XERISCAPING

This is a technique used with outdoor landscaping of properties, usually in dry climates. This landscaping uses plants that require little to no watering. Frequently this would involve cacti or sagebrush, which are adapted to low water conditions. These plantings look natural and aesthetically pleasing, while keeping watering needs low.
This is water that has been used in some way already. It may have some solids in it, however it is not full of fecal solids. Rather, the disposed water was likely used in dish washing or laundry previously. This water should never be used for drinking, since the water could carry pathogens. However, it is used for non-potable uses, such as watering home gardens or lawns. It is possible to reuse some water from toilets if the system is set up properly to collect the appropriate materials. This method allows water in the house to be reused in a way before disposal.
LOW FLOW TOILETS

Original models used at least 3.5 gallons of water per flush, but newer models use 1.6 gallons of water per flush or less. The benefit of this is less water usage per flush, which cuts your water use in half from standard models. Some concern existed over whether low flush toilets would lose flushing power needed for certain bathroom occurrences (poop...hee hee). However, this does not seem to be an issue in current models. Additionally, most new models have a button for pee vs poop (a “pee flush” is shorter and uses less water than the button for a “poop flush”)

PRE-1980s TOILET
5.0+ gallons per flush

HIGH-EFFICIENCY TOILET TODAY
1.28 gallons per flush
Most showers will use 2.5 gallons of water or less per minute. Using less shower water helps overall water efficiency since the shower accounts for about 25% of a person’s daily use of water. For any faucet, including shower heads, one can insert a fitted washer into the faucet head or a cap on the end of the faucet head. These washers/caps cause less water to come through the pipe and ultimately use less water. Some showers can also have more air injected into the water to give the water high pressure, but less water ultimately comes out.
This is a model that would require essentially no water for flushing. “Flushing” this toilet means the waste falls into a lower compartment. Liquids are then drained from the solids and can be used as liquid fertilizer. Dry fecal solids are composted via bacterial decomposition of the wastes over months and can be used as fertilizer too. After using it, one throws wood chips or newspaper shavings to cover up freshly made waste (to reduce smell and improve composting). Toilets are designed to move air around in a way that reduces smell as well.
DRIP IRRIGATION

Instead of spraying lots of water over top a field of crops, individual trees and crops are given small drips of water on the ground or underground. The water is usually delivered to plants via hoses underground or above ground right next to the plant. Directing water in this way helps get water to the roots and avoids evaporation, making it the most efficient form of irrigation. However, more equipment and labor is needed to deliver water to crops in this manner.
IRRIGATION SCHEDULING

This means that water users follow a schedule of when they can water plants. On the schedule, you can only water on certain days of the week, and you can only use a certain amount of water. This avoids the situation of each water user in a community irrigating all day and every day. This reduces overall water use and reduces runoff and evaporation from crop fields.
RAINFALL BARRELS

These water capturing devices collect rain water from the roof. Clean rainwater is easily captured and stored with this device. The rainfall is clean and not contaminated with bacterial diseases. This readily available source of freshwater is free and using it would require less use of groundwater and surface water use. The barrels are often high in cost initially. However, if they are maintained, they provide a good water storage supply for a family for a long period of time.
This is the first major large scale dam built on the Colorado River. The dam is located outside of Las Vegas, Nevada. The lake that backs up behind it is known as Lake Mead. After its successful build, it inspired the construction of more dams on the Colorado River and many other rivers of the western US. At one point, it was the single biggest source of electricity in the world. It is now essential to providing water and electricity to much of the southwestern US.
This was the last major dam built on the Colorado River. This dam was built to generate electricity for much of Arizona. It also provides water for use and recreational opportunities. The dam was incredibly controversial, since it would mean it would flood hundreds of miles of unique and remote canyons. Many groups fought against this dam. However it was built. But the controversy surrounding it ultimately ended up killing future dam development on the Colorado and throughout the American west.
THREE GORGES DAM

This is a dam built on the Yangtze River, which is the largest river in Asia. It is placed at a point where three rivers converge together in various gorges. It is considered the largest dam in the world in terms of the amount of electricity it can produce. It has been very controversial. Although it provides a large amount of energy for China, it also flooded lots of land of cultural significance and displaced almost 1.5 million people.
CLOUD SEEDING

This is a form of weather modification. Planes are sent into the air, and they spray chemicals, such as silver iodide and dry ice. These chemicals cause the vapor of clouds to freeze. This freezing will cause precipitation. Continual chemical application will lead to more precipitation and more water. Even though more precipitation is created in the cloud, it is uncertain whether the amount of precipitation that hits the ground is more. There is also no guarantee that any precipitation that is created will fall in the intended target area for water.
Large chunks of floating freshwater could be utilized by capturing them and letting them melt. Many water poor nations have proposed the idea of towing these chunks on boats from locations where they are found to locations that need the water in them. This idea has still not been put into practice very easily yet by any group.
This project in Quebec, Canada increased water access and power for the province. The LaGrande River had many hydroelectric power stations and dams built on it. To increase electric output, many rivers that did not originally flow into the LaGrande River were redirected and forced to flow into the river system. Areas that naturally had a river now had much lower water levels due to the water redirection. Other areas in the watershed were now flooding frequently. A large area of northern pine and spruce forests were flooded permanently as a result of this water project.
This is the process of removing salt from saltwater, which is very energy intensive. Due to high energy needs, this practice is not widespread, but often only done by nation in extremely arid climates. This often correlates with nations that high lots of money from oil production, like Saudi Arabia or United Arab Emirates. Large operational plants will pump saltwater into it and create lots of pressure to force water through membranes and leave the salt behind. It is possible that marine life could be taken into the plant accidentally with the seawater.
This project is an aqueduct system that is over 300 miles long starting from the Colorado River to populated areas of Arizona. The water is generally used to grow crops and to provide water for domestic uses in cities like Phoenix and Tucson. The water has to be moved uphill, requiring a fair amount of energy and effort. It is the largest and most expensive aqueduct system in the U.S. Many individuals found this project to be too expensive for what it provides. However, the system does provide water to regions that are usually dry and helped fuel development and relieve potential flooding in these areas.
This aqueduct system was built to be 40 feet wide and 30 feet deep. It carries water from the water rich northern California to the much drier southern California. 90% of the water will eventually be distributed to farmers for growing crops. Much of this water in California is free to the farmers. The aqueduct travels over 444 miles in the state and is exposed to the air. Much of the water is lost to evaporation. Additionally, to get water to some places, the water must be pumped uphill, which requires the use of energy and resources to do this.