



Introduction to Watershed Assessment

Then
Management and Rehabilitation
Kabul, 2006

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Watershed Overview

Water and Soil – *It is important!*

What happens in our watershed affects our water and affects our soil.



Water

It is very important to our lives

Sometimes we do not have enough

Sometimes we have too much

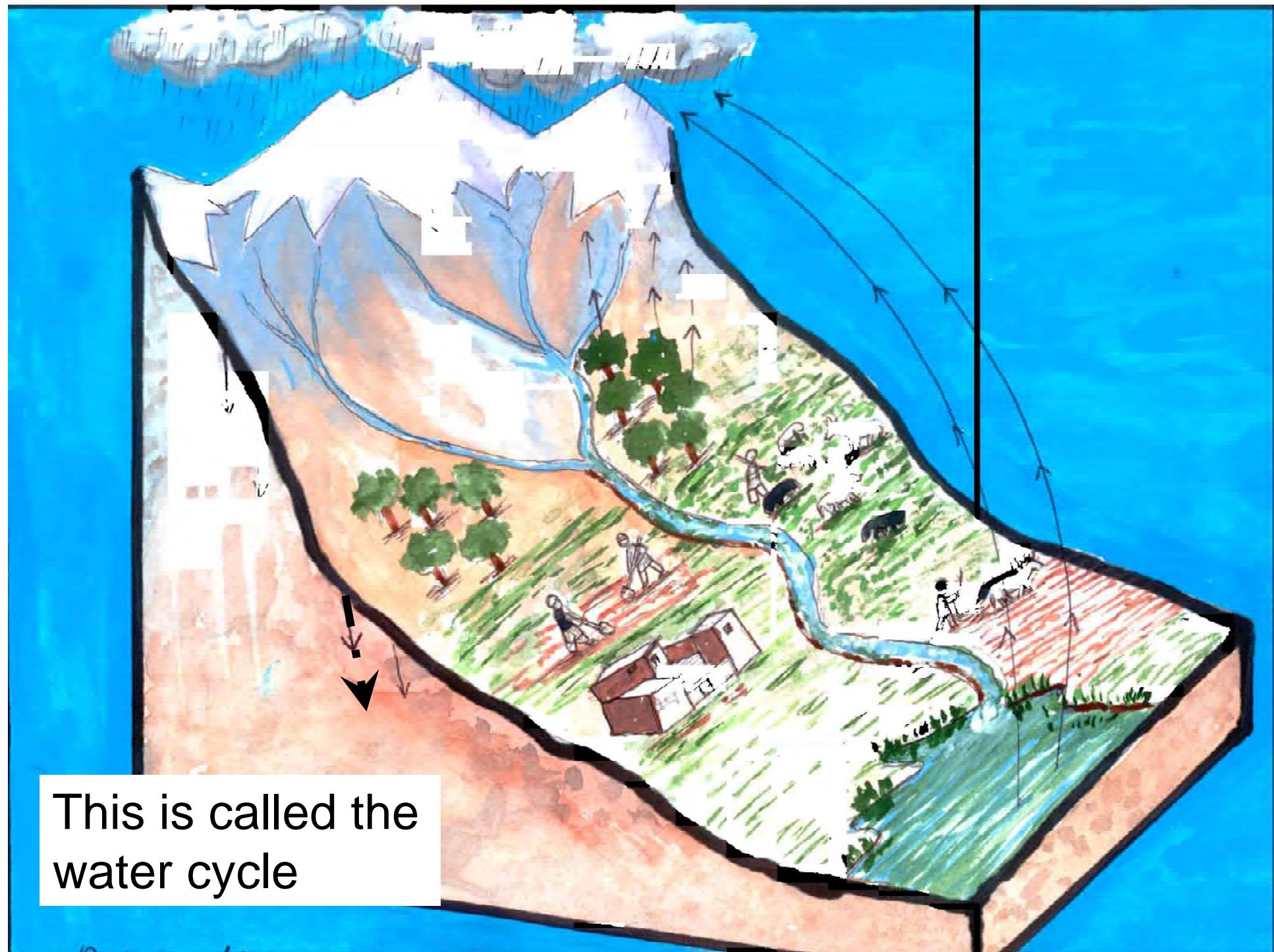


As snow melts at the tops of the mountains or rain falls on the land, the water both soaks into the ground as well as flows over the ground and then down into the rivers and streams.



