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Roof-harvested rainwater and protection of public health

Harvesting roof water through the installation of rainwater tanks can make a significant contribution to the total volume of community water supplies. Queensland Health supports the use of roof-harvested rainwater to meet overall water demand, provided that appropriate safeguards are in place to protect public health.

Risks to public health

Roof-harvested rainwater can become contaminated from a range of sources. Recent studies conducted in Queensland have found evidence that rainwater tanks are often contaminated with animal faeces. Animal faeces can contain a range of microorganisms, such as bacteria, viruses and protozoa, some of which can cause human disease. The studies have also found evidence of these disease-causing microorganisms in rainwater tanks.

The presence of these disease-causing microorganisms will depend on the occurrence of animals and birds on and over the rainwater collection system, the design of the rainwater collection and storage system and the level of maintenance of the system.

Rainwater may also be contaminated by chemicals, such as heavy metals and pesticides that could affect human health if they are in high concentrations and/or consumed over long periods. Chemicals may be introduced into the tanks from hazardous roofing materials, nearby industrial emissions or agricultural activities such as crop spraying.

Using roof harvested rainwater in areas with access to town drinking water

Queensland Health recommends that residents should use reticulated or 'town' water supplies for drinking, personal hygiene and food preparation if they live in areas that have access to these supplies. Town water provides the safest and most reliable source of drinking water. Roof-harvested rainwater may be used without further treatment for flushing toilets, the cold water laundry tap and for watering gardens and lawns as these uses generally present a low risk of disease.

If roof-harvested rainwater is used to supply hot water systems, the thermostat should be set at a temperature of 60°C or higher. In order to reduce the risk of scalding, tempering devices should be fitted to ensure the water temperature does not exceed 50°C at the point it leaves the tap or shower head. Instantaneous or 'continuous flow' systems should not be supplied with roof-harvested rainwater where there is access to a town drinking water supply. The supply of rainwater to hot water systems may result in the system corroding faster than normal, due to the slightly acidic quality of rainwater and softness. Advice should always be sought from the system supplier before using rainwater for this purpose. Queensland Health does not recommend the use of water from the hot water tap for drinking or food preparation.

Using roof-harvested rainwater in areas without access to town drinking water

Many people in Queensland do not have access to town water supplies and so they may rely on roof-harvested rainwater as their sole supply of potable water. For most people, especially those who have been drinking rainwater for most of their lives, there will be very little health risk, provided the rainwater collection and storage system is well maintained. However, there are some members of the community for whom microorganisms (pathogens) in rainwater could pose health risks, including infants, the elderly and immuno-compromised people such

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as transplant, dialysis, HIV or cancer patients with severely weakened immune systems. For these people, exposure to pathogens in rainwater could occur through drinking, food preparation and personal hygiene.

Queensland Health recommends that anyone who may be vulnerable to pathogens that could occur in roof-harvested rainwater—or who may supply this water to other household members or guests who could be considered vulnerable—consider implementing appropriate control measures to ensure the safety of their rainwater. This should include complying with the design and maintenance recommendations provided in the enHealth document *Guidance on the use of rainwater tanks*, which is available at:
<http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-enhealth-raitank-cnt.htm>

Where vulnerable community members have no other source of drinking water, consideration should be given to installing a disinfection system either at the kitchen and bathroom taps or at the point of entry of water to the house to ensure all water supplied to the kitchen and bathroom is adequately disinfected. Domestic water treatment systems should comply with the microbiological treatment performance requirements of Australian/New Zealand Standard 4348:1995. It should be noted that these disinfection systems require regular maintenance to remain effective and it is important that the manufacturer's instructions are always followed.

Bringing rainwater to the boil before drinking it can also ensure the microbiological safety of the water. However, if you choose to use this method, care must be taken to ensure scalding does not occur. The routine chlorination of roof-harvested rainwater is not recommended. Boiling water does not reduce chemical contamination and appropriate treatment should be installed to remove chemicals if they are at unsafe levels in the water.

For more information

Call 13 HEALTH (13 43 25 84) to speak to a health professional

Contact your nearest Queensland Health Public Health Unit (business hours, Monday to Friday):

Brisbane North	Tel: 3624 1111	Gold Coast	Tel: 5668 3700	Rockhampton	Tel: 4920 6989
Brisbane South	Tel: 3000 9148	Hervey Bay	Tel: 4184 1800	Sunshine Coast	Tel: 5409 6600
Bundaberg	Tel: 4150 2780	Logan	Tel: 3412 2989	Toowoomba	Tel: 4631 9888
Central West	Tel: 4920 6989	Mackay	Tel: 4885 6611	Townsville	Tel: 4753 9000
Cairns	Tel: 4226 5555	Moreton Bay	Tel: 3142 1800	West Moreton	Tel: 3413 1200
Charleville	Tel: 4656 8100	Mount Isa	Tel: 4744 9100		