SAARC ENGINEERING
4, Shah-Ali-Bagh, Section-1, Mirpur, Dhaka-1216, Tel-+88-02-8033111, Cell- 01711549922, E-mail- info@saarcgroup.com, website: www.saarcgroup.com

Our treatment plants are individually designed to meet the specific requirements to create a supply of water that is safe for drinking or use in commercial and industrial situations.

MOST COMMON PLANTS & SYSTEMS FOR TREATING WATER

1.IRON REMOVAL SYSTEM:

Our Iron Removal Systems remove iron from any water source, eliminating concerns about iron bacteria contamination, corrosion, and scaling. The majority of iron filtration systems operate on the principal of oxidising the dissolved Fe+2 iron to convert it to the Fe+3 state to produce a filterable particle. Once in the ferric state, iron can be filtered with a number of different filtration media under the right conditions. Instead of using a chemical oxidant, our iron removal systems utilise aeration mechanisms and multimedia filters with an automated backwash to reliably removing iron from the water while keeping the systems hands-free and operating costs as low as possible.

2. BRACKISH WATER TREATING SYSTEM:

Brackish water is water that is saltier than fresh water but not as salty as saline water. The salt concentration for brackish water ranges from 0.5 to 30 grams per litre. It can also contain high levels of calcium and magnesium, which make the water hard as well as salty.

Brackish water is not fit for human consumption without treatment (due to the salt content) but water that is only slightly brackish can be given to livestock. It can be found as both surface and ground water, and is commonly available for use in agriculture, horticulture, governments, communities and industry. The main treatment for brackish water is membrane desalination, particularly reverse osmosis.

We have more than a decade of experience treating brackish water to a potable standard for remote communities and agricultural clients. By treating brackish water, users are able to secure their water supply and use a previously unusable source of water.

3. NANO-FILTRATION SYSTEM:

There are many types of membrane filtration technologies namely micro-filtration, ultrafiltration, Nano-filtration and reverse osmosis. What differentiates the different membrane filtration treatments is the pore size of the membranes. Nano-filtration has a pore size smaller than ultrafiltration but larger than reverse osmosis. This means that nano-filtration is excellent at removing heavy metals such as arsenic, lead and cadmium and reducing hardness. Due to the larger pore size, Nano-filtration doesn't require the same high pressure that reverse osmosis requires making it more cost effective than reverse osmosis. The pores of Nano-filtration membranes will allow more than 50% of salt through so nano-filtration will generally be used on either fresh or low brackish feed-waters. The pores however are still small enough to reject most bacterial and viral species.

4. UV STERILISATION SYSTEM:

UV Sterilisation is the go-to solution when you are treating biologically contaminated surface water. Reverse osmosis will remove all microbiological content from the water and concentrate it into the effluent stream and will also remove the salt. On the other hand, UV sterilisation physically sterilises the water using ultraviolet light without removing any of the dissolved components. Water sources can easily become contaminated with a range of pathogens. It is crucial to remove the microbiological content from water, particularly if it is intended to be used for irrigation, spraying, human consumption, or watering livestock.

5. CLARIFICATION FILTRATION SYSTEM:

Clarification Filtration is a chemical/physical method to reduce the dirt load in the water. Fine particles below a certain size will pass through standard filters. Following clarification filtration, depending on the water quality required, the water can be further purified to reduce the salt load or remove any other contaminants of concern.

The advantage of a Clarification Filtration system is that it uses minimal power, the downside is it requires the ongoing use of chemicals. Typically in our context, we have adapted these Clarification Filtration systems to be both transportable and optimised for whatever scale various agricultural and commercial concerns require.

OTHER WATER SOURCES WE TREAT

TREATING GROUND WATER..

Ground Water is water that exists beneath the surface of the earth, making it less likely to be polluted than surface water as it is harder for contaminants to reach. Additionally, as the water moves below ground it is filtered by the surrounding rocks.

Unlike surface water, ground water is protected from evaporation, making it a more reliable source. Wells and bores are two examples of groundwater supplies and they often serve as a water source for communities, agriculture, horticulture, resorts and industry. Contaminants of concern in groundwater include heavy metals (which dissolve into water in low oxygen conditions) and biological material like bacteria and viruses (which can enter groundwater by seeping through the soil).

