



# Benefits of Harvesting Rainwater

Mark Buchanan

Conservation Specialist

West Virginia Conservation Agency

# Urban hydrology developed vs. undeveloped areas

- Greater runoff (and surface water pollution)
- “Flashy” stream-flow –increased flood frequency
- Lower base flow
- Increased erosion potential within stream channels
- Lower storage in soils and plants
- Lower groundwater recharge
- Degraded water quality

# Hydrograph Comparison

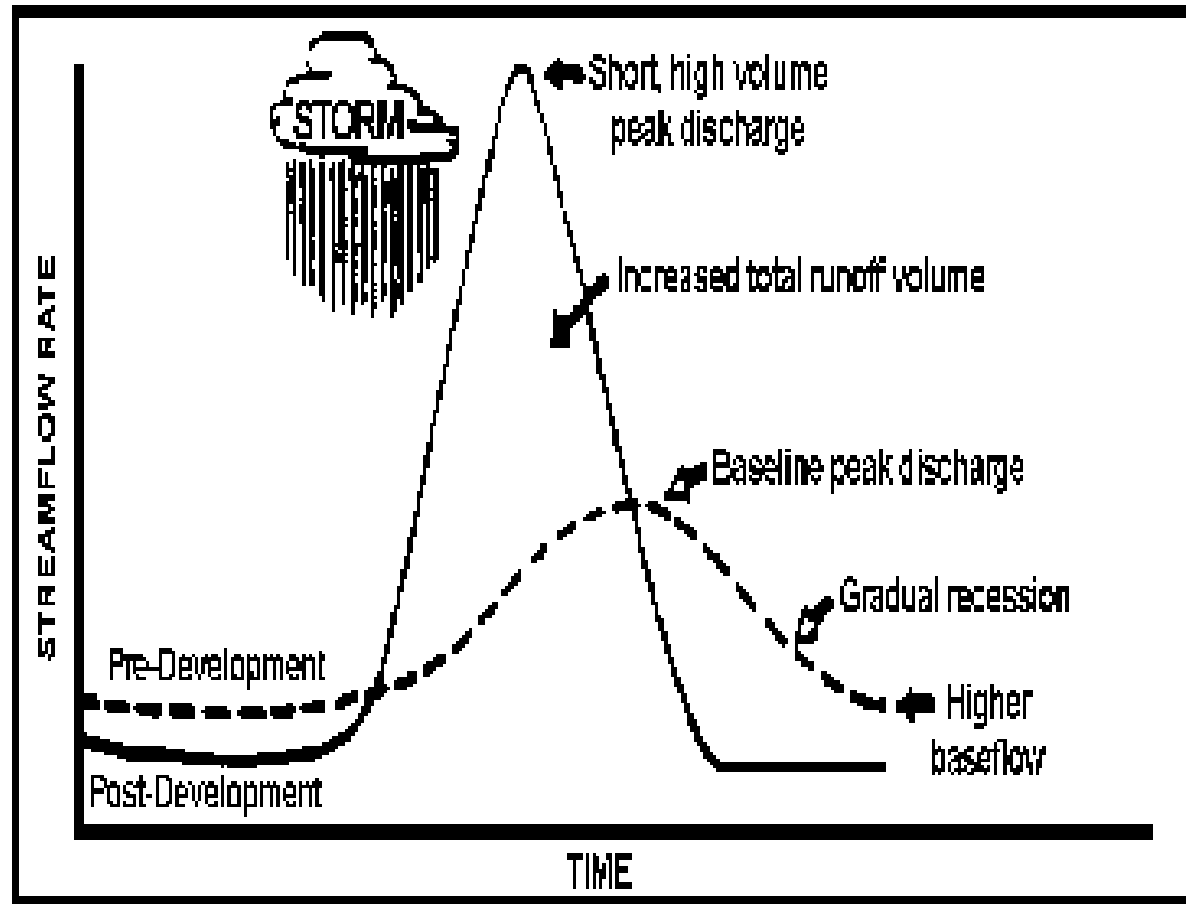



Figure 1. Impacts of urbanization on stream flow (Schueler, 1987).



# Potential effects of urban runoff

- Downstream flooding
- Stream bank erosion
- Increased turbidity (muddiness created by stirred up sediment) from erosion
- Habitat destruction
- Changes in the stream flow
- Combined sewer overflows
- Infrastructure damage
- Contaminated streams, rivers, and coastal water



# Addressing the issue...

## Every little bit helps!

Bioretention cells

Riparian buffers

Sand and organic filters

Permeable pavers

Stormwater planters

Inlet protection devices

Vegetated filter strips

Grassed swales

Rain barrels and cisterns

Curb and gutter elimination

Permeable pavement

Infiltration trenches

Soil amendments

Tree box filters

Vegetated roofs



# Collecting rainwater...Not exactly “cutting edge technology”











# So how much water are we talking?

Here is an easy formula:

1. Measure the square footage of the collection area (for example a roof that is 30 feet wide x 50 feet long = 1500 sq. ft.)
2. Multiply the area by the amount of rain in inches
3. Multiply that number by 0.623 (that is the amount of water in gallons one inch deep in one square foot of space)  
= amount of gallons that can be collected.

Example: 1500 square feet of roof area x 1 inch of rain x 0.623 = 934.5 gallons!!!

