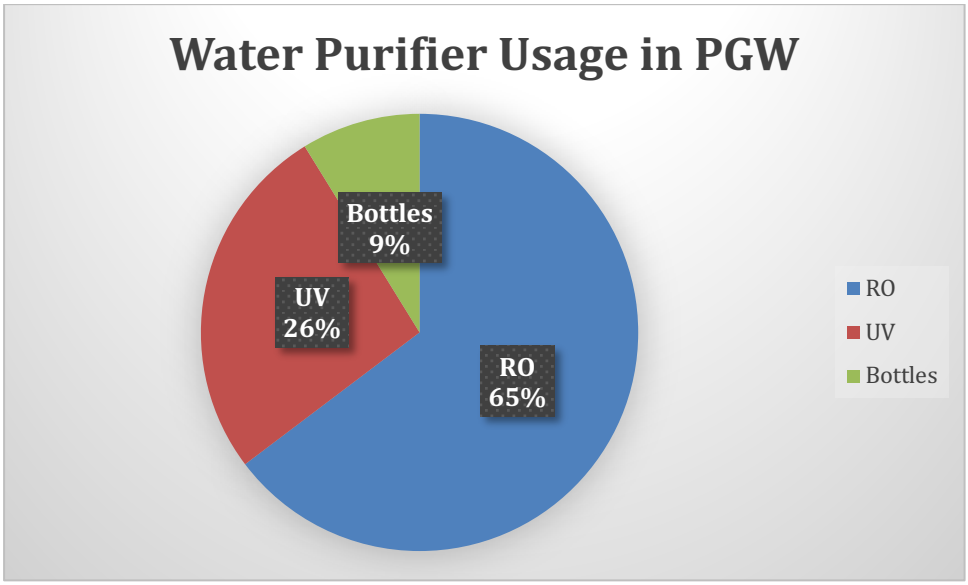
Fig 11 – One of our rainwater harvesting tanks

Fig 12 – Rainwater pipes from drains entering the basement area

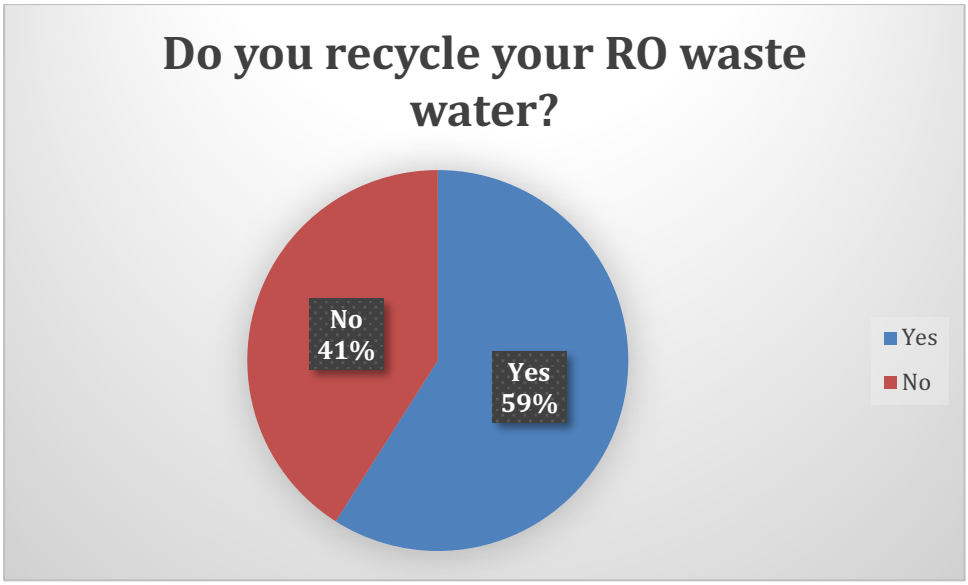
Fig 13 – Sewage tank. PGW used to have an old Sewage Treatment Plant. However that has not been functional for several years. The apartment has both grey and fresh water lines and separate tanks for each. However, this is not being used right now. Sewage water is being discharged into the BWSSB sewage lines.

Water Filter Usage Pattern

We surveyed 68 out of 159 flats in our apartment to study the use of water purifiers. We found that a majority of residents were using RO water purifiers, followed by UV or UF filters, and small minority (9%) used bottled water.



We learnt that many RO water purifiers have a 3:1 water wastage ratio, which means that a lot of water is wasted. We asked residents if they recycled their RO waste water. While many said they did, many did not This is an opportunity for us to save more water.



Community Water Conservation Initiatives

These are measures implemented at the apartment complex level:

1. **Infrastructure:**
   - **Rainwater Harvesting (RWH):** Rainwater harvesting is an important step to be undertaken. While a basic system exists, there are plans to implement a full fledged system with recharge wells and filtration tanks in the near future.
   - **Sewage Treatment Plant (STP):** While there used to be an STP in the past, there are no immediate plans for reviving it at this time.
   - **Dual Piping System:** Separate pipelines for potable water and treated wastewater (for flushing) already exists in our apartment. However, since most of our flushes use cistern based tanks, this may not be feasible to use until a major overhaul of our piping is done.
   - **Sub-metering:** We learnt that apartments in our building have between 3 to 4 water inlet points each. This makes it very difficult to install so many water meters.
   - **Low-Flow Fixtures in Homes:** Low-flow water systems have been implemented in most of the apartments.

2. **Maintenance & Operations:**
   - **Leak Detection & Repair Program:** Regular checks of pipelines, tanks, and common area fixtures are done.

3. **Awareness & Engagement:** Our apartment group sends regular water conservation tips and reminders.

Ideas for Reduction of Water Usage

RO Water Reuse – Could we have a system where waste RO water from all flats was connected to a central system where it could be used for other activities like cleaning or car washing?

Rainwater Harvesting and Reuse – Can rainwater be harvested and purified enough to be part of our domestic water tanks?

Meanwhile, these are actions residents can take within their homes (taken from sample report)

1. **Bathroom:**
   - **Fix Leaks Promptly:** Address dripping taps, showers, and running toilets immediately. A running toilet can waste hundreds of litres per day.
   - **Install Low-Flow Fixtures:** Replace old showerheads, taps, and toilets with water-efficient models (e.g., aerators for taps, low-flow showerheads, dual-flush toilets).
   - **Adopt Water-Saving Habits:** Take shorter showers, turn off the tap while brushing teeth or shaving, use mugs for rinsing. Avoid using the toilet as a waste bin.
2. **Kitchen:**
   - **Run Dishwashers Only When Full:** Use eco-mode if available.
   - **Wash Vegetables/Dishes in a Basin:** Avoid washing under a continuously running tap. Reuse water used for washing vegetables to water plants.
   - **Manage RO Reject Water:** Collect the reject water from RO purifiers and use it for mopping, washing balconies, or pre-rinsing dishes.
   - **Fix Leaks:** Check taps and pipes under the sink regularly.
3. **Laundry:**
   - **Run Washing Machines with Full Loads:** Adjust water level settings according to the load size.
   - **Prefer Front-Loading Machines:** They generally use less water than top-loading models.
4. **General:**
   - **Report Leaks:** Inform maintenance immediately about any leaks observed in common areas or suspected within the apartment's plumbing.
   - **Educate Family Members & Domestic Help:** Ensure everyone in the household understands and practices water conservation.

By systematically addressing these areas, our apartment community can significantly reduce water footprint, contributing to environmental sustainability and ensuring water availability for the future.

We enjoyed creating this report and learnt a lot. We hope that our community can learn from this and help the cause.