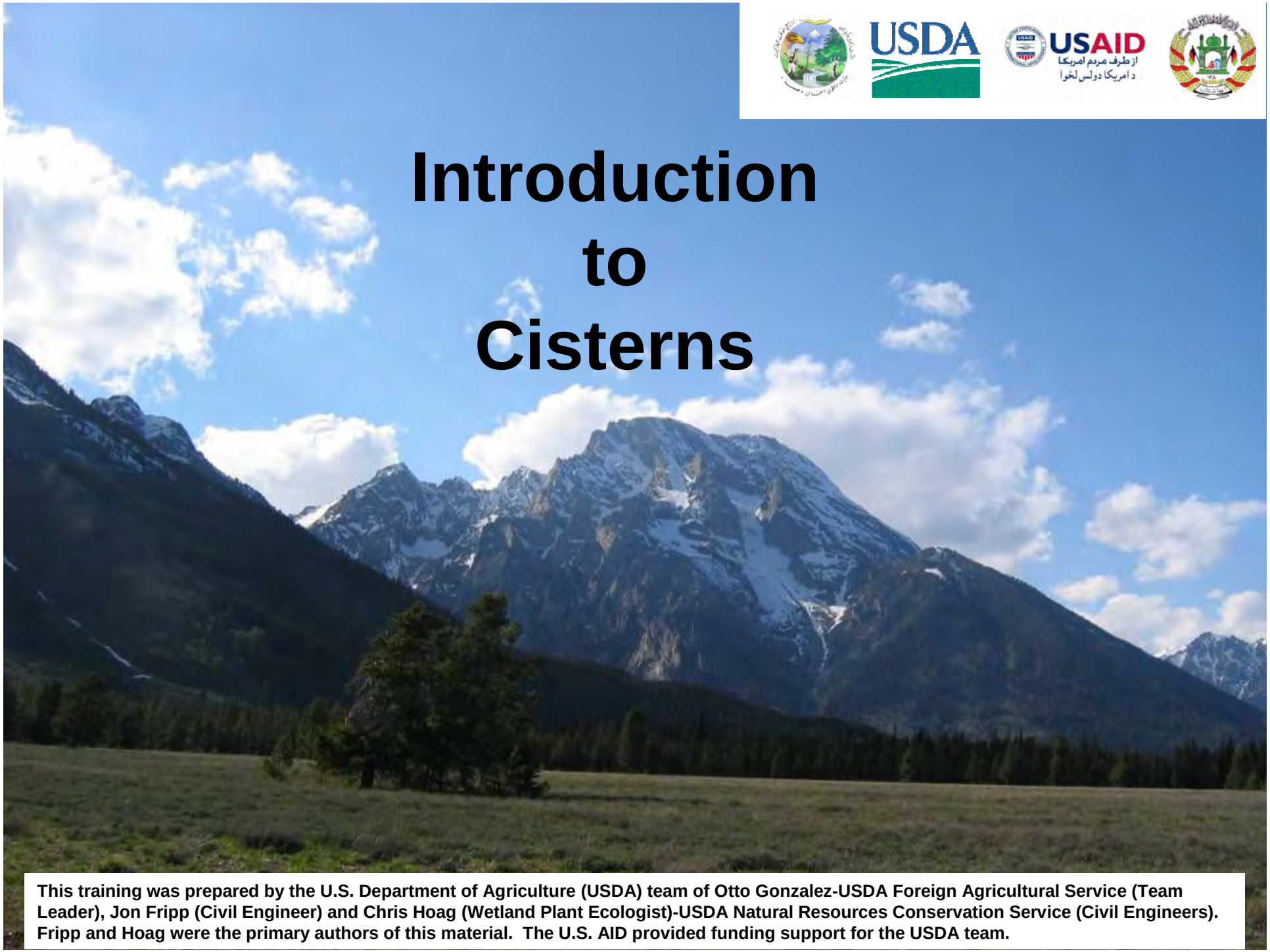
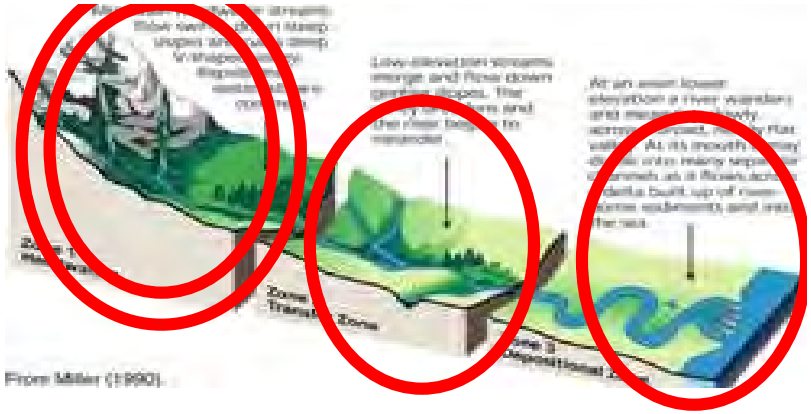


