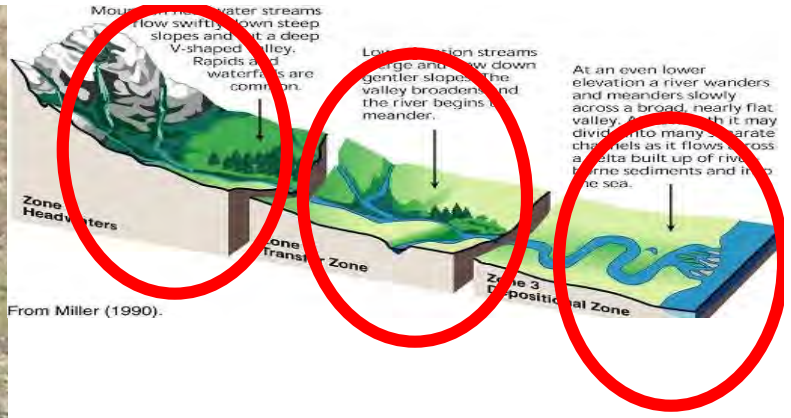
Introduction to Spring Development

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.



Spring Developments Can Provide

- Water for agriculture irrigation
- Water for livestock
- Water for people

Spring Developments can be constructed in any zone

To understand Spring Development, you need to understand soil attributes

- Gravel
- Clay

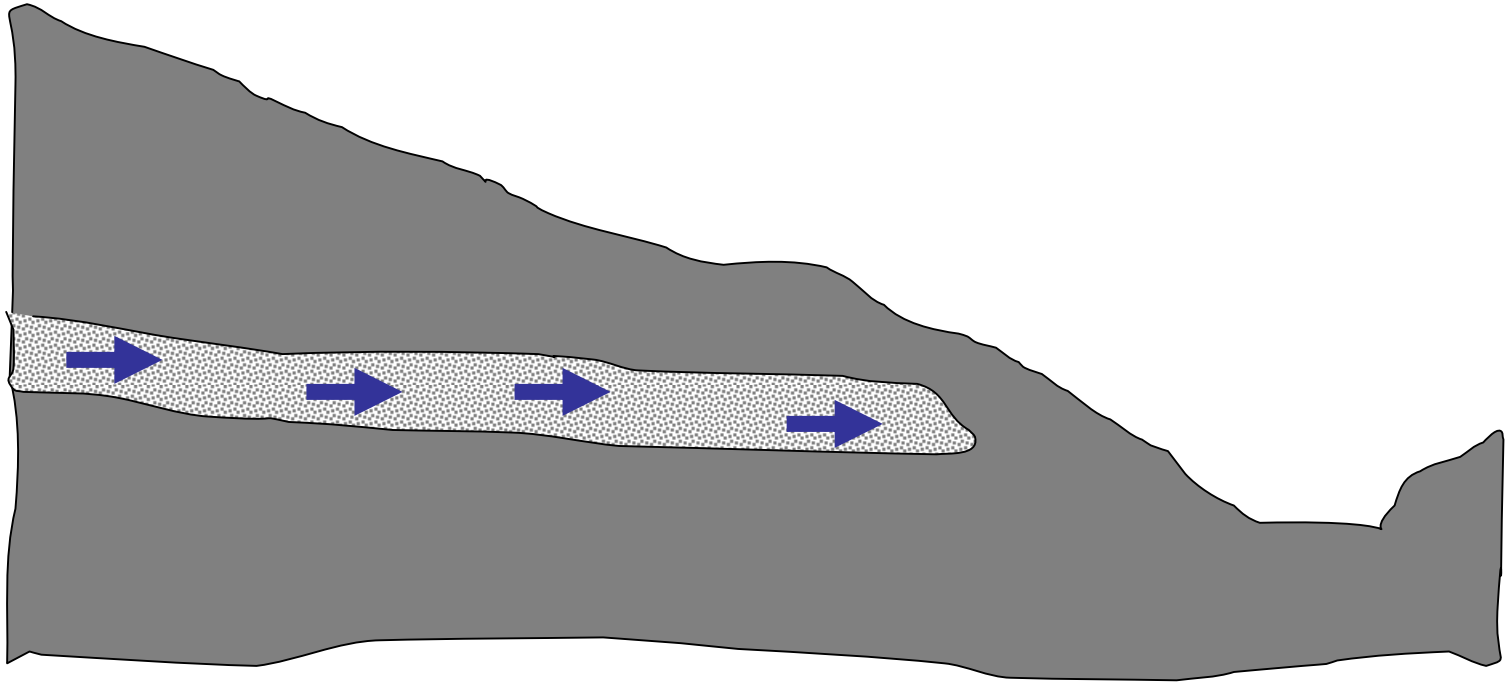
Gravel

Water <u>can</u> easily flow through gravel

Clay

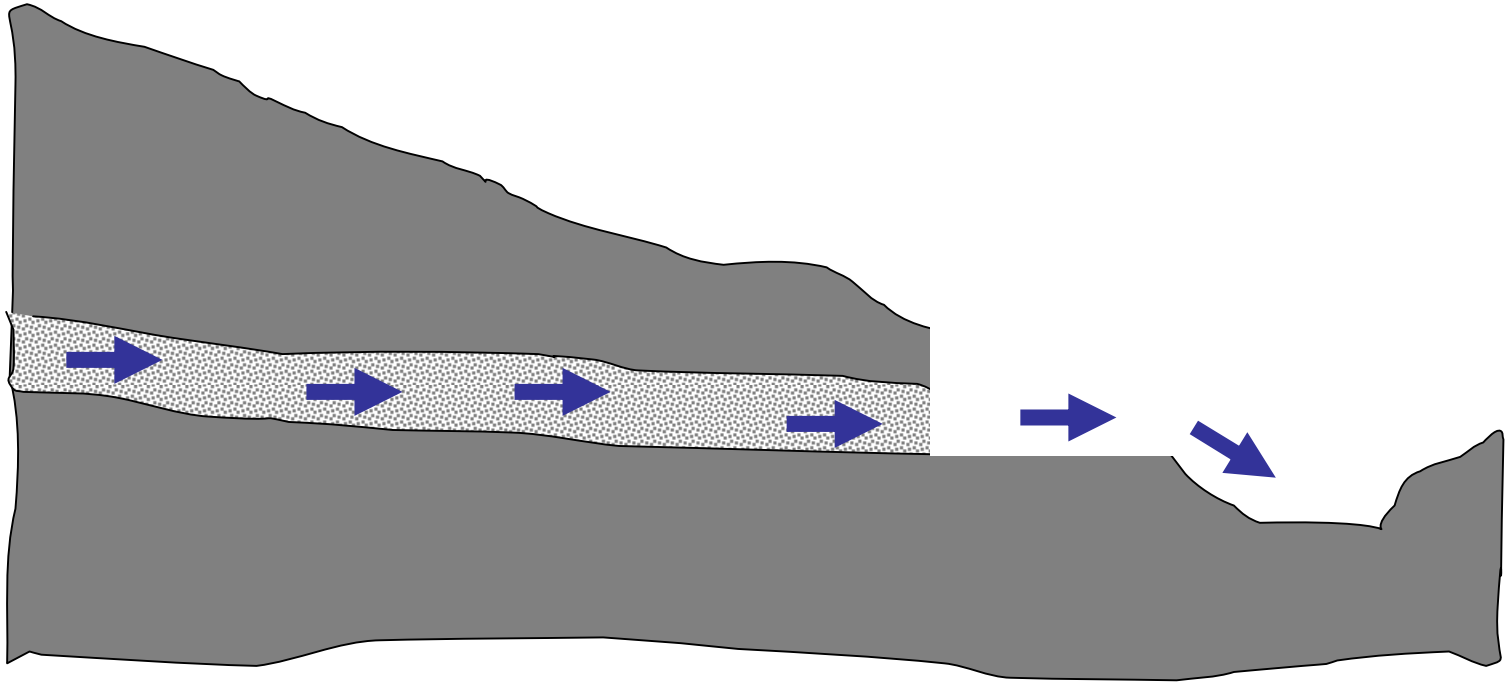
Water <u>can not</u> easily flow through clay

