Water is filtered to clean it from impurities and contaminants so it is safe for drinking. In the UK tap water is considered safe for drinking due to extensive large-scale processes of filtering and sanitation at water treatment works. This involves a multistage process including screening, clarification, filtration, aeration, ozone dosing, disinfectant, and carbon filtration. Carbon filtration has been used for years as it is widely recognised as the most effective way to remove hazardous chemicals (SOCs) from water. Increasing amounts of chemicals including pharmaceuticals, pesticides and petrochemicals are to be found in our water due to humans’ extensive use of these products and poor management of this waste. Some of these chemicals bioaccumulate in the body (they cannot be expelled) and are known to cause cancer and birth defects.

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WHY FILTER WITH BIOCHAR?
Typically, activated carbon has been used for water filtration, however:
- Activated carbon is often made from non-renewable coal, whereas biochar is usually made from more sustainable sources such as agricultural and forestry residues or harvested biomass².
- Activated carbon manufacturing processes are sophisticated and costly, whereas biochar can be produced on a smaller scale in small kilns and ‘gasifier stoves’³.
- Biochar filtration can also be conducted DIY, on a small scale⁴.
- Trials suggest that the performance of biochar filtration appears to be comparable to commercially prepared activated carbon.⁵

KEY FACTS
- Most water now contains traces of SOCs
- Biochar removes most common SOCs (except fluoride) from water⁶
- Bone biochar can even remove fluoride⁷
- Some filtration processes also remove healthy minerals from drinking water. Carbon filtration doesn’t⁸
- You can use biochar successfully in aquarium filtration instead of activated carbon⁹
- Biochar can also be used in ‘grey’ water filtration¹⁰
- You can use the spent biochar in your compost afterwards

MULTISTAGE VS. GRAVITY FED SYSTEMS
Multistage pressurised systems are common under the counter in households, and involve a series of cartridges, including a carbon cartridge, where water is forced through a series of filter media. They are generally more effective at removing different types of contaminants than a single stage ‘counter top’ water filter, but they do take up space in the home¹¹. You can buy refillable cartridges and fill them with biochar¹².

PROVIDING CLEAN WATER IN DEVELOPING COUNTRIES: BACK TO BASICS
Aqueous Solutions¹³ is a not for profit organisation developing the use of biochar water filtering for villages and communities in developing countries which do not have access to safe drinking water, and whose water tests high in terms of harmful SOCs. Not only are they able to provide decentralised and small-scale, effective and affordable solutions to filter the water and make it clean, they have also developed ways to produce biochar in an affordable, sustainable way.