

The Water Balance

Civil Engineering

A catchment as an accounting unit.

Water circulates between atmosphere, surface, soil and sea; a catchment is one accounting unit for it.

BALANCE EQUATION

$$P = Q + E + \Delta S$$

PAVED CATCHMENT RUNOFF

Often above 60%

- Precipitation is the only input to a catchment
- Evapotranspiration is often the largest loss
- Infiltration decides how much becomes runoff
- Baseflow keeps rivers running between storms
- Urban surfaces cut infiltration to near zero
- Storage smooths the difference between the two

LOOK FOR IT

Paving a field turns a slow, spread-out response into a sharp flood peak.

Educational reference. Catchment figures are site-specific, and flood estimation follows national hydrological guidance.