

Environmental Restoration and Ecological Engineering

Sarthak Patel¹ and Neha Tiwari²

¹Maharaja Agrasen College University Of Delhi, Delhi

²Saheed Rajguru College Of Applied Sciences For Women University Of Delhi, Delhi

E-mail: ¹sarthakpatelmac@gmail.com, ²neha.manish95@gmail.com

Abstract—The contemporanean age is gushing with technologies, yet the subject of safeguarding the natural resources continues to be a major concern. The needle of the clock is ticking towards the hour of “Technology with lesser disservice”. The quick-fix to the status quo is the cure of clean technology. These “cleaner” methods have been developed with the objective of being an advantage to the people on one hand and not sabotage the nature on the other. The resource which has turned out to be the “TIL scorpion venom in 21st century” calls for an instantaneous spotlight, this time a brighter one. An “ocean” of it is being flushed out repeatedly and we seldom care!!! This is the status of the clean usable water in this era of “sustainable evolution”.

Apparently the facts and figures of a survey reveal that an average household dissipates around 5.6 to 7.6 liters of water per minute for dish-washing while 3.8 liters of water each is exhausted with regard to teeth-brushing, face-washing and shaving purposes. The outrageous statistic is that the utmost part of it is foolishly flushed out to the drains. Water being wasted is wistful. A survey intended to specify the amount of water an average Indian household splurges out each day through and through the flush lead us to the idea of reusing the water outletted through the basins for the same.

usage. The idea is to outlet the waters from the basin to reach the flushes. Other sorts of reusable water sources can also have their “second innings” in the flush. This uncomplicated scheme when put into use thoughtfully could prove wonder some.

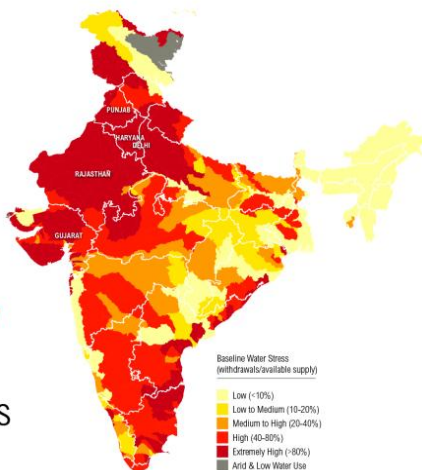
1. INTRODUCTION

The pivot resource, Water is also encircled in the endangered collection. The globe of the earth having a major part of it colored blue contradicts with the fact that millions of people can’t even have water enough to drink.

The same is shown in the map below:

While the amount of clean usable water on the planet remains more or less the same, the population has detonated. The availability and access to clean potable water is the goal line. Availability, that implies that the sufficient amount of water on earth must be conserved and also the three R’s must be put into practice to have appropriate amount for each one’s need. Accessibility emphasizes on water being available to the person who needs it, in the form she needs it and in a quality that satisfies the individual. Access and bereaving underlie most water judgments.

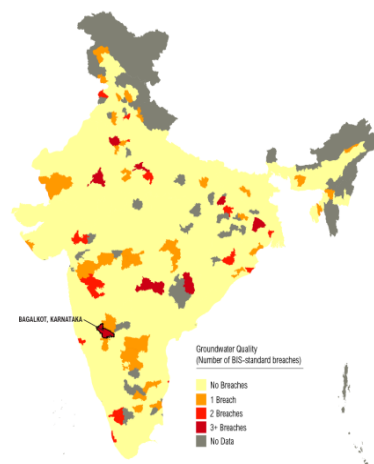
54%
 of India
 Faces
**High to
 Extremely
 High**
 Water Stress



www.indiawatertool.in

WORLD RESOURCES INSTITUTE

More than
100
 MILLION
 People Live
 in Areas of
 Poor Water
 Quality



www.indiawatertool.in

WORLD RESOURCES INSTITUTE

The research basically has its foundation laid on the gallons of water recklessly depleted that could instead be put to proper and prolonged