- **Water can be contained in a gravel layer**
- **The clay may keep it from coming out very fast or at all**



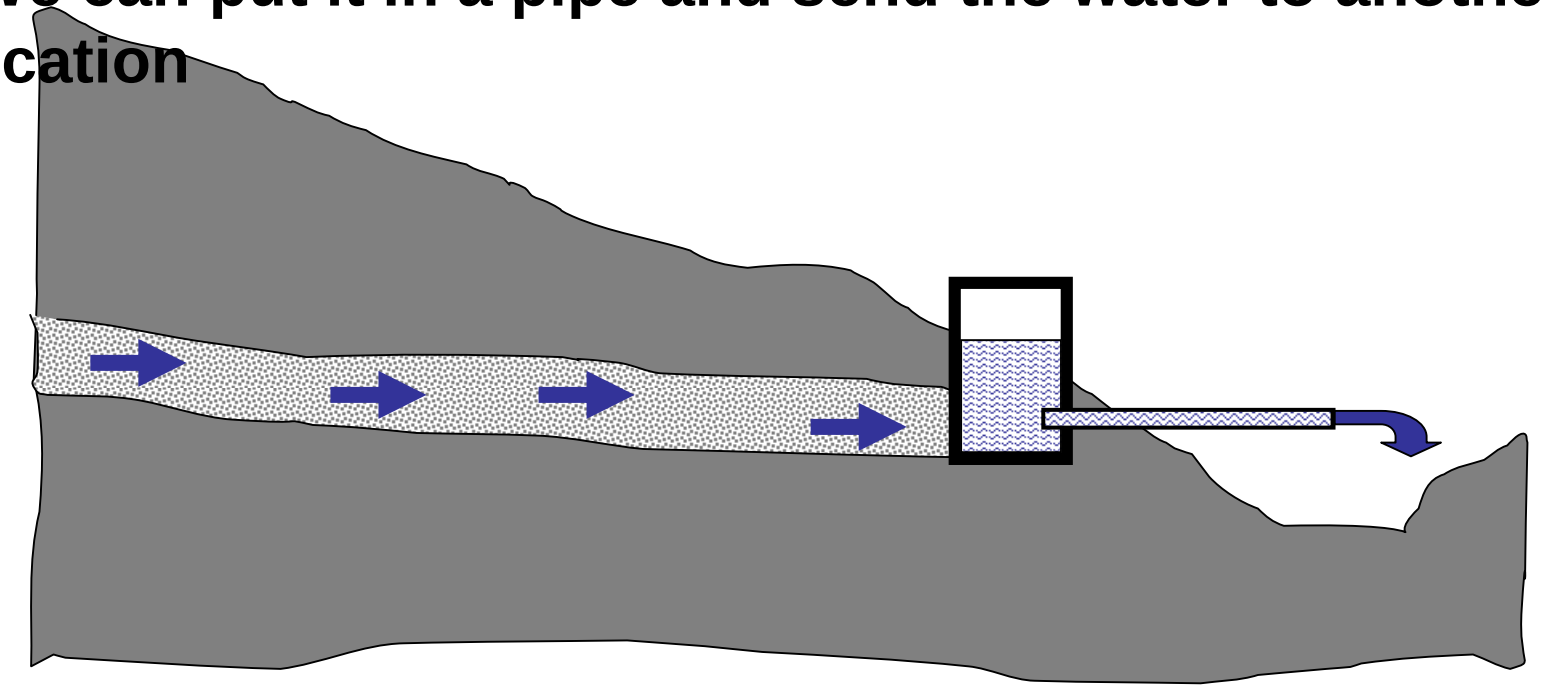
Section

- **If you dig out the clay, the water will not be trapped in the gravel**
- **It will come out**
- **But it will be uncontrolled**



Section

- **If we use a spring box, we can control the water as it comes out of the gravel layer**
- **We can use it as a well**
- **We can put it in a pipe and send the water to another location**