Introduction to Cisterns

This training was prepared by the U.S. Department of Agriculture (USDA) team of Otto Gonzalez-USDA Foreign Agricultural Service (Team Leader), Jon Fripp (Civil Engineer) and Chris Hoag (Wetland Plant Ecologist)-USDA Natural Resources Conservation Service (Civil Engineers). Fripp and Hoag were the primary authors of this material. The U.S. AID provided funding support for the USDA team.

Cisterns



- They are man made collection zones for water.
- Also called Rain Harvesters.
- They collect the rain for later use.
- Used mainly for human needs but can also be used for animals.
- Can be used in any zone.

Cisterns and Rain Harvesters

Photo from Texas Water Development Board

Many different types have been in use for a long time

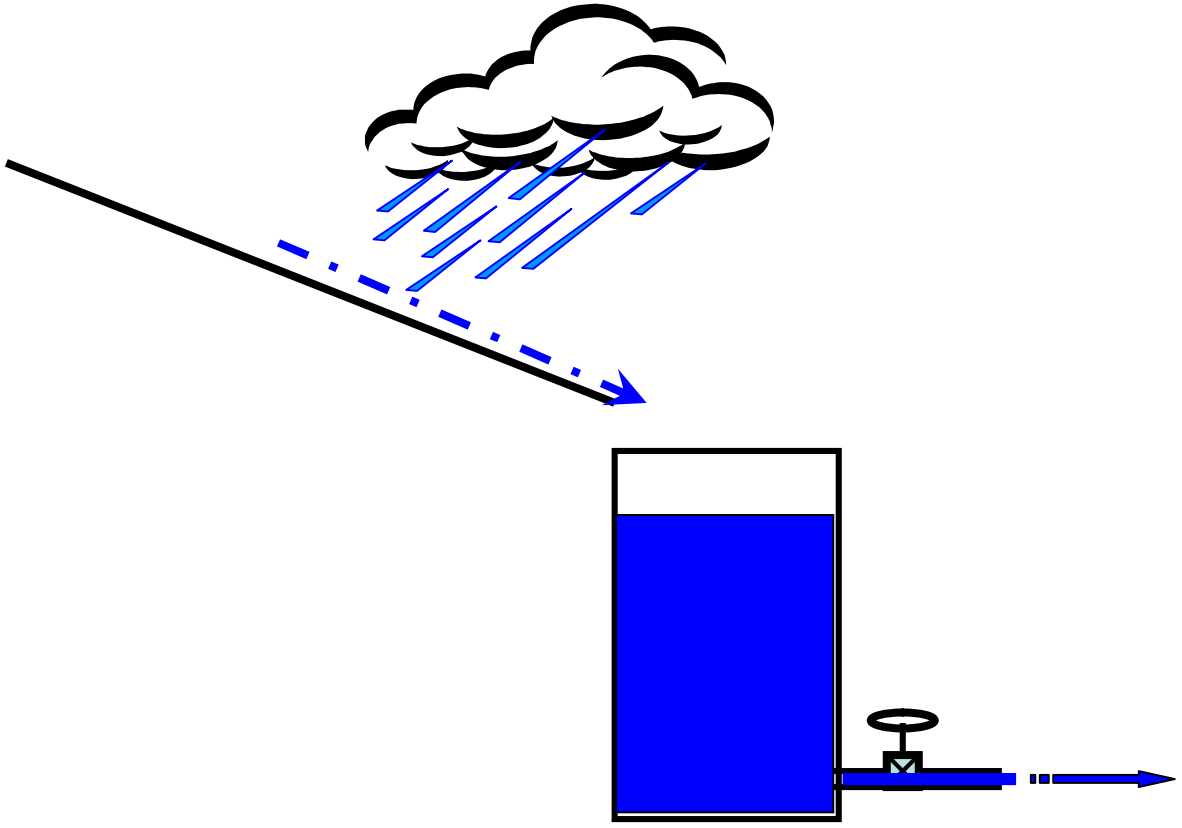
Cisterns and Rain Harvesters

All need:

1. Something to catch the rain

2. Something to store the water

3. Something to let the water out when needed



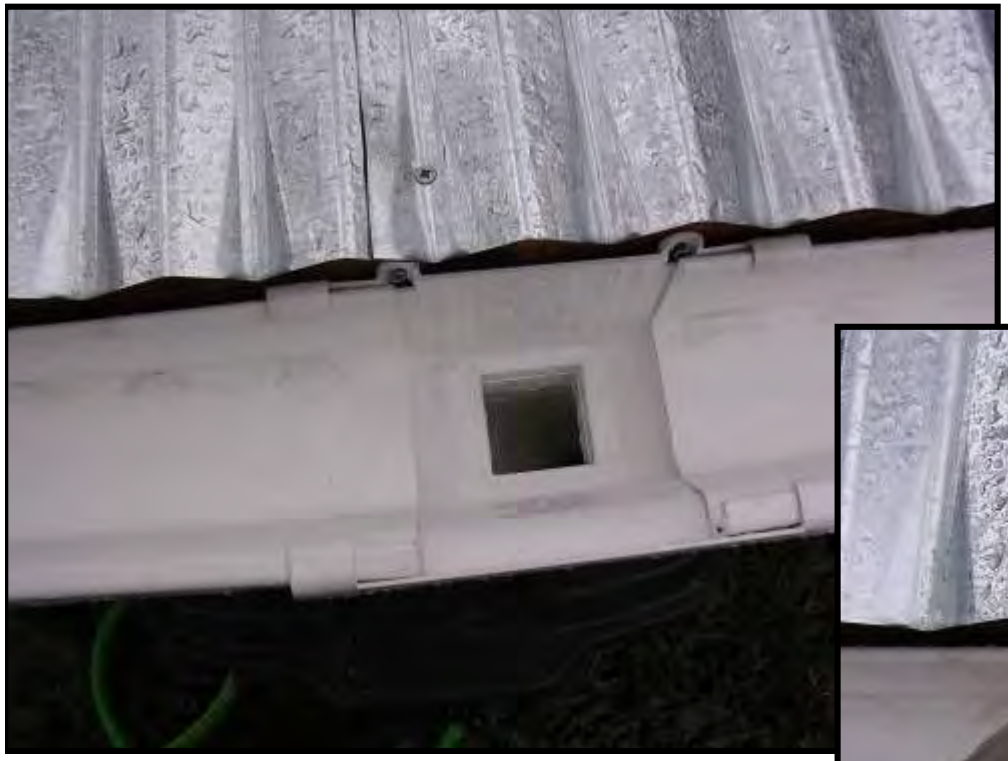
1. Something to catch the rain

- Can be a roof or roof type structure
- Can be a paved area
- Can be hard ground

1. Something to catch the rain

Need to catch the water as it flows off of the roof and pipe it to storage

1. Something to catch the rain

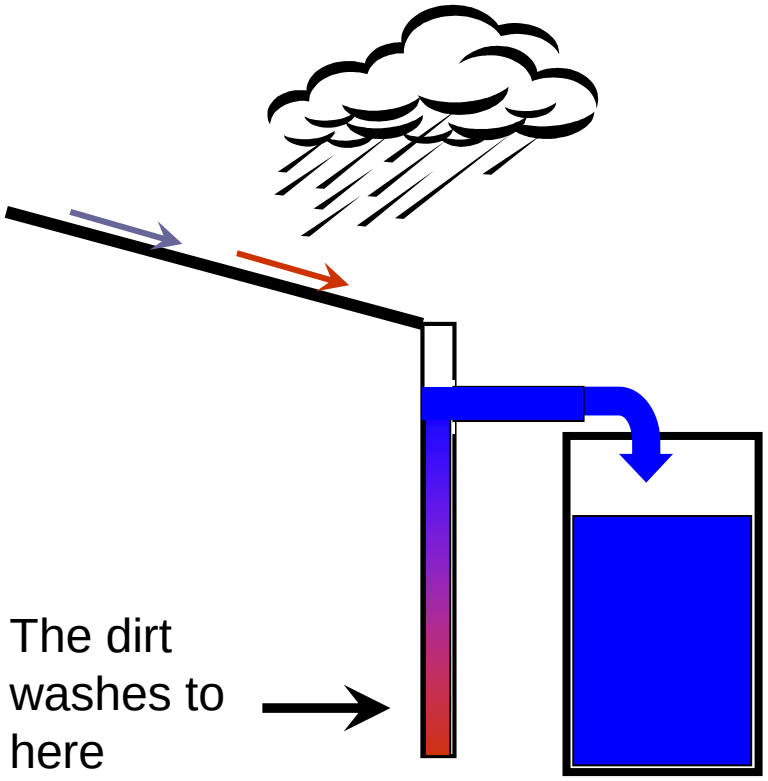


- Rain the flows off of a roof may carry dirt
- It is a good idea to use a screen