The figure above makes us face the harsh actuality that the needle of the clock is ticking towards the hour of “Technology with lesser disservice”. The quick-fix to the status quo is the cure of clean technology. These “cleaner” methods are developed with the objective of being an advantage to the people on one hand and not sabotage the nature on the other. The earth and all that it owns is for the interest of all the creatures dwelling on it. This power in turn passes onto us the liability to use these judiciously. It not only plays a vital role in human survival, nourishment and health but also is a must for sanitation. The resource which has turned to be the “TIL scorpion venom in 21st century” calls for an instantaneous spotlight and this time a brighter one.

2. RESEARCH INVOLVED

H₂O is a significantly strong pillar for an economy to flourish. Facts say that the water crisis is the Number 1 global risk based on impact to society (as a measure of devastation), and the Number 8 global risk based on likelihood (likelihood of occurring within 10 years) as announced by the World Economic Forum, January 2015. About one in every nine peoples lacks access to clean drinkable water, that takes it to the count of around 750 million people in the world. . If we exist, we need to have access to clean water for the sake of the existence to continue. The water that we drink today has been formed at the time when the dinosaurs were an actuality i.e. millions and millions of years ago. While some flush the fresh water, others die of gulping the contaminated one It seems as abundant as the air we breathe but the outer side of the window bewrays that it isn't that profuse. Letting the same to flow off uselessly is an extravagance. An “ocean” of it is being flushed out every day and we seldom care!!! This is the status of drink worthy water in this era of “sustainable evolution”. The data of water consumption was presented by the United Nations' Research and gave us the outcome that the freshwater consumption has tripled in the past fifty years and the demand for freshwater is increasing by 64 thousand liters. Moreover the amount of water wasted every year is around **2,797,482 billion liters**

Apparently the facts and figures of a survey reveal that an average household dissipates around 5.6 to 7.6 liters of water per minute for dish-washing while 3.8 liters of water each is exhausted with regard to teeth-brushing, face-washing and shaving purposes. The outrageous statistic is that the utmost part of it is foolishly dumped out to the drains. The average amount of water used in a flush has varied over time. Over the years, the total amount of water drained per flush has gone drastically down .Former toilets from the 1950s used eight gallons per flush. Currently, an average toilet manufactured today uses about 1.5 gallons per flush. Surveys also bring to our notice that an average person flushes atleast five times a day. Having done the math, We just say “Water being wasted is wistful”. They aptly say “You never know the worth of water until the well runs dry” . Similarly unless the scarcity of it begins to affect us directly, we can't abscribe the

prominence of the buckets of drops we let go in vain. A fact to be marked here is there isn't a need to make potable waters flow through the flushes; they can make use of water previously used by other sources.

3. OTHER ASPECTS

Not only the waters from the hand basins could be reused and thus the fresh water consumption by flushes could be reduced significantly, water from ROs, laundry, showers etc. could too be put to use. Figures show that an average shower uses almost 70-120 liters of freshwater. Another significant consumption is in laundry, 53-97 liters per load is used. Reverse osmosis systems use an approximate amount of 7 to 11 liters of tap water so as to produce 3.7 liters of pure drinking water. Such large amounts of water being dumped is stressful.