Section

Construct a Spring Box

A spring box is a hollow box or barrel with holes along one side. It can be a:

- Plastic Barrel
- Metal Barrel
- Concrete Pipe
- Plastic Box
- Stone
- etc

- **Install a pipe 15 cm from the bottom of the spring box. Seal around the edge**

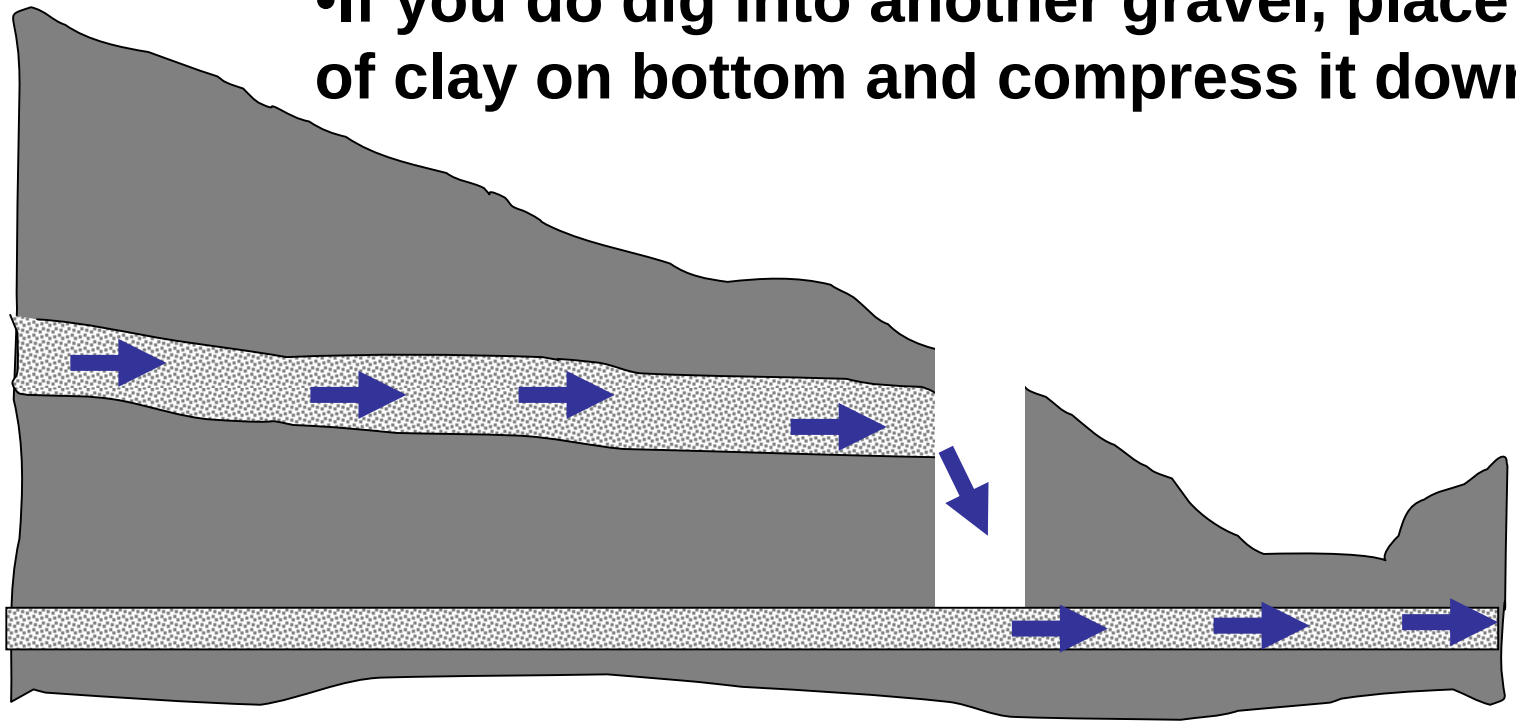
Locate a suitable area

Dig a little to see if it will provide water

If so, excavate a larger hole.

