Stormwater is the only cheap water solution

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Water supplies from the Traveston dam or desalination will be expensive. Stormwater capture is the only solution which could provide significant quantities of water for Brisbane at similar costs to present supplies.

Stormwater runoff in urban areas of SE Queensland is around 500,000 megalitres per year, and only 10% of this would need to captured each year to equal the prudent yield of the Traveston dam.

Using stormwater has the potential to avoid social and environmental impacts of dam building, and to leave water in the countryside, where it can produce millions of dollars worth of milk and vegetables.

Last week, I suggested the Traveston Dam EIS was remiss in not examining stormwater as a potential water source and I have received requests for more information.

A number of reports have highlighted the potential of stormwater. For example, a study by WBM Oceanics in 1999, found that stormwater recycling is a viable option for Queensland and likely to be of significant environmental benefit through a reduction of pollutants going into creeks and Moreton Bay.

Lakes can be used to capture stormwater, such as demonstrated in Canberra. Large quantities of water can be stored underground. Adelaide now uses urban stormwater, where water goes through a holding storage and a constructed wetland before being fed into a brackish aquifer and recovered at drinking water quality. The holding basin, and a cleansing reed bed reduces nutrient and pollutant loads by up to 90 per cent.

Aquifer recovery fields are in operation at 60 sites in the United States, where it is described as an effective means for storing large volumes of water at low cost. The success of aquifer storage in Florida has led to 25 new projects.

Initially some projects in the USA were held up by concerns regarding water quality, which arose due to confusion that aquifers were being used to clean up polluted water. However, whilst cleansing is not a feature of aquifer recovery in USA, in the Netherlands, pairs of wells 100 metres apart are used for water treatment and disinfection, since the use of chlorine is banned in the Netherlands for public water supplies.

The Brisbane City Council has developed guidelines for aquifer storage which say it can be a low cost alternative to surface storages. One reason for little action may be that stormwater management in Brisbane is in one section of government while another section has the responsibility for finding water. This will only be accentuated by the takeover of water assets by the Queensland Government, while stormwater disposal will remain a function of local government.

A key aspect of aquifer recharge is to protect the beneficial uses of the ground water. In some cases stormwater would improve the water quality in aquifers close to the coast of Brisbane where the groundwater is brackish and not usable at the moment.

Monitoring at the Port of Brisbane shows groundwater is around 2 metres below the surface at most locations and is in transition from a saline to freshwater system. Injection of fresh water can prevent seawater intrusion into coastal aquifers and still provide a useful storage of urban water.

Heavy metals such as copper, lead and zinc are found in urban stormwater. In the past stormwater was contaminated by lead from car exhausts, but with unleaded petrol, this has declined in recent years. Only small amounts of metal come from roofing, house paint, cars and road surfaces.

Generally before injection into an aquifer, stormwater will need to be cleansed in sediment basins, reedy wetlands or by using sand filters. When extracted it may be possible to use directly for parks and golf courses, but for human consumption, reverse osmosis is likely to be used to remove heavy metals and other contaminants.

Reverse osmosis requires much less energy for water low in salt than for sea water, where the pressure needed to push water through salt removing membranes is much higher.

There is too little being done with stormwater. Action is being held back by environmental concerns, but doing something with stormwater does not create a pollution problem, it fixes one we have at the moment. Capturing stormwater will reduce the pollution of Brisbane's creeks and could avoid the environmental impacts of building dams.