- The water is used by plants, by livestock, and by people.
- Eventually it finds its way to a lake, a wetland or the ocean.
- Water is returned to the clouds from plants, and from lakes and wetlands.

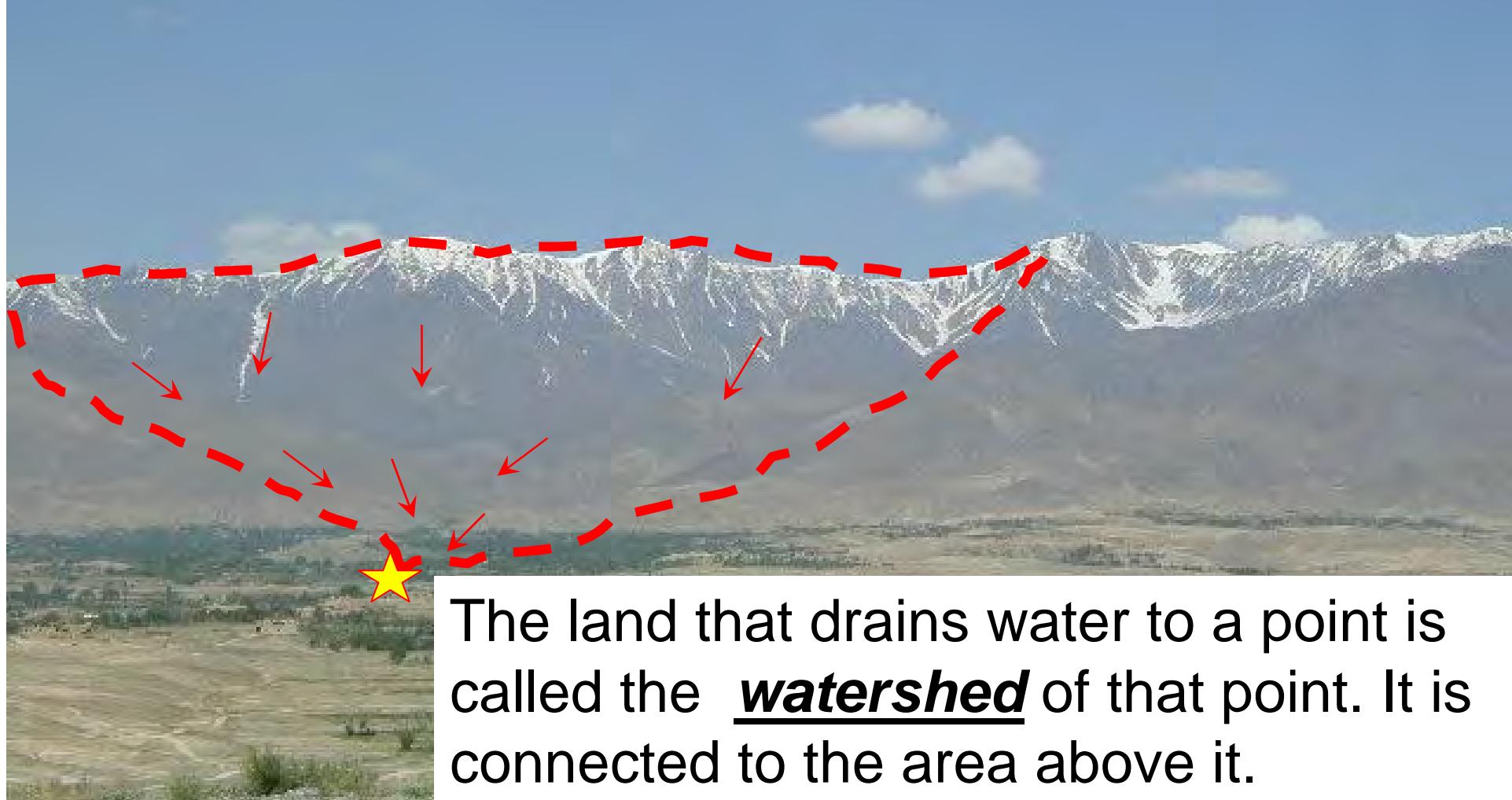




This is called the
water cycle

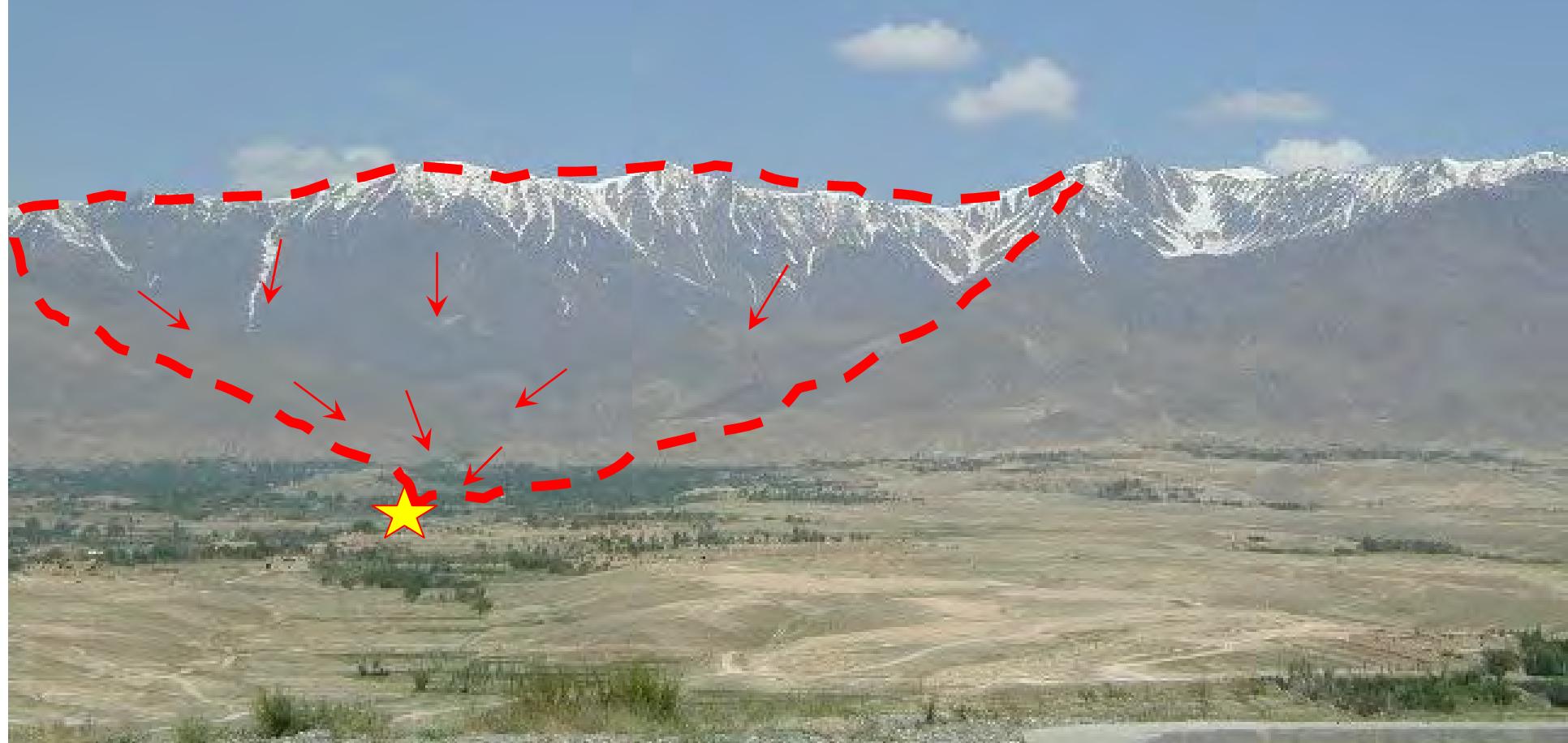
Let us look at how we can look at how it is connected

