Future of treatment

INDIRECT POTABLE REUSE – CLOSING THE WATER CYCLE

Recycled water is not a new concept; recycling water is practiced world wide. It is now also possible to produce safe drinking water from sewage. In several countries sewage is recycled to drinking water (potable) quality (e.g. Orange County, California, USA and Singapore).

This does not occur in Australia. However, some local councils with severe water shortages and increasing populations are considering this option.

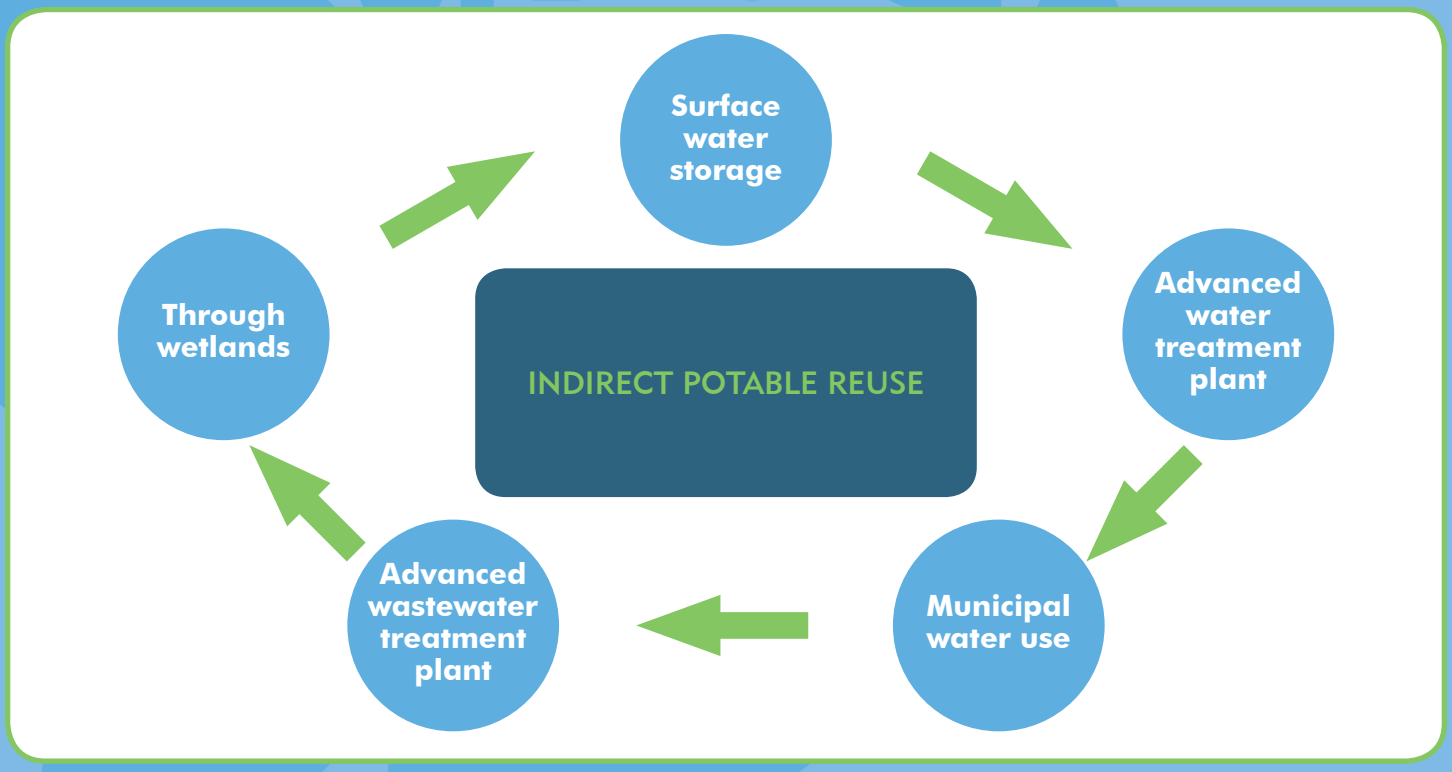
WHAT IS INDIRECT POTABLE REUSE?

The term 'potable' is used to describe water suitable for drinking.

It is 'indirect' because it is mixed into a natural system before being introduced into the drinking water system again, as opposed to being introduced directly.

How this works is that after advanced treatment, recycled water is put into an existing water source, such as a wetland, where it mixes with the 'natural water' before later being harvested and thoroughly treated until it is fit to drink.

During the time the recycled water is stored, the wetland acts as an environmental buffer, allowing natural mixing and treatment processes to occur. Sunlight naturally disinfects water using ultraviolet rays while plants and reeds use up nutrients like phosphorus and nitrogen, further purifying the water. These natural processes also assist in managing risk.



Future of treatment

MULTIPLE BARRIER PROTECTION

As more and more Queensland councils began using recycled water, it was recognised there was a need for legislation to regulate the use of recycled water. The Water Supply (Safety and Reliability) Act 2008 was introduced. The purpose of this legislation is "to protect public health".

Depending on the type of recycled scheme in place, Councils or Water Board Authorities will need to implement Recycled Water Management Plans (RWMP's) by certain dates from the time of the Acts introduction. The RWMP's are based on the HACCP approach. Wide Bay Water is currently implementing RWMP's for our recycled water schemes.

Strict Water Quality guidelines have been developed by Queensland Health.

MULTIPLE BARRIERS

One of the most important concepts contributing to the growing acceptance of indirect potable reuse is that of multiple barrier protection. While Reverse Osmosis (RO) is the heart of a potable reuse process, several other treatment processes are normally added to provide as near a fail-safe system as humanly possible. Primary and secondary treatment, dual media filtration, chemical additions, disinfection, and pretreatment are provided prior to the RO step. Each of these treatment steps removes a certain portion of the initial concentration of microorganisms and pollutants in the water. Additional removal capabilities follow. This combined treatment capability not only adds up to an impressive cleansing power, but also act as back-ups to one another in case any step in the system fails to perform. Storage is also viewed as an important barrier to contaminants. In addition to multiple-treatment processes, multiple barrier protections also include source control programs (preventing introduction of pollutants at the source) and strict operations and maintenance procedures.

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