

Thoughts on Urban Water Conservation

In life there are two vital liquids:
water and money.
You have to use both.

Jacques Cousteau
(1910-1997)

Concepts to Consider

- Water is for beneficial use... so
- Use only what you need, so you save water for other uses. No waste.
- Costs are ultimately paid by the customer.

Definition of Conservation

- Permanent reduction in per capita water usage resulting from long-term implementation of water saving practices and technologies.

“Filling the Gap” Western Resource Advocates

Water savings could mean doing the same thing with less water

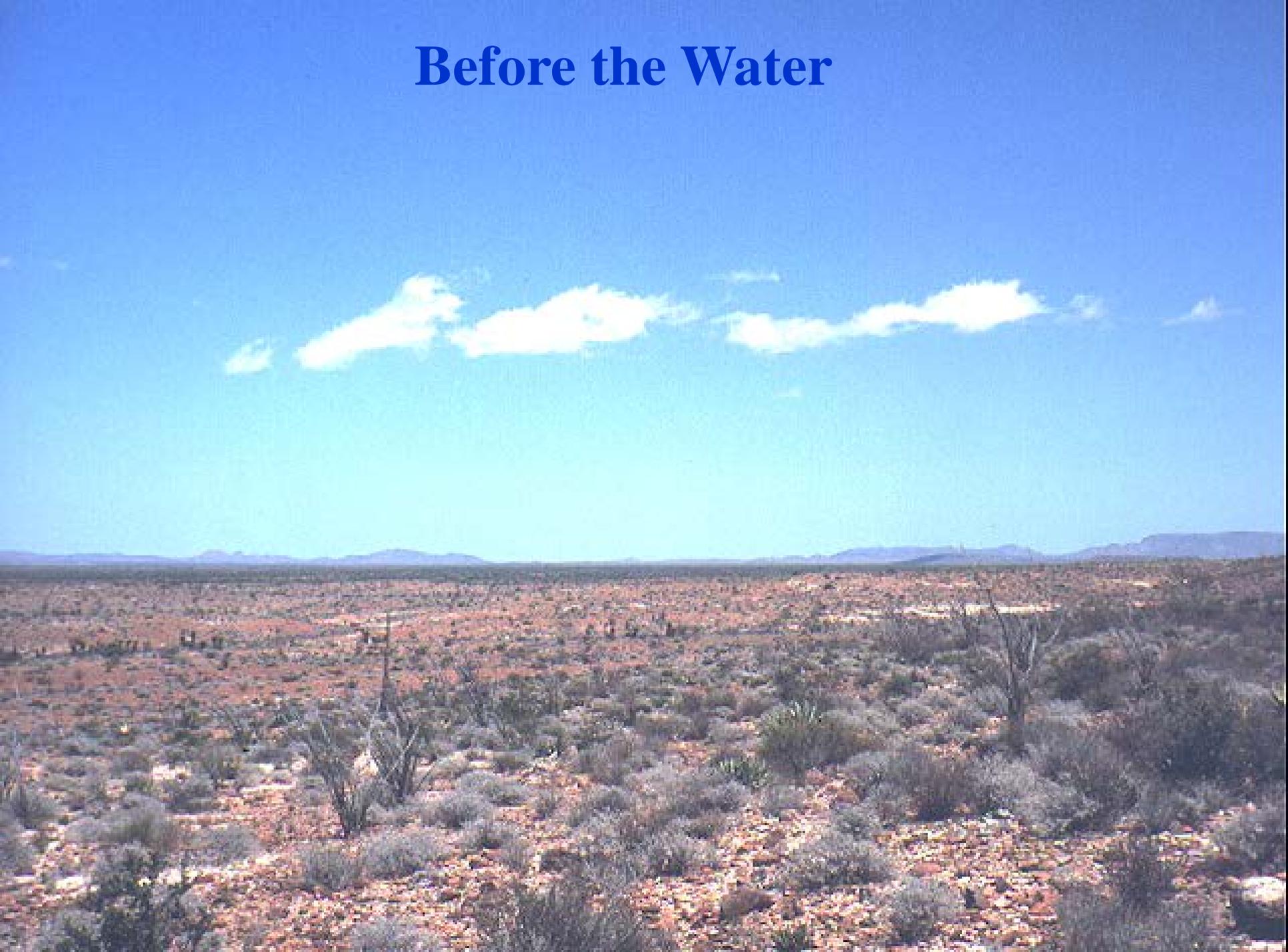
Range of Water Use: The Shower

- Hollywood shower (lavish)
 - Efficient shower (with flow restrictor)
 - Military shower (wet-down soap-up rinse)
 - No shower (pew!)
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- We all agree that no shower saves the most water.
 - But it does not accomplish the beneficial use



Natural Environment

Before the Water





Desired Environment
A question of values

Beneficial Use vs. Minimal Use

- People only have so much money and time.
- If we in this country spend 7% of our income on food instead of 20% as in Italy, we have that difference of 13% to spend on other things.
- Saving 30% of our water, for instance, gives us extra water to do other things.
- How much are you willing to spend to save water for other purposes?