May also want to use a filter if water is for human use

1. Something to catch the rain

Can also use a first flush diverter to keep the dirt that is washed off the roof from getting into the water storage



2. Something to store the water

Larger storage will hold more water for dry times

2. Something to store the water

They can be made out of many different materials:

- **Plastic**
- **Stone**
- **Wood**
- **Metal**
- **Concrete**

Photo from Texas Water Development Board

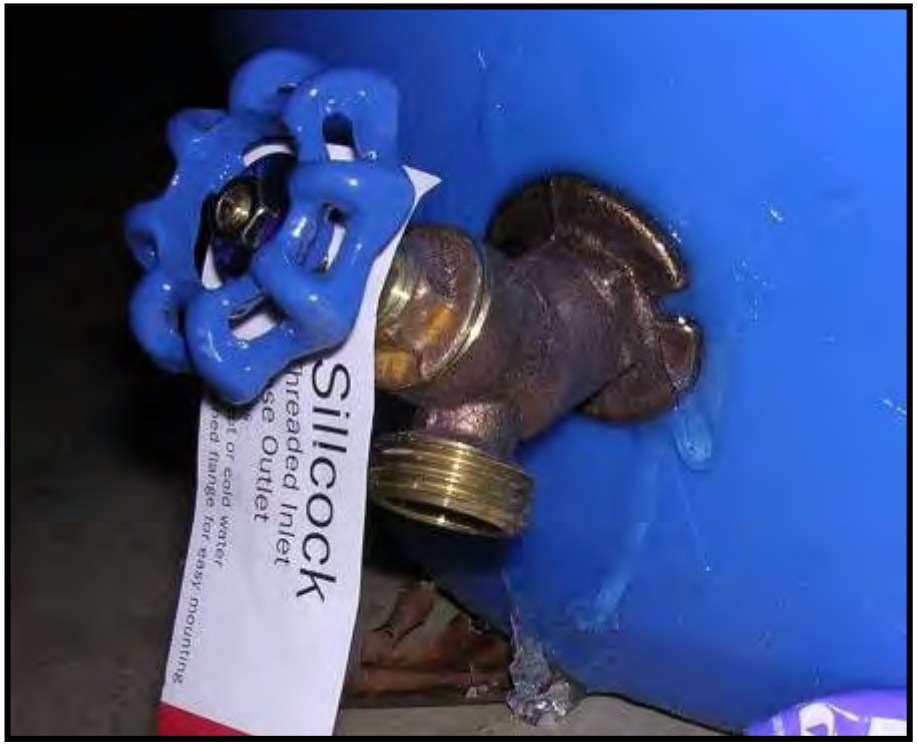
Photo from Texas Water Development Board