The hole should be larger than the size of the spring box

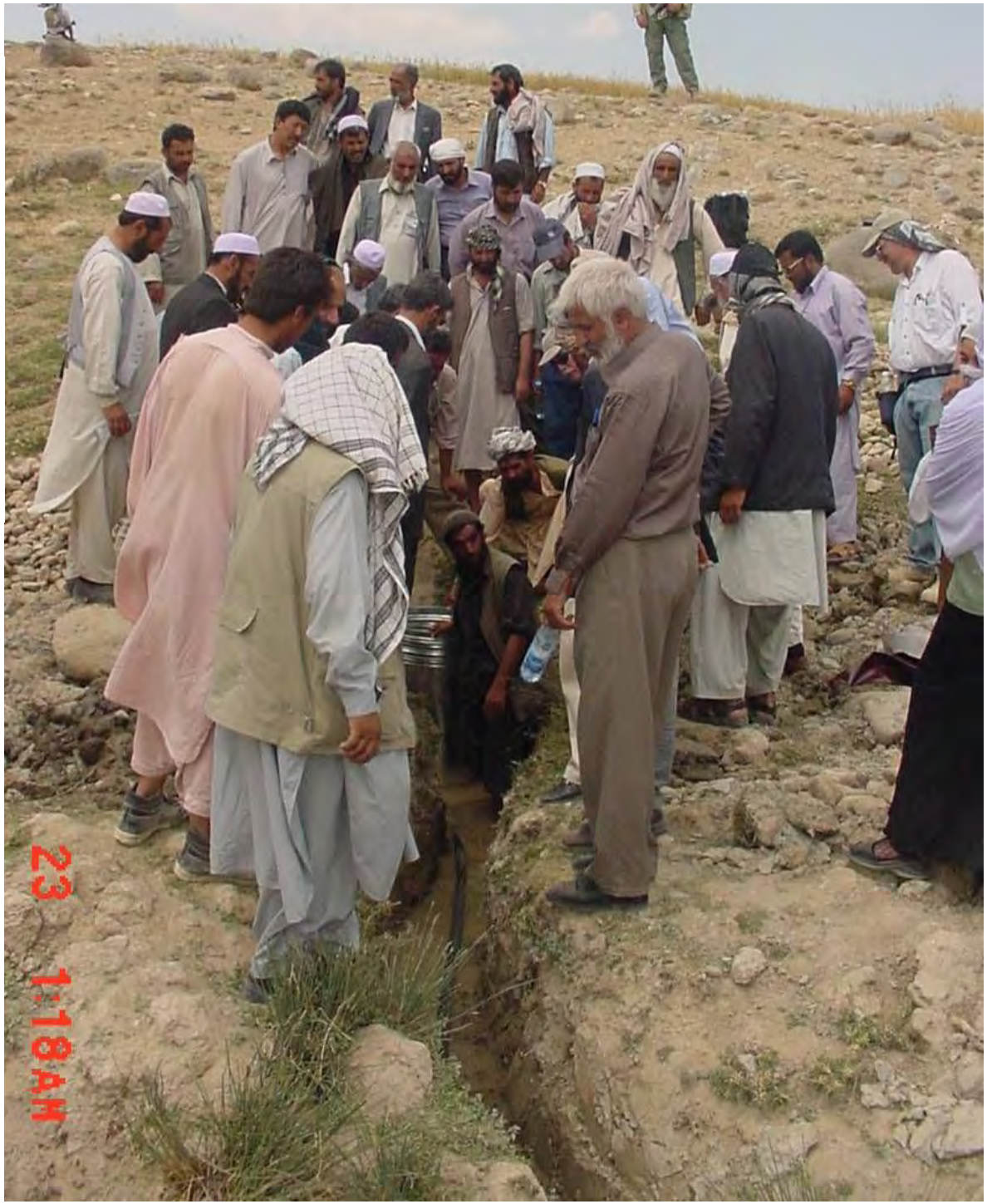
- **Do NOT dig to another gravel layer or you might drain the water away.**
- **Stop digging if you feel gravel**
- **If you do dig into another gravel, place 15 cm of clay on bottom and compress it down**



