COMMUNITY & SCIENTIFIC METHOD FOR PRURIFICATION AND STORAGE OF SAFE WATER

S y n o p s i s

The importance of water in sustaining human life and welfare can not be over-emphasized. Man consumes 5 pints of water per day in the form of liquid and solid food. Water is equally important for plant and animal life. No form of living matter can survive without water.

Ideal water for human consumption should be clear, colourless & be free from biological life. It should not contain any injurious chemical. Potable water should be free from all pollution and should possess desirable physical & chemical properties. Water is a universal solvent.

The rain water contain only a few bacteria and if collected in clean container it can form a safe water supply source. No sooner the rain water is precipitated and comes in contact with the earth surface it is subject to contamination.

To remove the contamination various methods & techniques have been developed. The most important & economical is the filtration of water. Two common methods of filtration are:-

Slow sand filter.

Rapid sand filter which remove upto 97% of bacteria present in the water.

Further removal is done by taking the help of disinfectant like chlorine or ozone. The small quantities of water can be made bacteria free by using Ultra Violet lamp or by application of heat.

The most common diseases spread through water are, Typhoid dysentery, cholera, diarrhea, polio, jaundice. If proper filtration and application of chlorine is done then we can get rid of the above diseases. The water leave from the filter plant is free from pathogenic bacteria but during transmission it is contaminated due to following reasons:-

Improper construction or protection of storage tank.
Infiltration in distribution system.
Installation of suction pumps and their use during non-supply hours.

If any particular water appears to be suspicious to be consumer it should be boiled or treated with bleaching powder or chlorine tablets available in the market to prevent intestinal diseases.

MURKEY WATER - PROBLEM AND REMEDIES:
By Mehmood Ahmed Khan

I read with great interest the article written by Mr. F. H. Mughal on "Murkey Water" which was published under the caption City Problems in your Daily Dawn. This Murkey water problem was further elaborated by Mr. Laiq A. Rauf whose article dealt –with the effects of chemicals & bacteria found in water on human health.

The common disease spread due to consumption of contaminated water is well known. However, water is one of the causes of spread of these diseases. There are several other reasons through which stomach disorder could occur, some of them are as under:-

Consumption of contaminated foods.
Use of over ripe, lift –over or stale foods.
Use of well water which is highly polluted in the City.
Use of Ice and Ice-candies usually made of well water.
Personal hygienic etc.

As far as the problem of murkey water is concerned it should be seen in the broader prospective. Karachi is an "Ever growing city" and the present population of Karachi is 8.0 Millions (Approx:) and the daily water supply to the city is 360 MGD (Million Gallons per Day).

The filtration capacity of KW&SB is 235 MGD. The balance of 125 MGD water is being supplied to the city either partially filtered or unfiltered after adequate chlorination. The demand of water of Karachi is ever increasing and despite completion of new projects, there is still a short-fall of 100 MGD. The population growth and water supply increase is shown in Table-I as below:-

T a b l e-1

Sr. No.	Year	Population in Million	Water supply in M.G.D.
1.	1951	1.069	22.0
2.	1961	2.080	48.0
3.	1966	2.750	96.0
4.	1971	3.500	119.0
5.	1981	5.353	180.0
6.	1983	5.800	284.0
7.	1984	6.090	324.0
8.	1985	6.310	324.0
9.	1989	7.050	324.0
10.	1990	8.000	360.0

(Source:- PC-I –TPI-WP)

New projects as and when initiated take five to six years as a normal completion period. By the time the project is completed the gap in supply and demand of water is further enlarges due to increase of population of Karachi which is at present about 6% per annum. The cost of 100 MGD Filter Plant and auxiliaries now comes to Rs. Million or more. The concerned authorities is trying it's level best to meet the demand of water for satisfying the ever increasing requirements.

Keeping in view the demand of water the KW&SB has to decided to supply turbidity free water to the consumers for which now a days the facility available are of 235 MGD or to supply / filtered as well as partially and unfiltered water to the consumers after chlorination for which the capacity is of 360 MGD. The high-ups of K.W.&.S.B. have adopted the second option. Due to supply of partially or unfiltered water along with filtered water the problem of murkey water is being faced specially during the monsoon period when the turbidity is high in the raw-water source. Thus during the monsoon period consumers who receive partially filtered or unfiltered water complaints about the quality but for the KW&SB there is no alternative except to supply filtered as well as unfiltered water to satisfy the demand.

Under the above mentioned circumstances people should have to except the present system i.e. supply of filtered as well as partially filtered and unfiltered water but adequately chlorinated.

As a precautionary measure, the consumers who receive murkey water during monsoon period may boil the water before use for drinking or mix a small piece of alum (Aluminum sulphate) which is commonly known as "Phitakri" in the water cooler or plastic bucket. The silt will settle down completely in the bottom within ½ hour and clear water can be decanted for drinking.