

THE WATER PURIFICATION PROCESS

As water trickles through soil and rocks, some natural cleansing will take place. Water taken from underground wells or natural springs is often virtually free from impurities and requires little treatment.

Our river water, however, is generally dirtier. To ensure that all the water going to the consumer is of the right quality, it has to undergo care intensive treatment.

How do we do it?

Not all water treatment plants are the same as illustrated here. Methods vary throughout the country. It all depends on the quality of the raw water with which you starts.

Remember drinking water is a carefully monitored product, going through many steps before it arrives at your home. It is also a precious resource so don't waste it!

STEP 1

Raw water is normally gravity fed from a dam to the water treatment plant (water works)

STEP 4

The water then flows into large settling tanks. Here, the coagulant helps to bring the small dirt particles in the water together to form lumps, known as floc. Floc sink to the bottom of the tanks to form a sludge blanket.

STEP 6

After filtration, chlorine is added to prevent the growth of bacteria and other harmful microorganisms (post chlorination)

STEP 2 & 3

As the raw water enters the plant it is tested to determine the quality of the water before the treatment process can start. Chemicals are added to the raw water to remove the dirt. Once the chemicals have been added they pass through flash mixers for even mixing of all the chemicals. The following chemicals are used:

Chlorine

is used as a disinfecting agent kill off harmful bacteria and viruses

Polymeric Coagulant

(generally poly aluminium chloride) helps bring the small dirt particles together to form "floc"

Lime

acts as a stabilizing agent and controls pH levels

Bentonite

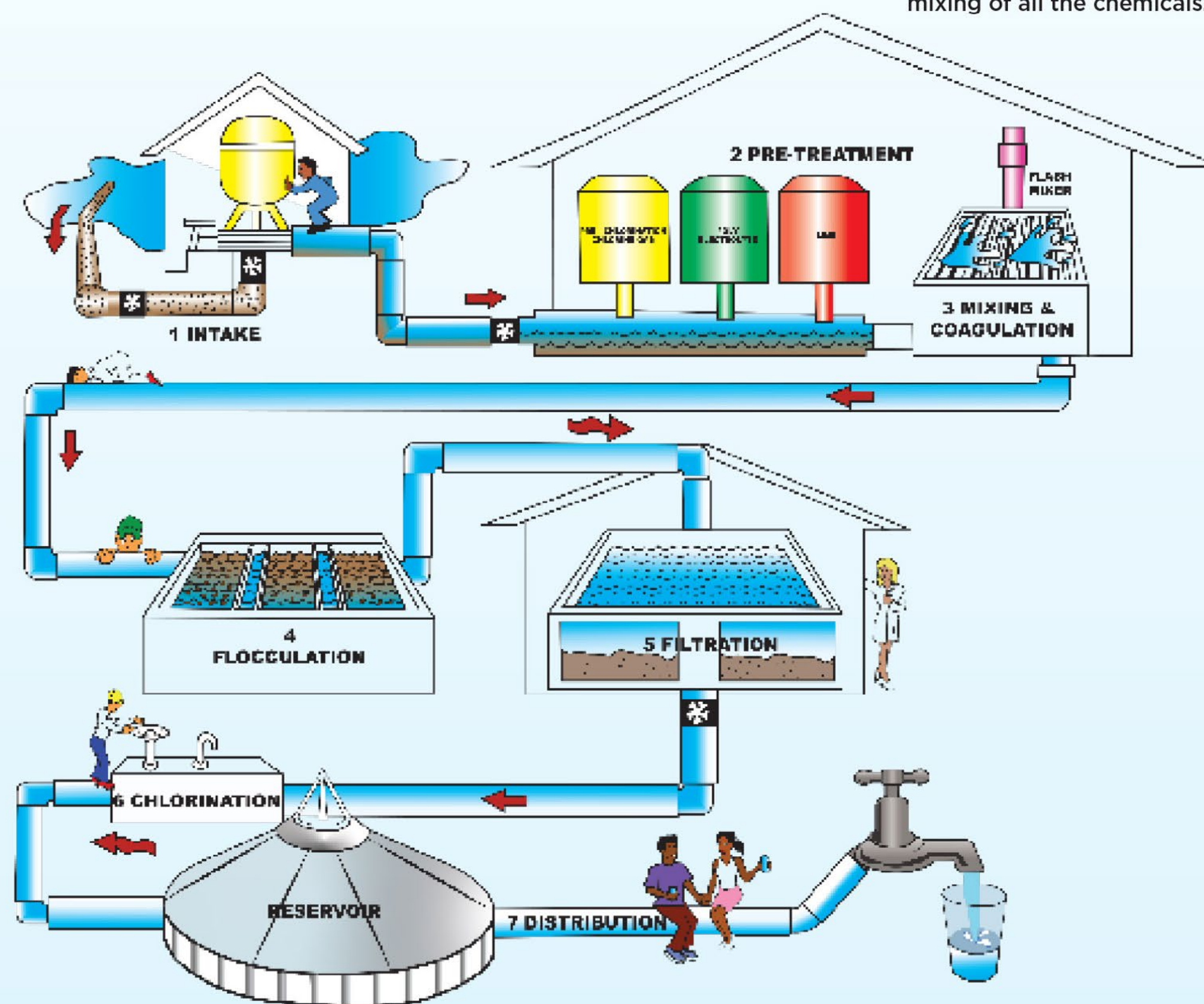
is added only sometimes to increase turbidity levels for better flocculation.

STEP 5

As the floc settle, the cleaner water of the surface goes to the sand filters. A special clean sand in the filters traps/removes and smaller dirt particles as the water filters through it.

STEP 7

Water samples of the treated water are routinely collected for testing in the laboratory at the end of the purification process. This is to ensure that the treated water is of excellent quality and safe to drink. The treated water, now safe to drink, is piped to the reservoir for storage. From the reservoir, the treated water is piped to the municipalities before it can be distributed out to us to use.



THE WASTE WATER TREATMENT PROCESS

Strictly, no water should be regarded as waste. Even in wet countries, water is a valuable resource, to be re-used whenever possible. But, humans cannot help polluting the water they use. Our body's waste products (urine and faeces) which are carried away by water to form a polluted liquid called sewage cause serious pollution. In most places, animal wastes and industrial effluents (the water

used in factories, mills and chemical plants or refineries) make the problem more complex. However, the most effective and widely used treatment methods harness natural biological processes to purify the sewage or decompose the sludge produced. In this way, the impact of human waste on the environment can be minimised.