Money all comes from the same pocket.

- Costs are paid by the customers
- During a boil water order, a customer asked me to buy their bottled water.
- OK, we are a public utility whose shareholders are the citizens.
- So I said, “Give me the money and I will buy the bottled water for you.”
- Money for conservation comes from the customer.

Why do we conserve water?

- It is the right thing to do in semi-arid land.
 - Colorado is closer to the Sahara Desert than to Atlanta GA in terms of rainfall.
 - Beneficial use is ok but no waste, right?
- Stretch our supply
- Stretch our infrastructure

Difficulties:

We use money to allocate resource.

- Use only what you need, leave water for other uses: what uses?
- To determine beneficial use, we use money, the willingness to pay, to allocate scarce resource among users.
 - What is the value of those other uses compared to your use?
 - How do we monetize common uses?
Recreation? Environmental? Quality of life?

“Externality”

- Those who pay may not be those who benefit.
- An externality is a cost or benefit, not transmitted through prices, incurred by a party who did not agree to the action causing the cost or benefit.
- Keep this in mind.

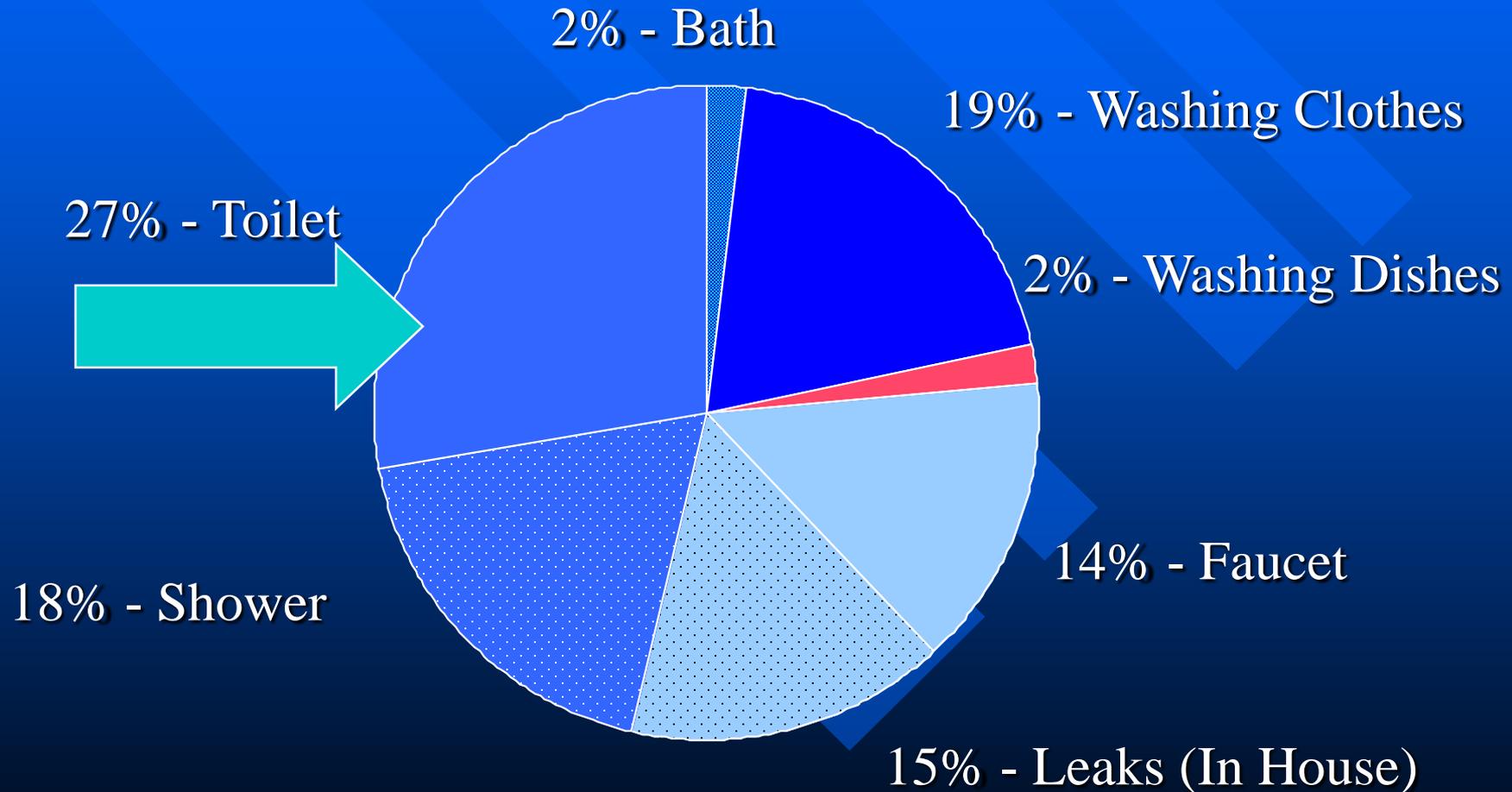
Gallons per Capita per Day

- WRA says GPCD is not a good comparison among different cities.
 - It is good to keep track internally of changes
 - E.g. Greeley GPCD has dropped 20% since the drought of 2002.
- Differences in GPCD can come from
 - Different micro-climates (10 GPCD in NoCo.)
 - Lot size
 - Landscape preferences (CoSprings foothills)
- Include universities? Industry? Non-potable?