Section

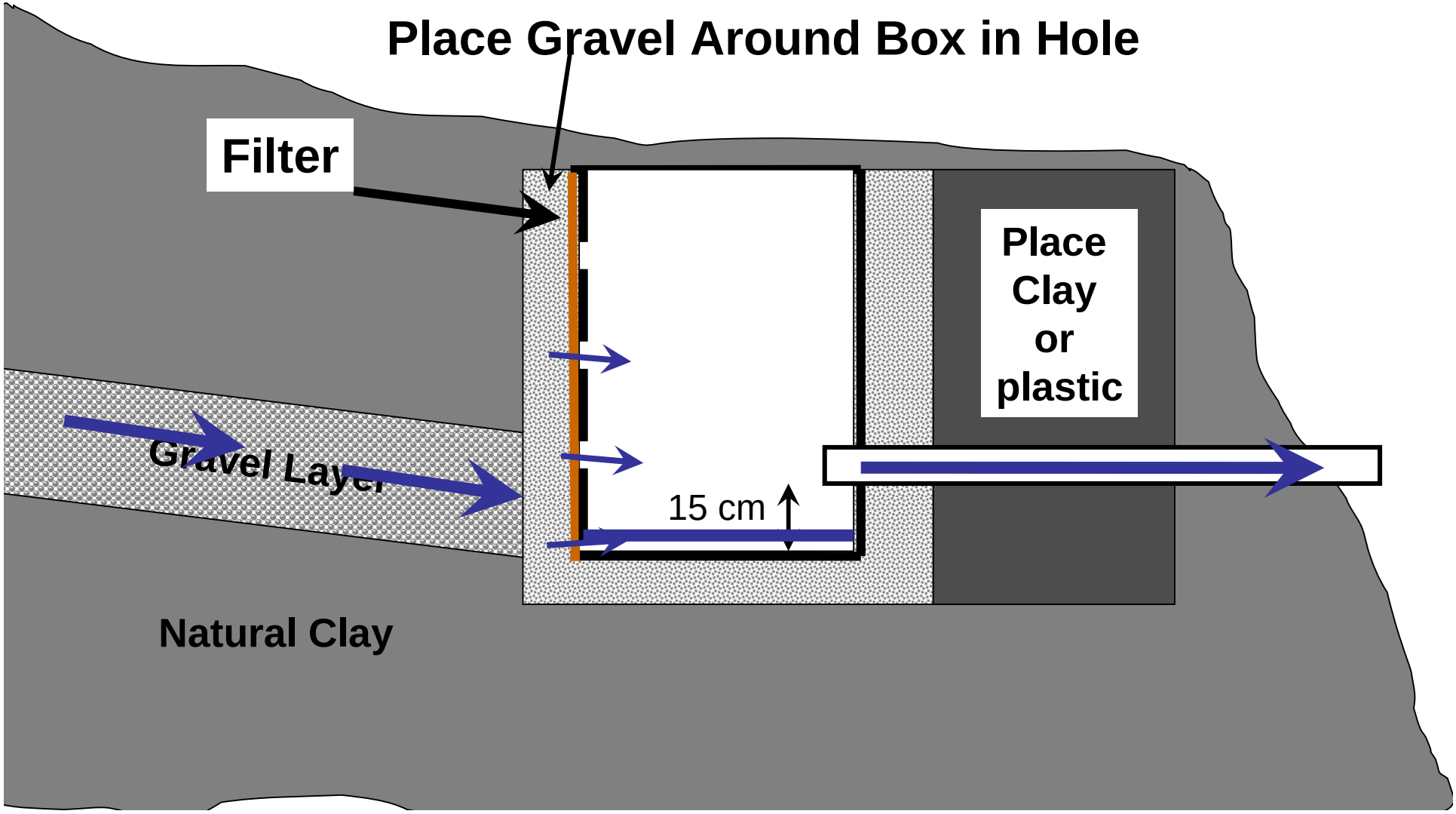
Excavate a trench from the hole to a lower elevation.