Groundwater is generally cheaper to treat than surface water but more expensive to pump to the point of use. The treatment it requires depends on the contaminants that are present, which is why a full water analysis is required when designing a treatment system. We have a range of treatment options available for treating groundwater including Membrane Desalination, iron and mineral removal and UV sterilisation.

TREATING SALINE GROUND WATER..

Ground water is increasingly become saline due to rising sea levels. With the extraction of fresh water ground water now outstripping the recharge rate, saline aquifers are becoming one of the few remaining sources of water for inland locations. Saline ground water has a range of salinities ranging from brackish water to water with salinity higher than seawater.

In addition to removing the salt from the groundwater, saline groundwater will have similar contaminants of concern to standard ground water – namely heavy metals and microbiological matter. As such saline groundwater treatment systems will consist of multiple treatment technologies working together such as iron and mineral removal, membrane desalination and UV disinfection, however membrane desalination will always be required to reduce the salt level in the ground water.

We have more than a decade of experience treating saline groundwater for a range of applications including agriculture, horticulture, industry and communities.

4, Shah-Ali-Bagh, Section-1, Mirpur, Dhaka-1216, Tel-+88-02-8033111, Cell- 01711549922, E-mail- info@saarcgroup.com, website: www.saarcgroup.com

TREATING BORE WATER

Bore water, also known as well water, is a source of groundwater that is accessed via drilling or digging a hole into an underground aquifer. A borehole is generally a small diameter machine dug hole used to access groundwater while a well is usually a large diameter hand dug hole used to access groundwater. The capacity of the bore or well will depend on the recharge rate (how quickly it refills after being emptied).

As bore water is recharged through rain water filtered through the ground, bore water often has a low level of suspended solids. However, bore water also has a range of different contaminants including dissolved iron, fertiliser run-off, sulphides and salt. Shallow wells that are closer to the surface generally have a higher degree of contamination.

However, it is the salinity of a bore or well that will largely determine which technology is used to produce potable water from the groundwater. Bore and well water is important for communities, agriculture, resorts, governments, horticulture and industry.

We have extensive experience treating groundwater to a range of standards. Commonly used technologies to treat groundwater include Membrane Desalination and iron & mineral removal.

TREATING RIVER WATER..

Rivers are surface water sources that flow towards the ocean. They are generally larger than creeks and are predominantly fresh water sources with a range of contaminants. The contaminants in a river will depend on the material the river flows through as well as what lives in and along its banks.

The two main contaminants in river water are suspended solids (which will vary in concentration during the year) and microbiological contamination. A river will become brackish as it approaches the ocean, so the treatment technologies required will depend on how far from the ocean the river water is drawn. Major cities and extractive industries are commonly located on rivers, so industrial pollution can also be a contaminant of concern. The most commonly used treatment methods for river water are clarification filtration and UV disinfection.

4, Shah-Ali-Bagh, Section-1, Mirpur, Dhaka-1216, Tel-+88-02-8033111, Cell- 01711549922, E-mail- info@saarcgroup.com, website: www.saarcgroup.com

TREATING DAM WATER..

Dams hold a reservoir of surface water and are either fed by a river or creek, or via rainwater. They are a useful way to create a reservoir of water close to where it is needed, but require that rainfall or stream flows must enter the dam in excess of both daily use and the evaporation rate or they will become empty.

As an unprotected source of surface water, dams are at risk of contamination from microbiological, agricultural run-off, wind-borne debris and suspended solids. How the dam is constructed and what contamination sources it is close to will largely determine the contaminants in the dam water. Dam water is important to agriculture, horticulture and industry.

We have a range of technologies available to treat dam water to a potable standard including clarification filtration, membrane desalination and UV disinfection. Treating dam water ensures that there is a readily accessible source of potable water.

TREATING SURFACE WATER..

Surface water is any source of water located on the earth's surface. This can include rivers, creeks, lakes and dams. It is more easily polluted than sea water and ground water, but is often located closer to where it is required. There is far more fresh water in ground water than surface water, but ground water is harder to access.

Surface water can become polluted via run-off events and as a result of wind-blown material. Common contaminants include microbiological contamination, chemical pollution, nutrients and sewage. Surface water will often have multiple contaminants of concern present meaning that multiple treatment technologies will need to be combined to treat the water to a potable standard. Surface water treatment is important for agriculture, horticulture, industry, governments and communities.

We have extensive experience treating surface water sources and has a range of different technologies for producing clean water from surface water including membrane desalination, clarification filtration and UV disinfection.