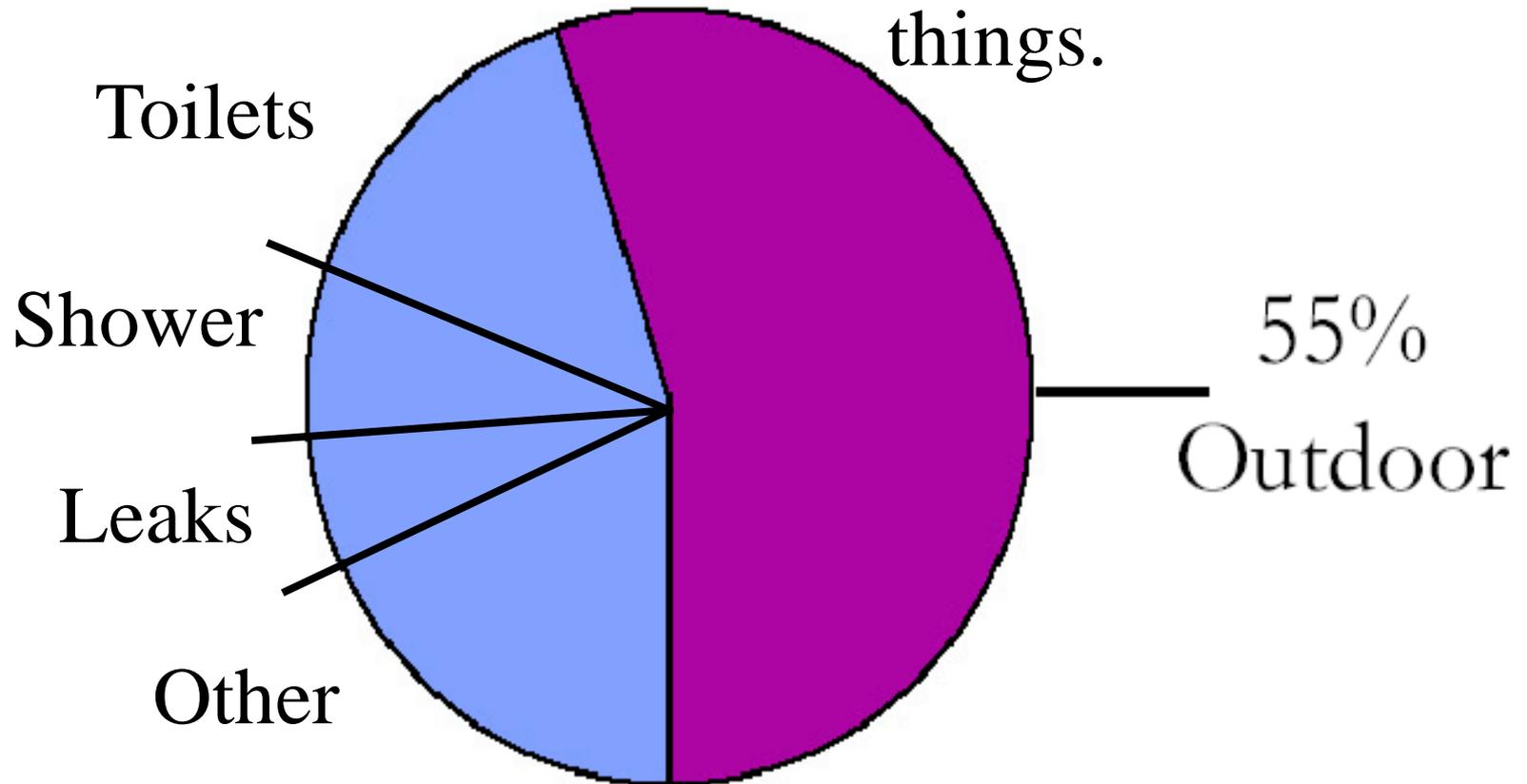
Where is water used?

Where can we save?

- Indoor: 45 to 60 gallons per person per day



Need 24-inches of added water to grow things.



Source: Greeley Water Consumption Data

**Water demand triples in the summer,
requiring pipes and plants to be three times as big.**

Urban Water Conservation

- Necessary
- Some of the cheapest water available
- Some of the most expensive??
- We need a lot of options
 - Identified Projects and Processes
 - Agricultural conversions
 - Water Conservation
 - New projects (trans-basin diversions)
- Jon Monson
 - Water and Sewer Director for Greeley Colorado