Place the spring box in the hole and the pipe in the trench

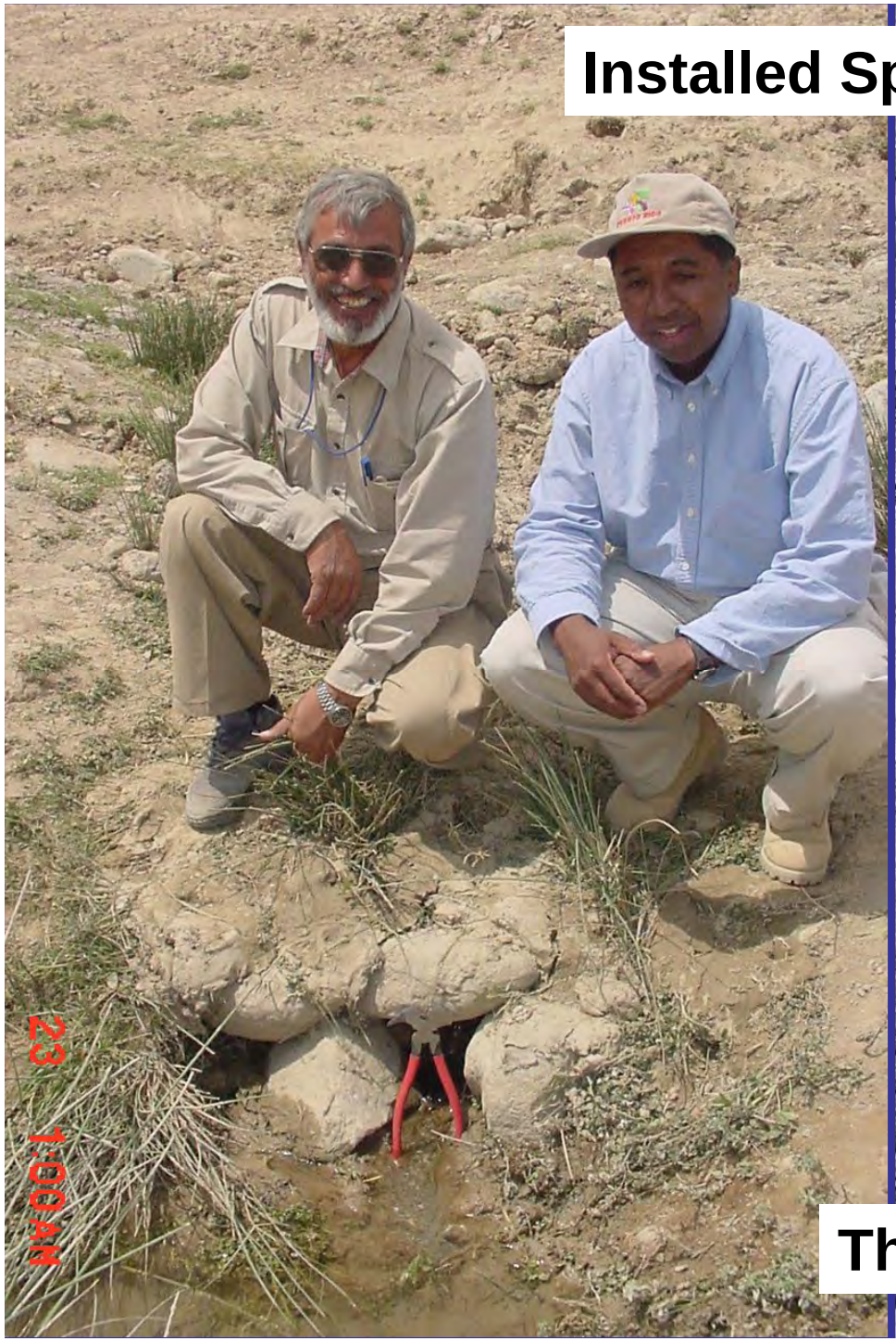


- Place a clay plug or plastic sheet in the trench below the spring box
- Place a filter fabric around the spring box that covers the holes but still lets the water through
- Fill the hole around the spring box with gravel
- Place a lid on the spring box to keep dirty water and animals out

This is a cross section of an installed spring box



Installed Spring Boxes



The End