SAARC ENGINEERING
4, Shah-Ali-Bagh, Section-1, Mirpur, Dhaka-1216, Tel-+88-02-8033111, Cell- 01711549922, E-mail- info@saarcgroup.com, website: www.saarcgroup.com

TREATING SEA WATER..

Sea Water makes up more than 97 per cent of the water on our planet. With 37 per cent of the world's population living on a coastline, it is an ideal source for community water independence if treated to make it safe for consumption. Salt is the main contaminant in sea water, with an average of 35 grams of salt in every litre of seawater. The safe limit for salt in drinking water is around 1 gram per litre. Desalination removes salt from water, with the main treatment methods based on thermal, electrical and membrane technologies. Reverse Osmosis, a membrane technology, is the least energy intensive desalination method.

We have been providing Membrane Desalination units to clients for more than a decade and has a range of sea water reverse osmosis units that run chemical-free and produce reject that has minimal effect on the environment. Additionally, our seawater desalination units can all be operated using solar and wind energy.

Our sea water desalination units are currently in use in remote communities, resorts and in training centres.

TREATING CREEK WATER..

Creeks or streams are narrow surface waterways that are often tributaries of rivers and have a lower volume of water. However, creeks are generally sheltered which limits their evaporation rate. Creeks can have a variable seasonal flow and a maximum extraction rate, which limits the volume that can be treated.

As a source of surface water, creeks have similar contaminants to surface water: microbiological material, chemical run-off and suspended solids. The water in a creek will either be fresh water or brackish water, so salt can also be present. The treatment technologies for creek water will often be a combination of technologies and can include UV disinfection, membrane desalination and clarification filtration. Creek water is mainly of use to agriculture and communities that have access to a flowing creek.

We have extensive experience designing surface water (including creek water) treatment systems and can ensure that any treatment system meets environmental regulations.

SAARC ENGINEERING
4, Shah-Ali-Bagh, Section-1, Mirpur, Dhaka-1216, Tel-+88-02-8033111, Cell- 01711549922, E-mail- info@saarcgroup.com, website: www.saarcgroup.com

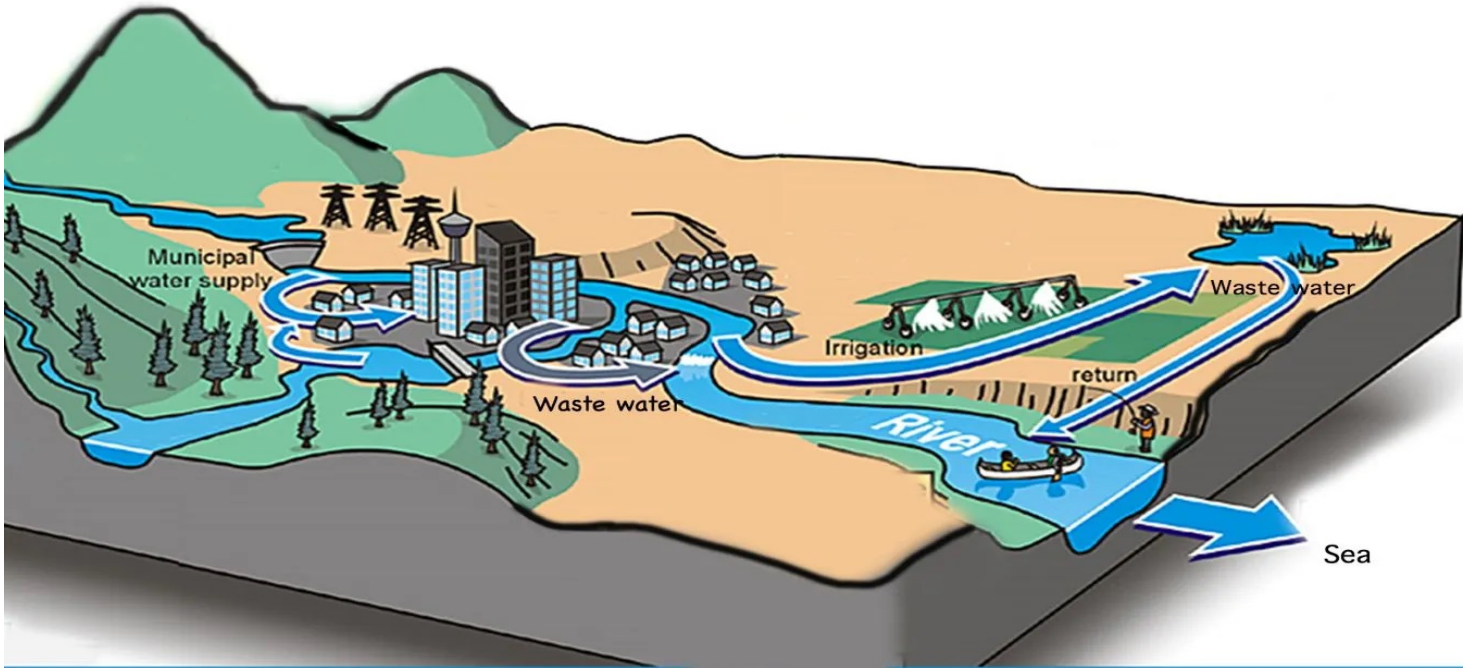
Various measures to protect our rivers from pollution

