

# Raritan Basin Watershed Management Project

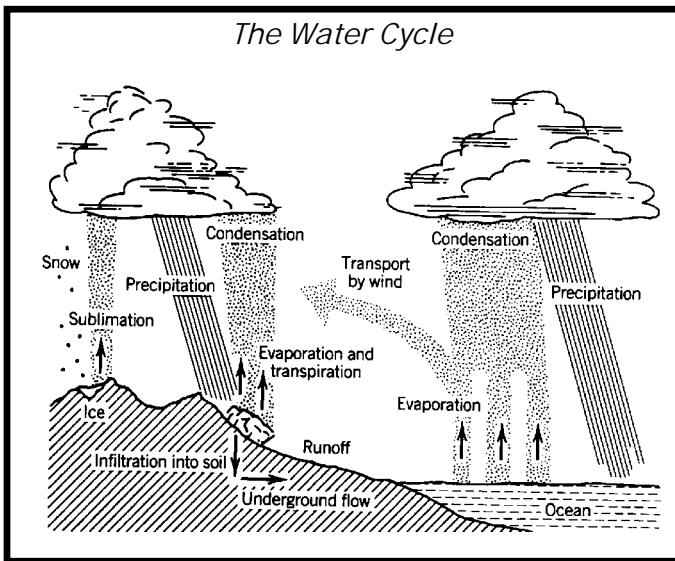
## Fact Sheet #5

### WATER BUDGET IN THE RARITAN RIVER BASIN

The Water Budget Report is one of a series of technical reports produced by the Raritan Basin Watershed Management Project. This report provides an overview of water use, and a general approach for calculating how much water enters and leaves the Basin throughout the year.

#### What Is A "Water Budget"?

A "water budget" quantifies the natural processes and human uses of water within a watershed (an area of land that collects runoff from precipitation and drains to streams, rivers, lakes and reservoirs). It is used to understand how water arrives, flows through and leaves a watershed. A water budget is also valuable for understanding how human activities modify the natural flow of water.



Precipitation (e.g., rain, snow, or sleet) is the only natural source of water that enters a watershed. Of the total precipitation, there are three different ways that water can leave a watershed. Some evaporates from the land or water surfaces or transpires from vegetation through a process known as "evapo-transpiration." Some soaks (or infiltrates) into the ground to become ground water, and the remainder runs off the land surface to become surface water

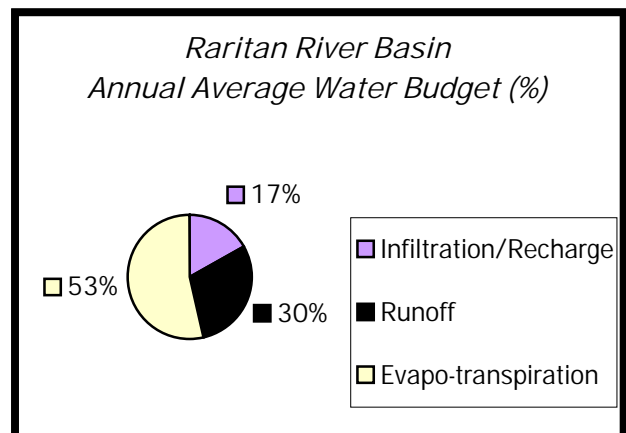
during storm and snowmelt periods. Water that infiltrates into the ground eventually contributes to the flow of streams during both wet and dry periods. Human activities such as lawn watering and changes in land cover may affect infiltration, evapo-transpiration and runoff, and therefore change the water budget within a watershed.

#### Water Budget Of The Raritan Basin

The average precipitation in the Basin is about 47 inches of rain or over 900 billion gallons of water per year. This is enough to fill approximately 1.1 million Olympic size swimming pools!

Of the total precipitation that the Basin receives, over half (53%) evaporates from land or water surfaces. The remainder either infiltrates into the ground (17%) or runs off the land surface to nearby streams or water bodies (30%). The chart below shows the relationship between the three factors.

In addition, human development of water supplies and land surfaces has a significant impact on the water budget. For example, an increase in impervious surfaces (e.g., paved areas, buildings) will tend to increase runoff and decrease infiltration through soils to ground water, resulting in higher flows after storms, and lower stream flows during dry weather.



## How Does This Affect You?

The Raritan Basin supports a wide variety of natural ecosystems that rely heavily on the proximity of surface waters, wetlands and high ground water tables. In addition, central New Jersey's potable (drinkable) and industrial water needs are supplied by the Basin's ground and surface water supplies. Finally, the surface waters of the Basin are used for recreational and aesthetic purposes. The vitality and health of the Basin depend on the natural processes of precipitation, runoff and infiltration. Therefore, for watershed management purposes it is critical that we understand the water budget and hydrology of the Raritan Basin. As population in the Basin grows, there will be an increased need to periodically review the water budget to meet rising regional demands for water.

## What Can You Do To Help?

State management measures taken to help maintain the water budget include: 1) maintenance of water supply reservoirs; 2) State rules that require the release of water from reservoirs to maintain specified flow levels in streams; and 3) a review and update of existing water budget data.

Steps that can be taken at the local level by government officials, business owners, landowners and residents include:

- Identify and protect areas in your municipality or watershed that help promote the recharge of ground water.
- Encourage car wash facilities, golf courses and other business owners to use recycled water.
- Encourage schools to teach students where their water comes from, where it goes and what steps they can take to conserve water.
- Limit the amount of paved surface on your property to allow for increased infiltration to ground water supplies.
- Re-direct your drain pipes so water can soak into the ground, instead of running off on to paved surfaces.
- Repair leaky faucets, toilets and hoses (slow drips waste between 15 and 20 gallons of water a day).
- Set a conservative goal to use a maximum of 50 to 60 gallons of water a day per person. According to the United States Environmental Protection Agency, the average American uses approximately 75-85 gallons of water a day, but could get by with 60 gallons or less.

### For More Information.....

The Raritan Basin Watershed Management Project is a partnership of government, non-profit and private organizations working together to improve the water resources of the Raritan River. To learn more about the Raritan Basin Watershed Management Project or for additional information on the water budget of the Raritan Basin, contact the New Jersey Water Supply Authority, Watershed Protection Programs Unit, at (732) 356-9344 or visit our website at [www.raritanbasin.org](http://www.raritanbasin.org). Also, you may contact the New Jersey Department of Environmental Protection's (NJDEP) Raritan Region staff at (609) 633-7020 or visit the NJDEP Division of Watershed Management website at [www.state.nj.us/dep/watershedmgt/](http://www.state.nj.us/dep/watershedmgt/).