

# CASE STUDY: Integrated Water Cycle Management

## 9. Integrated Water Cycle Management for Porters Creek Catchment

Though designed as a temporary measure, the necessity to pump from Porters Creek prompts a reappraisal of the resource value of the Porters Creek Wetland.

A fresh approach to the management and use of water within whole catchments is necessary if we wish to avoid decline not only of our natural environment but also our own quality of life. This approach is Integrated Water Cycle Management (IWCM).

Throughout the world, clean potable water is a precious resource and ICWM has an important role to play in its sustainable use into the future.



Good quality wetland water resource



Poor quality wetland water resource

(source: Wyong Shire Council)

### What is "Integrated Water Cycle Management"?

- Integrated Water Cycle Management (IWCM) is a planning method that water management authorities can use to achieve an optimal balance of benefits for the community and natural environment from available fresh water resources.
- It involves the integration of the four components of the water management system - (1) supply of potable water (2) sewerage (3) stormwater (4) grey water - so that water is used to best effect within a catchment, state and national context.
- It recognises that a whole system approach to management of all components of the urban water system can lead to better, more sustainable development.
- It aims to maintain as far as possible the pre-development conditions by managing and reusing increase flows that result from development.

### ACTIVITY: Modelling the effects of WSUD and IWCM

Consider the eastern (Warnervale) component of the Porters Creek catchment. Its area is about 18 hectares and the total annual runoff was probably about 30,000 megalitres per year (ML/yr) before any urban development occurred. Your task is to complete **the last column** of the following Table that records the expected impact on runoff achieved by Waters Sensitive Urban Design (WSUD) methods and stormwater harvesting (one of the Integrated Water Cycle Management methods).

	Stormwater runoff multiplicative factor	Estimated annual runoff (ML/yr)
Pre-development (before any urbanisation)	R	30,000
Development uncontrolled (rampant urbanisation)	3.5 x R	
Development + WSUD (e.g. on site tanks, precinct constructed wetlands, swales)	3.0 x R	
Development + WSUD + IWCM (e.g. site and precinct measures plus stormwater harvesting)	1.2 x R	

**QUESTION:** Based on the above estimates how much (usable) stormwater would be harvested in one year using IWCM?

