



Fact Sheet: Water Sensitive Urban Design

Rapid urban growth in Australia over the last 30 years has resulted in an expanding footprint of urban-related impacts on the environmental, economic and social values of our receiving waters. In addition, consolidation of urban areas is increasing pressure on existing drainage infrastructure. Increasing emphasis placed on the importance of protecting receiving water values by water managers and the broader community has prompted the shift in what is considered appropriate land and water management practices for urban catchments. Consequently, there is growing support for a fundamental change in the way urban water resources are managed.

Water Sensitive Urban Design (WSUD) is the term used to describe a new approach to urban planning and design that offers sustainable solutions for integrating land development and the natural water cycle.

WSUD emphasises a more decentralised approach, water management that is more in tune with natural environmental processes, and the restoration of the natural water cycle in terms of surface runoff, groundwater, and evapotranspiration. It involves integrating the potable, storm and waste water streams to reduce the strain on our drinking water reserves, mitigate the increased runoff from urban areas, and decrease the volume of polluted water entering our waterways.

WSUD emphasises the near-source collection, treatment and use of water as part of an integrated management system. Components of the treatment train can include:

- roof runoff into tanks for toilet flushing, washing machines, garden watering and hot water systems
- runoff or recycled wastewater for toilet flushing, garden or landscaping irrigation, and fire-fighting
- stormwater infiltration to groundwater where practical
- composting toilets, waterless urinals, and urine-separating toilets to substantially reduce the hydraulic and biological load on treatment plants
- harvesting and treatment of stormwater through constructed wetlands
- use of grass swales to increase infiltration, reduce peak flows, and provide additional treatment

We aim to adapt WSUD technology to each site, with careful consideration of site characteristics such as slope, depth to water table, rainfall, soil type, and type of development. In addition, we have extensive experience in appropriate computer models, including *Aquacycle* and the *Model for Urban Stormwater Improvement Conceptualisation (MUSIC)* that provide support tools in the decision making and approvals process for developments incorporating WSUD.

Our key planning and design objectives associated with WSUD are:

- Communication with the community about reducing pollutants at source
- Protect and enhance natural water systems in urban developments
- Integrate stormwater treatment into the landscape by incorporating multiple use corridors that maximise the visual and recreational amenity of developments
- Reduce runoff and peak flows from urban developments by employing local detention measures and by minimising impervious areas
- Add value while minimising drainage infrastructure development costs

We have the design team to provide WSUD technology that adheres to Best Planning Practice (BPP) and Best Management Practice (BMP). Our experience and skills in constructed wetlands, swale technology, biofiltration, effluent reuse, stormwater management and on-site wastewater systems provides solutions to present day urban water management problems.