



## Stormwater reuse

### Background

Urban stormwater is run-off from roads, roofs, paths etc. Urban drainage systems are usually designed to prevent flooding, but this also can lead to peak volumes of water flowing into streams, lakes and wetlands, bringing pollution that has been washed from the urban surfaces. Harvesting stormwater can be a good substitute for drinking water for some uses such as irrigation and toilet flushing, and can help prevent pollution from entering watercourses.

Before submitting a proposal to reuse stormwater, please read the following information that can help you plan your project and fill in the application form.

### Issues

#### *Health risks*

Stormwater can pose the same health risks as sewage effluent. Depending upon where the water is collected, the amount of rainfall and time between rainfall events, the water quality can vary dramatically. Rainfall can wash animal faeces, oil spills, fertilisers and many other substances into the stormwater system. For this reason, stormwater should be treated before use. It is worth focusing on the design of the stormwater reuse system to minimise contamination of the water in the first instance.

Generally, the more likely people will come into contact with the reuse water, the more treatment and prevention actions will need to be used. Stormwater to be reused for irrigation for example may need to be applied as sub-surface drippers rather than surface sprinklers, and irrigation may not be able to be used on food crops. Contact your state or territory health agency to find out the health requirements for stormwater reuse.

#### *Environmental risks*

Environmental risks include contamination of soils and water bodies with heavy metals, nutrients, salts and organic hydrocarbons such as car oils. The type of soil in the area will influence what effect some of these substances will have, and you should look at relevant reuse guidelines for your state and territory before using stormwater for irrigation. Controls may need to be put in place to prevent the reuse water from running into nearby watercourses. Contact your State or Territory environment protection agency to find out the specific requirements for reuse water.



Some important things to consider in evaluation of a site for applying stormwater include:

- site characteristics (e.g. soil type, slope, plant types)
- application rates, especially when application is close to near pristine environments
- availability of land for application and storage requirements
- statutory land requirements.

### ***Flow variability***

As with rainwater tanks, stormwater flow can vary substantially making the decision on holding tank capacity important. When there is the most stormwater available is the period when it is needed least, so calculate the size of the tank to store the water until needed. Remember that treatment will be needed, otherwise the stormwater cannot be stored for very long.

### ***Treatment levels***

The level of treatment required depends on the application and risk of exposure to the public. For many applications secondary treatment (i.e. physical treatment to remove solids and biological treatment to remove organics) with disinfection may be adequate. For higher contact applications, tertiary treatment (i.e. secondary treatment plus removing nutrients) may be required.

### ***Safeguards and controls***

Protection of public health is of the highest importance. The more 'barriers' there are between the untreated stormwater and the public, the lower the risk of exposure to pathogens and contaminants. Barriers can include tertiary treatment processes, reliable disinfection, well maintained pipes, application controls and crop restrictions.

### ***Management and monitoring***

Relevant health and planning authorities may ask for a management program to be put in place that outlines the risks of your stormwater reuse project, the management actions to minimise these risks, and monitoring of the reuse water and soils if applicable. Contact your state or territory health and planning authorities to find out the relevant requirements. To find out more about managing stormwater reuse schemes, read 'The Australian Guidelines for Urban Stormwater Management 2000'.

## **Before you apply**

Before you apply, talk to the health department and environment protection agency in your state and your local council to ensure that your proposal is consistent with planning, environmental and health guidelines and regulations. It is your responsibility to obtain any health, planning and environmental approvals or permits that are required to undertake your project.

### ***Before you apply you should consider:***

- what the stormwater will be used for (e.g. irrigation of a community area)
- what is included in the stormwater catchment area (e.g. roofs, roads)
- how the stormwater will be stored, treated and applied (e.g. sub-surface irrigation, toilet flushing)
- the maintenance and monitoring regime required.

### ***If your application is successful you will need to provide:***

- copies of your approvals (planning, health, and environment, where required)
- details of how and who will maintain and monitor the stormwater reuse system.



### Information to help you in designing your project

NWQMS (2000) Australian Guidelines for Urban Stormwater Management. Document 10. Agriculture and Resource Management Council of Australia and New Zealand, Australian and New Zealand Environment and Conservation Council. Canberra, Australia.

Victorian Stormwater Committee (1999). Urban Stormwater - Best-Practice Environmental Management Guidelines, CSIRO Publishing. <http://www.publish.csiro.au/pid/2190.htm>

### Contact for more information:

Your local planning authority e.g. local council  
Your State/Territory health department  
Your State/Territory environment agency  
Your local NRM facilitator

---

#### Disclaimer

The information provided in this sheet is intended as a guide only and does not provide an exhaustive list of all the issues to consider in reusing stormwater. This information does not replace legislation and guidelines in your state or territory.

