

Grey Water: A Taint in the Fresh Water Fading Away the Blue

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INTRODUCTION- GREY WATER

The waste water that comes from domestic activities such as cleaning utensils in kitchen and washing bathroom (excluding human excreta) is called Grey Water or Sullage. It also includes the water that is wasted during cooking food and every other activity while preparing food.

WHY IS IT HARMFUL?

The solids that are suspended in grey water are lower than in wastes than in the toilets, but it has more grease and is usually at a higher temperature whereas kitchen wastes have higher suspended solids content, a higher biochemical oxygen demand (BOD), and a higher nitrate concentration than other sullage [1]. For determining how harmful sullage can be, a study was conducted from a 6.14 hector (ha) residential area [2]. This sullage was discharged into an urban stream without being treated. This study done, was utilized to test and evaluate the probable consequences on the water quality that was discharged in the urban streams. Hourly samples were taken and analyzed which gave the following results: The discharged sullage from residential area was polluted for the high concentration of BOD, Ammoniacal Nitrogen (AN), COD, low concentration of dissolved oxygen (DO), Orthophosphate (PO₄) and total concentration of organic nitrogen and ammonia (TKN) (Figure 1).



Figure 1: Water that is wasted during cooking food and every other activity while preparing food.

HOW MUCH GREY WATER IS GENERATED FROM RESIDENTIAL AREA EVERY DAY?

Standard set by the Central Public Health Environmental & Engineering Organization (CPHEEO) states that the fresh water consumption per day for a person should be between 135 to 150 liters per day (lpcd) [3]. That means, if people living in a residential complex are not given any access to the underground sewerage or drainage system during water consumption, they consume approximately 135 lpcd of water. The total quantity (No. of residents X 135 liters) comes into the premises of a Sewage Treatment Plant (STP), and this total volume is to be treated by the STP.

I am a resident of Mohammadpur, Dhaka. I am showing the volume of grey water that is generated in lpcd from my area. As per demographics, as of 1991 Bangladesh census, Mohammadpur has a population of 316,203 [4].

Thus, Volume of Waste Water generated = (316,203 × 135) lpcd
= 42,687,405 lpcd

Greywater accounts for up to 75% of the wastewater volume produced by households, and this can increase to about 90% if dry toilets are used [5].

So, Volume of Grey Water generated = 42,687,405 × 75% lpcd
= 32,015,553.75 lpcd
= 32,015,554 lpcd (approx.)

WHY IT SHOULD NOT BE DISPOSED WITHOUT TREATMENT?

In general, the health risks posed by grey water are not as serious as those associated with wastewater that contains excrete or septic tank effluent. But report has shown counts of fecal indicator bacteria present in grey water which are significantly lower than that in septic tank. But some data still suggest that bacteria grow well in grey water or sullage. The pH in grey water to a large extent depends on the pH and alkalinity in the water supply and normally is within the range of 5–9, which are most often found in sources

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that originate from water disposal at laundries [5]. The reason is that laundries use detergent which has high pH due to the presence of alkaline materials in it. So untreated disposal in the environment will have negative impact on the surrounding.

TREATING GREY WATER AT HOME!

That's right! We can treat grey water at home! Maybe, we cannot totally stop the untreated disposal but we can try to minimize the level of harm. We often use detergents with high level of pH and chemicals present in it. Instead of that we can use low or no sodium laundry detergents to cleaning purpose (for example, soap and shampoo). We can also reduce the wastage of water by using grey water for more than one purpose. For example, the water that is wasted after cleaning the kitchen chores and while preparing food can be used to water the plants and for other gardening purpose. The level of chemical in that water is not harmful for plant so it can be used and quite a lot of water is saved in this way. Moreover, Grey Water Treatment (GWT) technologies involve the combination of preliminary (physical), primary (chemical) and secondary (biological) systems which are emphasized because these processes are low cost, no skilled personnel are required, they are easy to handle and have high treatment efficiency [6].

RECYCLING ONE DROP OF GREY WATER MIGHT GIVE BACK AN OCEAN OF FRESH WATER

The astonishing fact about nature is that even if we can recycle and reuse only 10% of the grey water that is wasted every day, we

can ensure our mother Earth with a vast quantity of fresh water availability for the future. Now-a-days, for the global pandemic due to COVID-19, people are using more cleaning products like detergents, bleaching powder etc. than before, to wash their cloths every time they get home from outside or to clean their floor more often to stay extra clean, which have increased the disposal of grey water to a greater extent. But does that mean we will stop taking precautions against the pandemic situation and use less water, compromising our safety? No. We will consume the amount of water needed but make sure to minimize the loss made from the use. We will reuse sullage for more than one purpose if possible, to reduce loss or try to recycle it by treating it, rather than wasting it and making ourselves more vulnerable to the scarcity of fresh water crisis that we might face in the future. Because every drop counts!

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