



How to Link Multiple Water Tanks to Increase Rainwater Harvesting Capacity

Before you invest in a new water tank to store rainwater, perform some careful planning and consider a system setup of linking two or more water tanks together. A [multiple water tank setup for rainwater harvesting provides many benefits](#) including:

- Multiple tanks can be more cost-effective
- Reduction of lost water in tank failure or water contamination
- Expandable water storage as needed
- More effective use of property space

When designing a linked tank schematic, it is important to consider how the water will move between your tanks, including what might happen if a tank develops a leak or needs other maintenance.

Linked tanks are easily installed in both [wet rainwater harvesting systems](#) and [dry rainwater harvesting systems](#). Dry systems are by far the most common setup, with piping running direct from the gutter into your tanks. Wet systems are sometimes desirable where more complex above-ground piping would be unsightly, for example, if you have multiple downpipes leading to your tank or need to run piping over pathways if your tanks situated further away from your house.

The setup scenarios for multiple water tanks below describe tanks filled under “dry” gravity flows, however similar ideas can be applied to a system with “wet” underground piping scenarios through considering the available head from your pump.

Option 1: Linking Tanks from Overflow to Top

Tanks can be linked in series through their overflow. The first water tank fills and the overflow is channelled through piping that leads water into the base of your next to ensure water effectively flows into the next tank. The last tank in the series expels its water externally to your storm water drainage as per a single tank setup.

The size of the overflow for each tank should be the same size as the inlet. The maximum water level across all tanks in your system will be limited by the height of your overflow piping from the first tank in the series. Of course, if subsequent tanks are themselves lower, the height within each tank is defined by the height of its overflow pipe.

Locations with varying topography should ideally ensure that the first tank in series is the highest in elevation. Since the tanks fill sequentially, only the first tank will have guaranteed water height, however, if only the first tank is tapped, water in subsequent tanks will no longer be accessible. The solution is to tap each tank and drain to the same pipe, thus ensuring usability of all your collected rainwater.

Option 2: Linking Tanks from the Bottom

Water tanks can be linked in parallel by connecting them with piping at the bottom. This will result in all connected tanks filling with water to the same level. If your tanks are of different sizes, tank elevation should be adjusted so that the top of each tank (tank overflows) are at the same level. This maximises the total capacity of rainwater storage in your tank setup. Failure to do this will result in the maximum height of water stored in all tanks only being as high as the lowest overflow port.

To prevent the loss of all stored water due to a leak in one tank, install valves so tanks can be isolated if necessary. Any tank can be tapped in a parallel system since they will all contain the same water height, and installing taps on more than one tank can provide flexibility in usage.

As mentioned, linking tanks together offer great benefits for the trade-off of a little extra planning and design. Since licensed plumbing is often a requirement for rainwater tanks throughout many states and regions in Australia, you could draw up your desired schematic and present it to them. Linking water tanks provides you with more flexibility, and it is generally more cost-effective overall to install and maintain multiple poly tanks versus an otherwise very large steel tank setup.

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