Photo from Texas Water Development Board

3. Something to let the water out when needed

A pump can be used

A valve is common



3. Something to let the water out when needed

A float valve works automatically

3. Something to let the water out when needed

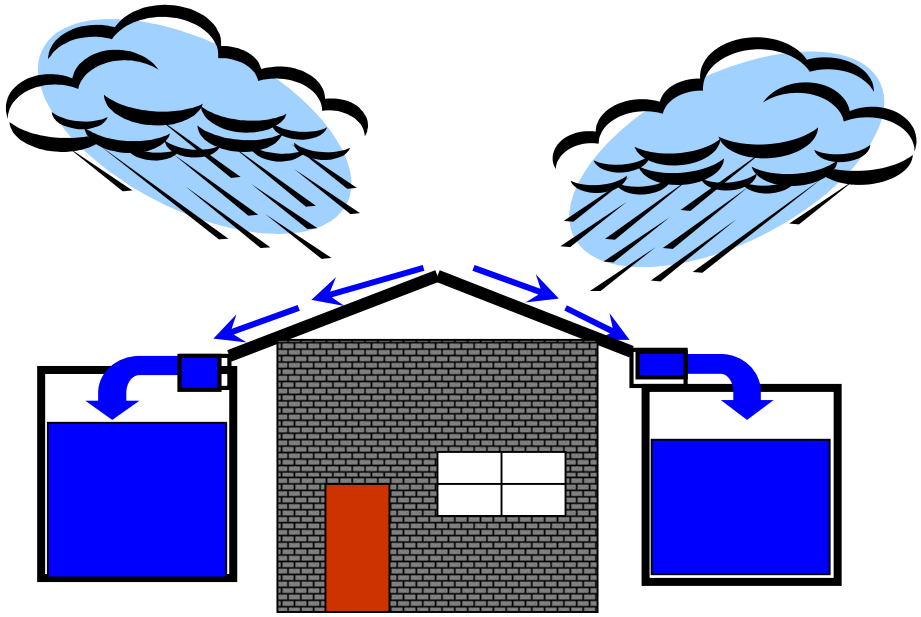
Animals can use the water when needed and it will refill from the water storage

3. Something to let the water out when needed

Float valves can be used on larger structures

How much water can you get?

- When it is hot, one millimeter of rain falling on 1 square meter of roof will result in about 0.8 liters of water.
- When it is cooler, you may get 1 liter for 1 square meter of roof.



In Kabul (335 mm per year), a 5 m by 5 m roof could collect over 7000 liters of water in a year

Test Time

- ***What is wrong in this picture?***

Answer: nothing is there to catch and hold the rainwater

Test Time

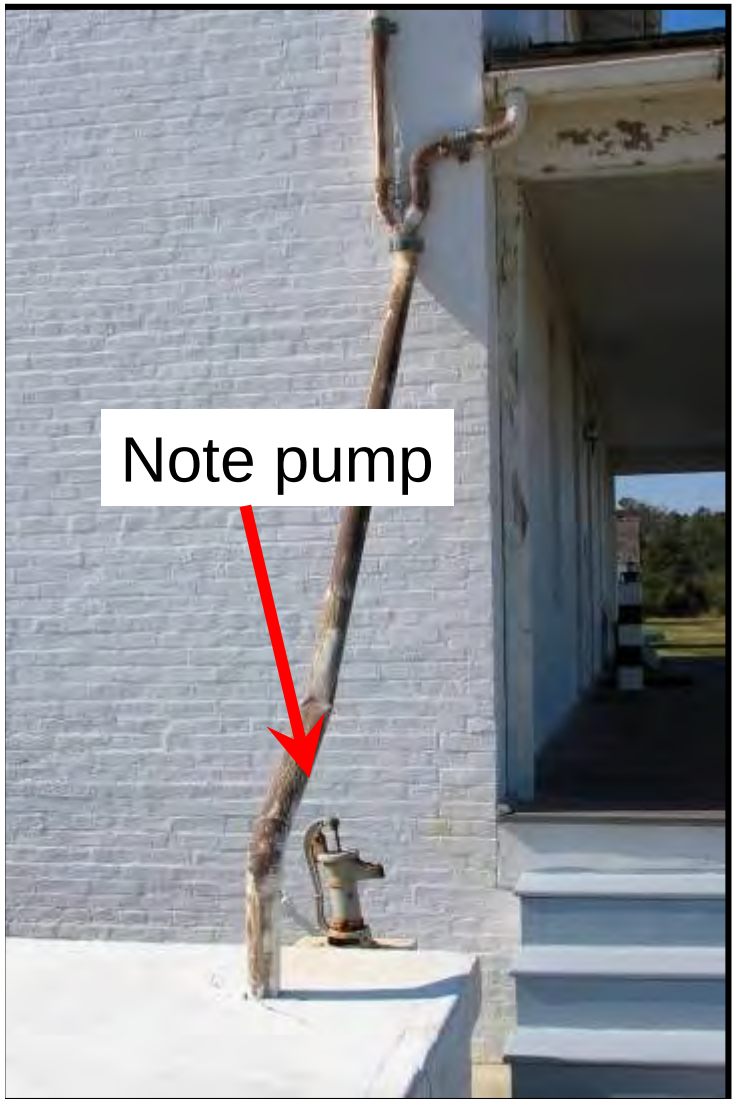
•***What is wrong in this picture?***

Hint: look at this

Answer: nothing is there to hold the rainwater that is captured

Test Time

- ***What is wrong in this picture?***



Answer: This looks like a good cistern.

The End