# Uses

- Watering landscape plants and lawn
- Cleaning tools
- Watering vegetable gardens
- Flushing toilets

# Benefits

- Free
- Rainwater is “Softer”
- No minerals
- No chlorine (Better for your plants)
- Environmental benefits





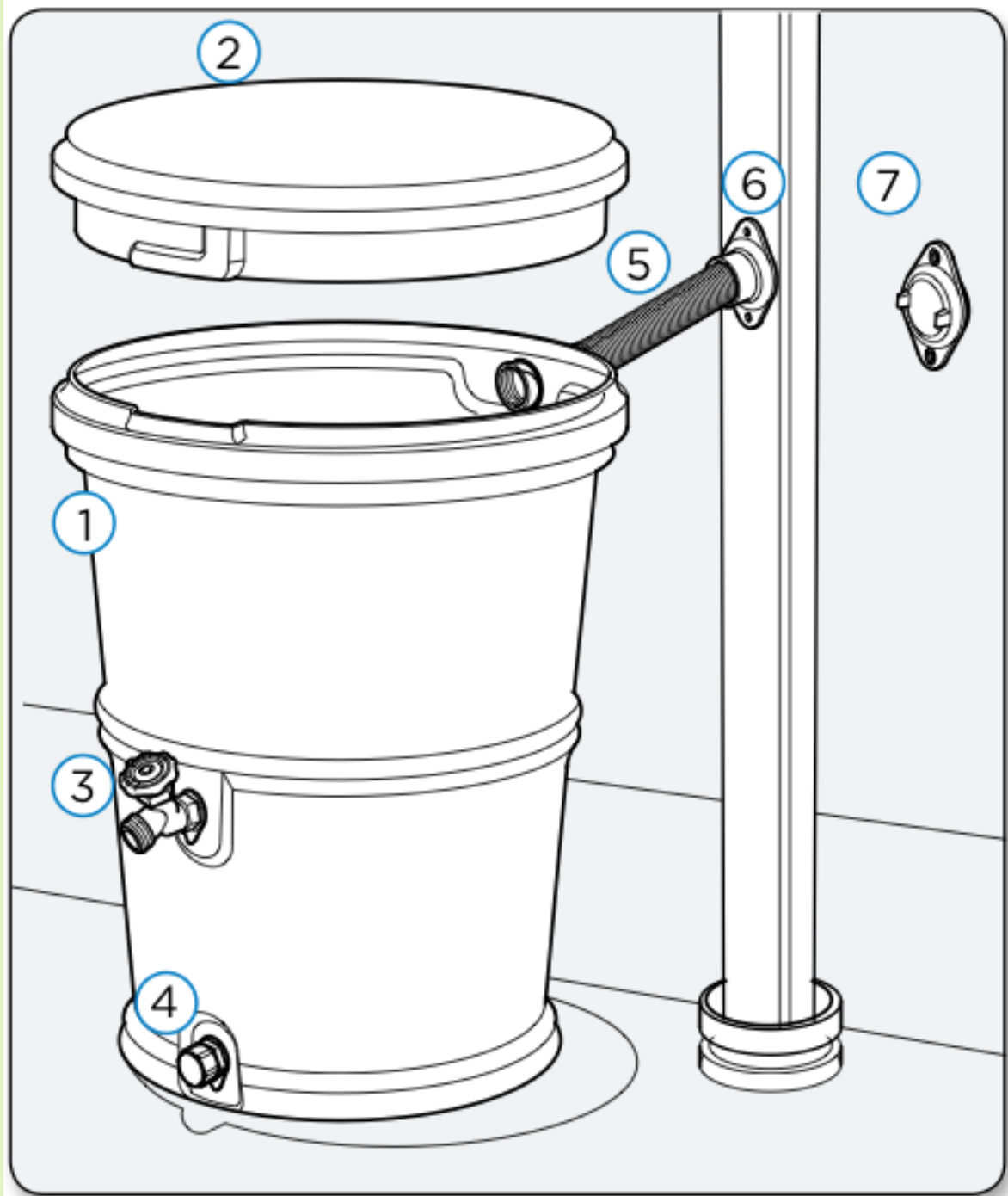
# A few things to remember

- Water is heavy (about 8 pounds/gallon)... make sure that your rainbarrel is setting level
- Do not use as drinking water!
- Water should not be stored for extended amounts of time.
- Clean the barrel once or twice a month.
- Remove rainbarrels for the winter season.









# Resources/information for rainwater harvesting

- Environmental Protection Agency -  
[http://www.epa.gov/oaintrnt/stormwater/best\\_practices.htm#ci\\_sterns](http://www.epa.gov/oaintrnt/stormwater/best_practices.htm#ci_sterns)
- WV Watershed Resource Center - <http://www.wvca.us/wvwn/>
- Center for Watershed Protection - <http://www.cwp.org/>
- Rainbarrel resource (blog) <http://www.rainbarrelresource.com/>
- Mother Earth News <http://www.motherearthnews.com/diy/how-to-make-a-rain-barrel-ze0z11zkon.aspx#axzz2yX7vsdAE>
- Earthminded  
<http://www.earthmindedconsumerproducts.com/index.html>
- Rainbarrel Depot <http://www.therainbarreldepot.com/>

# Questions???

- [Mbuchanan@wvca.us](mailto:Mbuchanan@wvca.us)