

# Water Harvesting

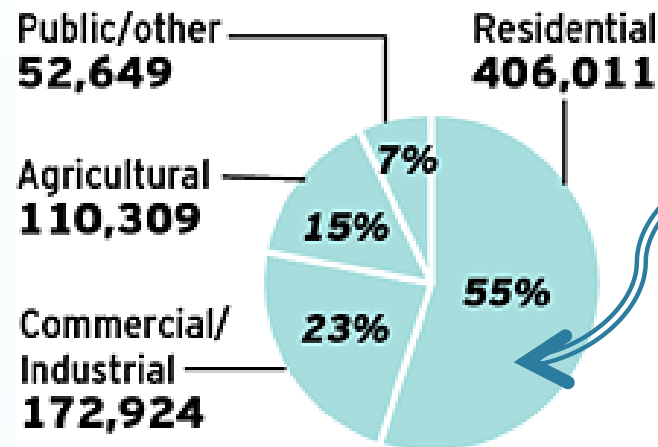
Create Your Own Sustainable Water  
Supply

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# Who uses the water

Here is a breakdown of water consumption in the county in 2007, in acre-feet. One acre-foot is enough to serve two families for one year.



Irrigation accounts for 60-75% of Residential Use

SOURCE: San Diego County Water Authority

AARON STECKELBERG / Union-Tribune

San Diego average per capita is 160 gallons a day, excluding agriculture

# Creating a Local Water Supply

- Harvest Rainwater
- Recycle Greywater
- Reduce Water Use in the Home
  - Low Flow fixtures
  - Fix Leaks
- Landscaping
  - The nifty fifty (drought tolerant)
  - Natives
  - Xeriscape
  - Create Basins
  - Use Mulch
  - Redirect Storm Runoff into your landscape

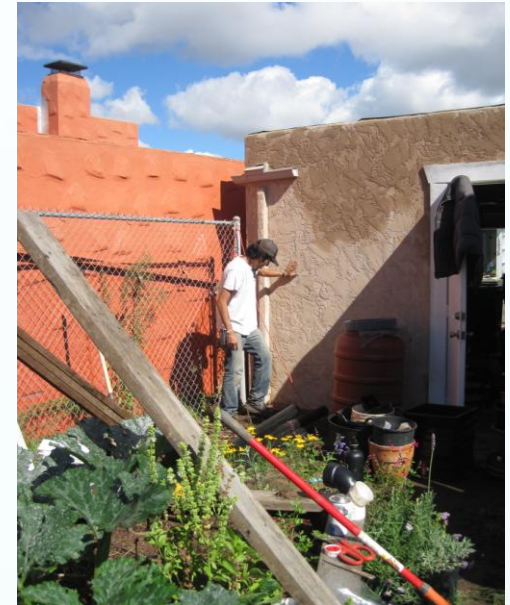


# Why Rainwater Harvesting?

- Create a Local Water Supply
- Mitigates salt build up in soils
- Increases groundwater supply and improves quality of groundwater
  - Dilutes brackish water
- Reduces storm drain pollution
- Mitigates urban flooding and erosion
- Sustainable – rainwater collection is less expensive than desal and IPR

# Redirecting Storm Runoff

- Disconnect your downspout
- Optional: connect to rainwater storage
- Direct the water away from your foundation
- Use earthworks to provide opportunities for the water to soak into the soil
- Use mulch to hold the moisture in the soil
- Use compost to improve the soil absorption
- Use plants that can tolerate seasonal water

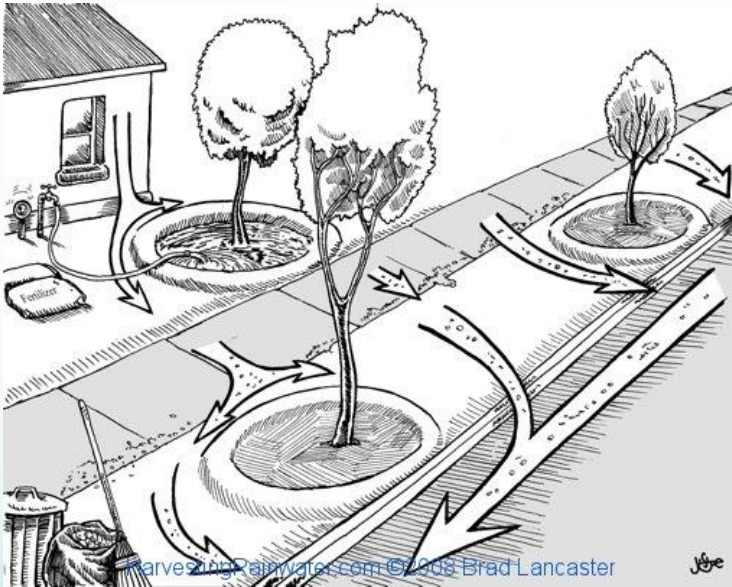


# Rainwater Runoff as a Resource





# Use the Free Water



# Water Harvesting Calculations

- Possible Volume of Runoff from a Roof or Other Impervious Catchment Area:

**catchment area (ft<sup>2</sup>) X rainfall (ft) X 7.48 gal/ ft<sup>3</sup> =**

**maximum runoff (gal)**

*Ex: 450ft<sup>2</sup> X 10inches X 1ft/12 inches X 7.48 gal/ft<sup>3</sup> = 2805 gallons*

- Rough rule of thumb for calculating rainfall runoff volume on a catchment surface:

*You can collect 600 gallons of water per inch of rain falling on 1,000 square feet of catchment surface.*



# Simple Rainwater Catchment



# Large Rainwater Tanks and Systems













# What is *Greywater*?

- Greywater is any wastewater generated in the home, ***except*** water from
  - Toilets
  - Kitchen Sinks
  - Dishwashers
  - Photo processing sinks





# Why Use Graywater?

- Reduce Reliance on Municipal water source
- Less strain on septic tank or treatment plant
  - Better treatment (topsoil is many times more effective than subsoil or treatment plant)
  - Less energy and chemical use
- Groundwater recharge
- Utilize nutrients for effective plant growth

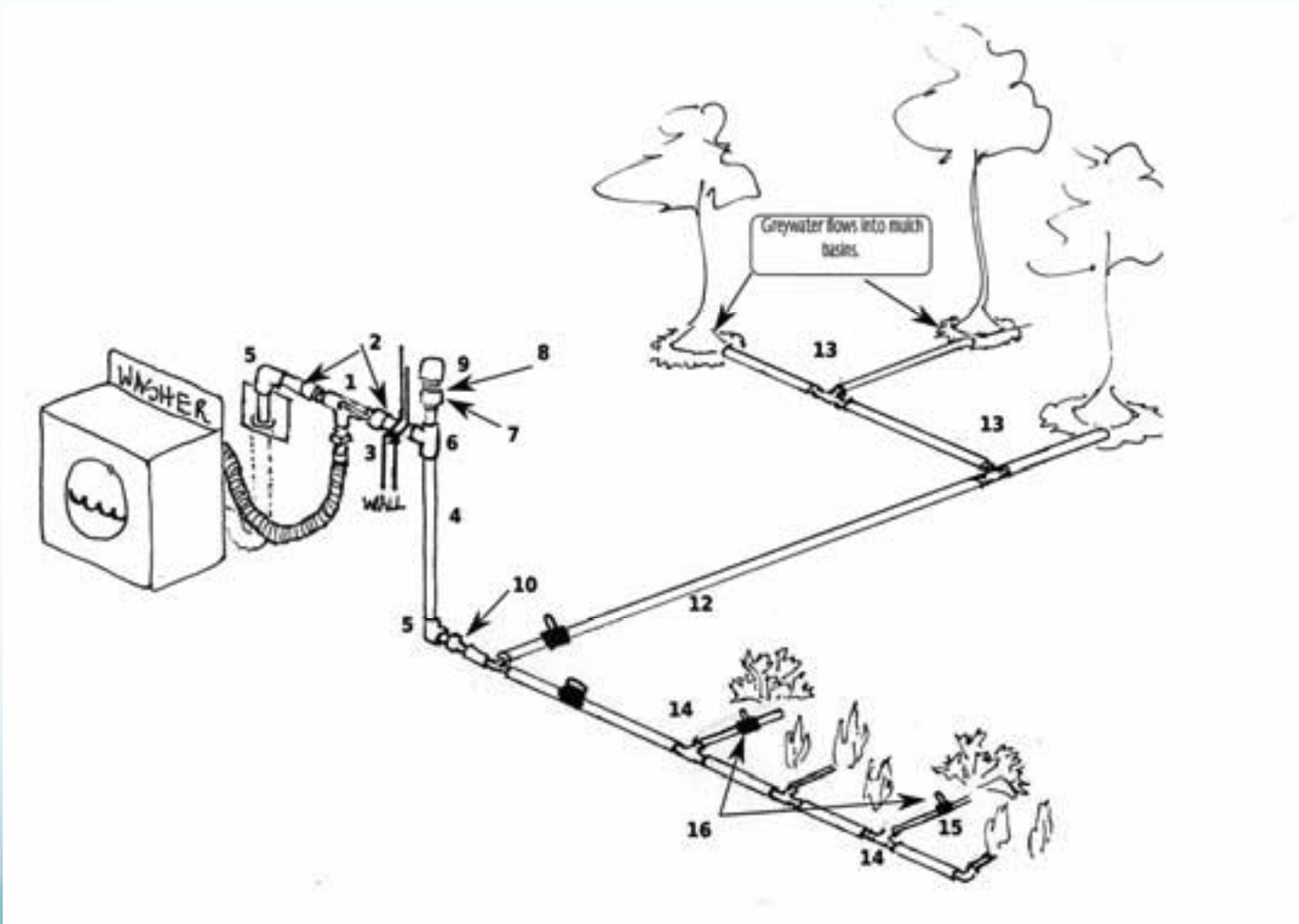
# Using Graywater

- San Diego Information Bulletin 208
