Student: Archana Ganesan
School: Eagles Rock Middle School
Henry County Winner and District-Wide Winner

Recycling Liquid Gold : Why Waste Water is too precious to Waste

"Run, Archie, run," I told myself as I followed my sister out of the house, a bucket in each hand.

That was my first experience with water shortage. We were running with my grandfather to buy water from a tanker that came by twice a week when I was visiting him in India. This incident left a deep impression on me, and upon further research, I found out that most of the developing world and some of the developed world suffered from severe shortage of water.

Back home in Atlanta, I wanted to find out how the Water Authority supplied water to a rapidly growing population. My research revealed that responsible use of water and wastewater recycling are the two pillars on which management of water supply rests.

Since the creation of the Metropolitan North Georgia Water Planning District over 20 years ago, the per capita water use has dropped by more than 30% in greater Atlanta but by itself, it is not enough and recycling of wastewater is critical in making up for the shortfall to ensure adequate water supply. Wastewater is the water that is used at home or in an industry and this is recycled after a complex cleaning process to the water supply.

To understand the process, I undertook a virtual tour of the Johns Creek wastewater management plant. This eye-opening tour explained the process by which water that has been used is collected through sewer networks that carry wastewater to treatment plants.

To start, large particles like plastics, rags, and grit are chopped off with a chopper and removed. Then, wastewater flows into settling tanks where solids sink as sludge and scum, a mixture of oils, fat and grease float to the surface, removing a large part of suspended matter.

The next stage is the “Bug Party” where microorganisms feast on dissolved and organic pollutants. At this stage, the water is forced through tiny holes of membrane bioreactors. The water at this stage, called a permeate, is disinfected using ultraviolet light. Finally, enough oxygen is added to the water so that it is healthy enough for the fish and other water organisms. This water is then recycled back to the Chattahoochee River.

Overall, wastewater recycling follows a clear path: remove solids, treat biologically, disinfect, and then reuse, turning waste into a valuable resource. Each and everyone of us must conserve water, be responsible with how we use it and recycle this precious resource. It is vital that we don't flush things that should not be flushed and pay particular attention not to pour fats, oils and grease down the drain. “Grease in the bin, keeps clean water in!” should be our motto.

Water has always been liquid gold. If we want to thrive, we need to conserve it, use it diligently and do all we can to help recycle it.