Rivers are our lifeline since we are completely dependent on them for our existence. Our planet consists of 70% water, but only 1% of it is potable water present in rivers. However, it is unfortunate that the majority of rivers across the globe are highly polluted. The major reason behind this alarming situation is our utter ignorance towards our environment and maintaining rivers and riversides. River Ganga, despite being the holiest of all rivers in India, it ranks as one of the most polluted rivers in the world today!

So it’s high time that we need to take some stringent actions about it. We still have the chance to save our dying rivers. The drastic change in environmental conditions clearly indicates that our world is heading in the wrong direction. If we humans want to ensure our existence, we need to protect our rivers from pollution.

Here are some steps we can take to help control pollution in rivers.

1. Always avoid releasing untreated sewage into lakes and rivers as it gets mix with water and pollutes it.
2. Don't throw any solid waste into the water streams as it clogs the flow of water thereby leading to pollution.
3. Avoid releasing construction waste into the river. Use organic gardening techniques and avoid using pesticides and other herbicides.
4. Avoid releasing harmful chemicals and oils into storm drains or rivers.
5. Always check that your car engine is not spilling oil that finds its way into drains and then rivers.



Stages of river pollution

• The most important thing that each individual should understand is rivers belong to all of us. It is a joint responsibility of each and every individual to keep them clean. We need to reduce water pollution at a personal level. Blaming the government will not help since pollution is caused by a single person.

• Industrial waste holds the biggest responsibility for this pathetic condition, so industries and the relevant authorities need to ensure that no industrial wastes and affluents are dumped in any water body. Environment laws are often not followed, especially in India, since the government's main focus is to strengthen the economy and to achieve the same, rivers and other water bodies are put on stake.

• People often throw garbage like empty cans, packets, etc., directly into rivers. Further, the trash left along riverside often ends up getting dumped in the water only. We should dump the trash only in the garbage bin and keep the riverside as clean as possible. The plastic material thrown into

water bodies is the main reason for the suffocation death of water animals worldwide. Further, immersing the Ganesha idols after Ganesha Chaturthi festival every year has become another major environmental hazard due to the harmful chemicals used in making those idols.

• We must make an effort to refuse, reduce and reuse plastics as much as possible. Use only those products that can be reused and recycled. Apply this mantra in your daily life. Recycled products take less amount of water than what the new ones take in the manufacturing process. This saves a lot of water.

• Stop the wastage of water. Overexploitation of water bodies including the rivers to fulfil our needs. But, in reality, a lot of water gets wasted because of the ignorance of people.

• Make minimal use of chemicals in day-to-day life since they are not only harmful to rivers and water bodies, but these are equally harmful to your own health. Instead of using chemical-based products like soaps, detergents, and toiletries, replace them with natural cleaners and herbal alternatives. Use biodegradable products since they can be decomposed easily and don’t end up in rivers. It is the most environmentally-friendly option that one can opt for. Always segregate your household garbage into biodegradable and non-biodegradable waste.

• Volunteer with NGOs and community groups that are working to save and protect our rivers from pollution. In this way, you will be able to learn more and can easily volunteer for the projects that are dedicated to restoring rivers. Moreover, you can also fund those projects and request other people to make the necessary donations. The good part is you can support as many conversation societies as possible.

• Build awareness among people about the deplorable condition of our rivers. You can make good use of social media platforms to reach out to a large number of people. In fact, you can come up with your own campaign to spread the word. Persuade authorities to strictly implement pollution control regulations and people should be punished if they are found polluting the rivers or any other water body.