  - No permit required for clothes washer system which follows simple guidelines
  - Permit required for simple system including showers/baths/sinks outputting less than 250 gallons/week
    - Approx. \$550
    - San Diego Development Services Department
    - Plot Plan and Greywater System Plan
  - Complex systems require more permitting procedures.
- Arizona Greywater Guidelines

# A simple system with a surge tank

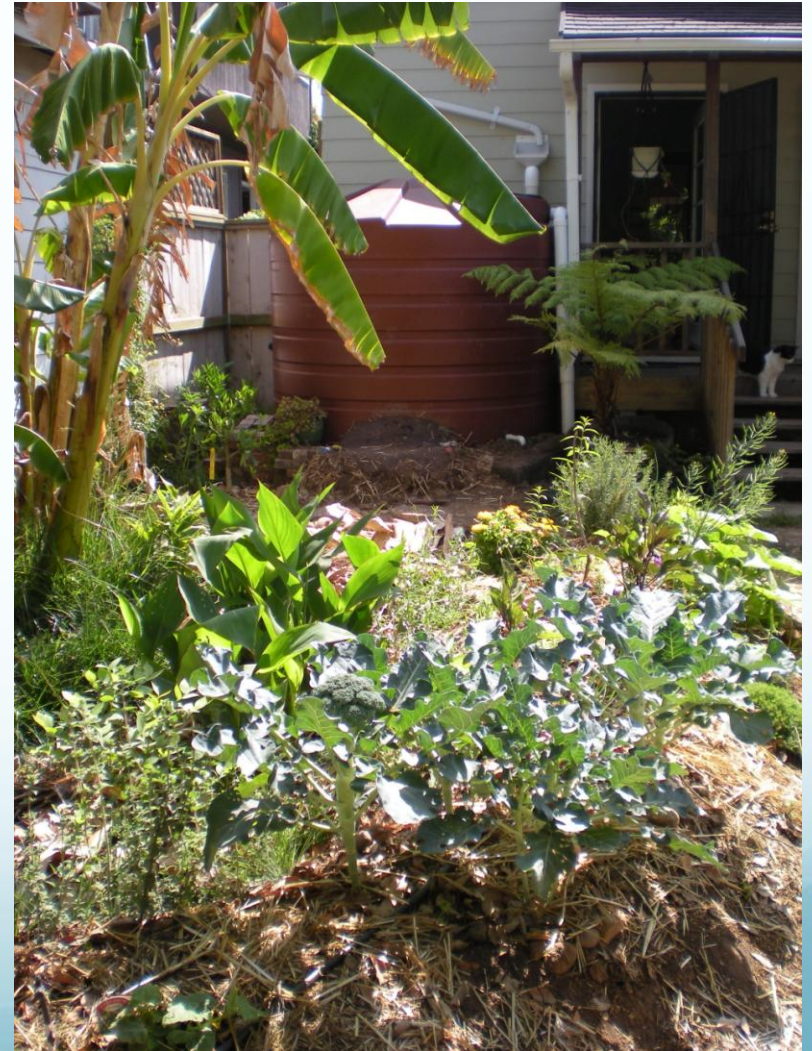


# Start Simple: Clothes Washer





# A simple low-maintenance, low cost laundry greywater system



# Where to use Graywater

- Gray water should not be used on:
  - root vegetables or leafy green vegetables
  - sprayed directly on to any edible part of a plant
  - Watering lawns
- Ideal uses for graywater include fruit trees, ornamentals, berry/bean/tomato vines, roses
- Some natives including field sedge, canyon price giant rye, salvias, California fuchias, manzanita, toyon, blue elderberry, ironwood, torrey pine, monterey cypress, coyote brush, quail bush, coffeeberry
- Use salt free soaps