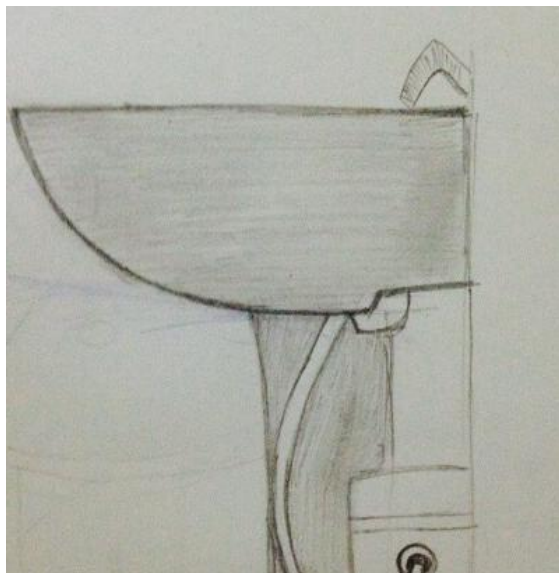
The water used for the purpose of showers, for instance, after usage becomes grey water which is clearly not synonymous to “waste water”. Our research model prioritizes to re-utilize this grey water from baths, dishwashers, faucets, showers, washing machines and letting it fill the toilet flushes which in turn saves the water wasted in that fraction as well. Isn't that a approach infallible for this age of the fast and the furious?

4. PROPOSED SOLUTION

One might not recognize grey water as an explication to the prevalent paucity but the exploration done on our part might bias your beliefs. It is an unpopular and abhorred approach to aqua conservancy. A survey intended to determine the amount of water an average Indian household splurges out each day through and through the flush lead us to the idea of reusing the water outletted through the basins for the same. The highest amount of water being dumped this way gives us a way out to conserve the most. The ground idea is that of reusing the waters drained from hand basins; however we can utilize water from the showers, baths, laundry and other grey water sources. An average person generates roughly 92.5 liters of grey water per day. The model that we have proposed through this particular research of ours is one consisting of drainage

pipes from all grey water originators connected to the flush tank. The partially clean water from these sources could be used as it is for the purpose to be served by flushes instead of pure clean water flown out recklessly.

The model looks like the figure as drawn below:



5. PRACTICAL APPLICATION

To divert grey water so as to rehash it, the pipes from all possible grey water origins must be affixed to the flush tank and this design must be laid upon the planning and manufacture of a new project. The research basically has its foundation laid on the gallons of water recklessly depleted that could instead be put to proper and prolonged usage. The idea is to outlet the waters from the basin to reach the flushes. Other sorts of reusable water sources can also have their “second innings” in the flush. Another example of the implementation of the scheme could be utilization of water from the ROs to serve the same. These uncomplicated ideas when put into use thoughtfully could prove wondrous.

6. CONCLUSION

Save to swig is the solitary solution to the cause. Water has always proved its prominence; it's time to acknowledge the same. There is no other doing other than “flush of a time” that dumps nearly 6 liters of sheer clear H₂O in such a meager period of time. If we crave to assure water availability to the upcoming generations then we must ponder twice before we flush it all out. Water, Waste and Waste water, all three are separated by a thin line which might have been darkened by our research. Major scarcity of water scares us with the threat of death. The admitted apophthegm of “If it's yellow let it mellow” must be practiced in the coetaneous chronology.

Let's not drain the reason of our being out of the flush carelessly.

REFERENCES

- [1] <https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB0QFjAAahUKEwim28y12vnGAhWTCI4KHQg6C4Y&url=http%3A%2F%2Fwater.org%2Fwater-crisis%2Fwater-facts%2Fwater%2F&ei=JEy1Vaa5C5ORuASI9KywCA&usg=AFQjCNH5tSBz5jiQqvKzKognadKStxFemQ&bvm=bv.98717601,d.c2E>
- [2] <http://www.thesimpledollar.com/do-you-really-save-money-by-not-always-flushing/>
- [3] <http://environment.nationalgeographic.com/environment/freshwater/freshwater-crisis/>
- [4] <http://www.quora.com/Why-do-we-flush-toilets-with-clean-fresh-water-instead-of-reusing-gray-water-from-tubs-and-showers>
- [5] <http://www.care2.com/greenliving/one-obvious-way-we-can-all-start-conserving-water.html>
- [6] <https://www.water-challenge.com/posts/water-is-a-human-right-%E2%80%93-but-not-a-free-good>
- [7] <http://www.es.flinders.edu.au/~mattom/ShelfCoast/notes/chapter15.html>