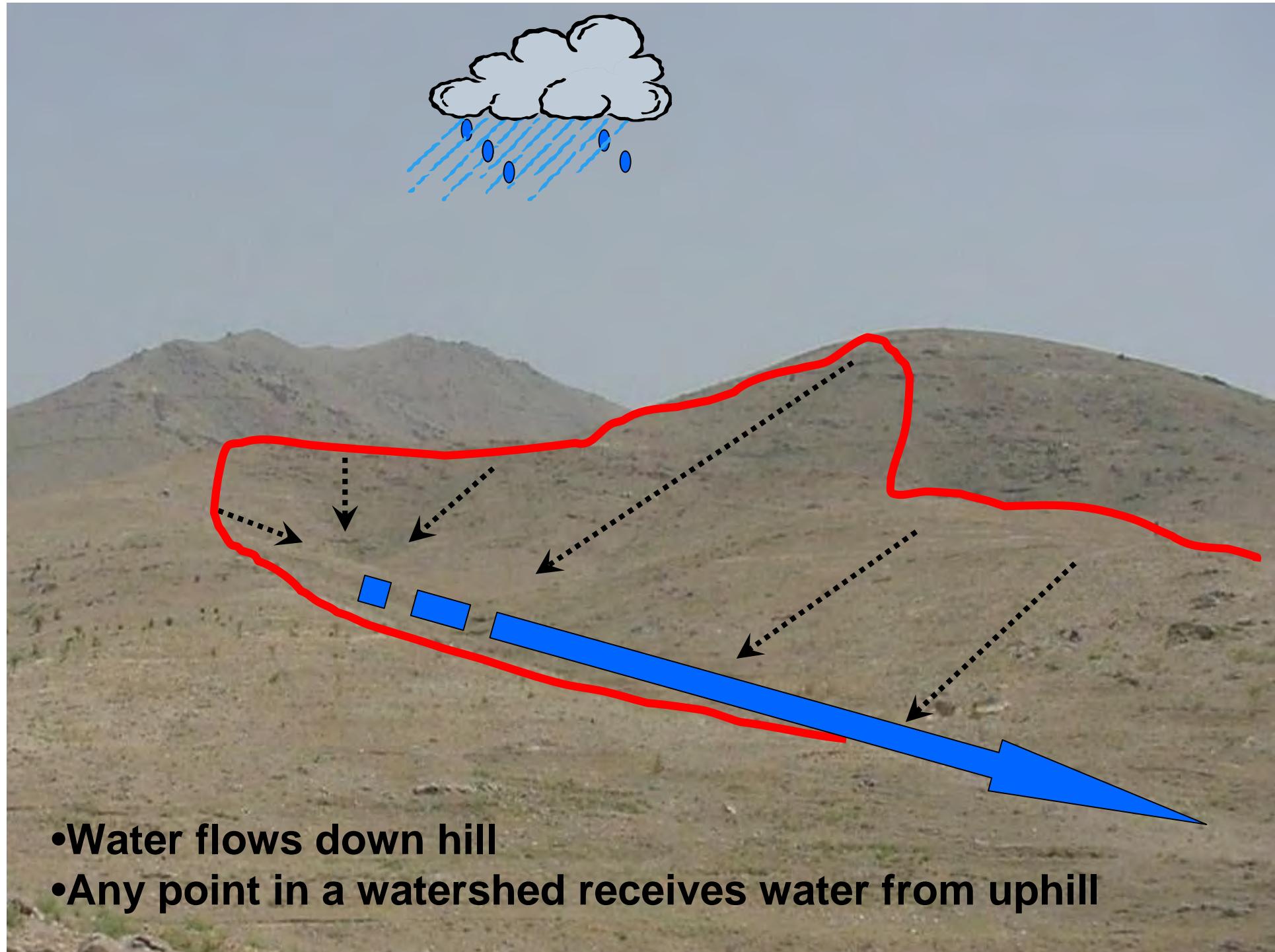
- We know water flows down hill.
- So every point in the land receives water from some area above it.



The land that drains water to a point is called the **watershed** of that point. It is connected to the area above it.

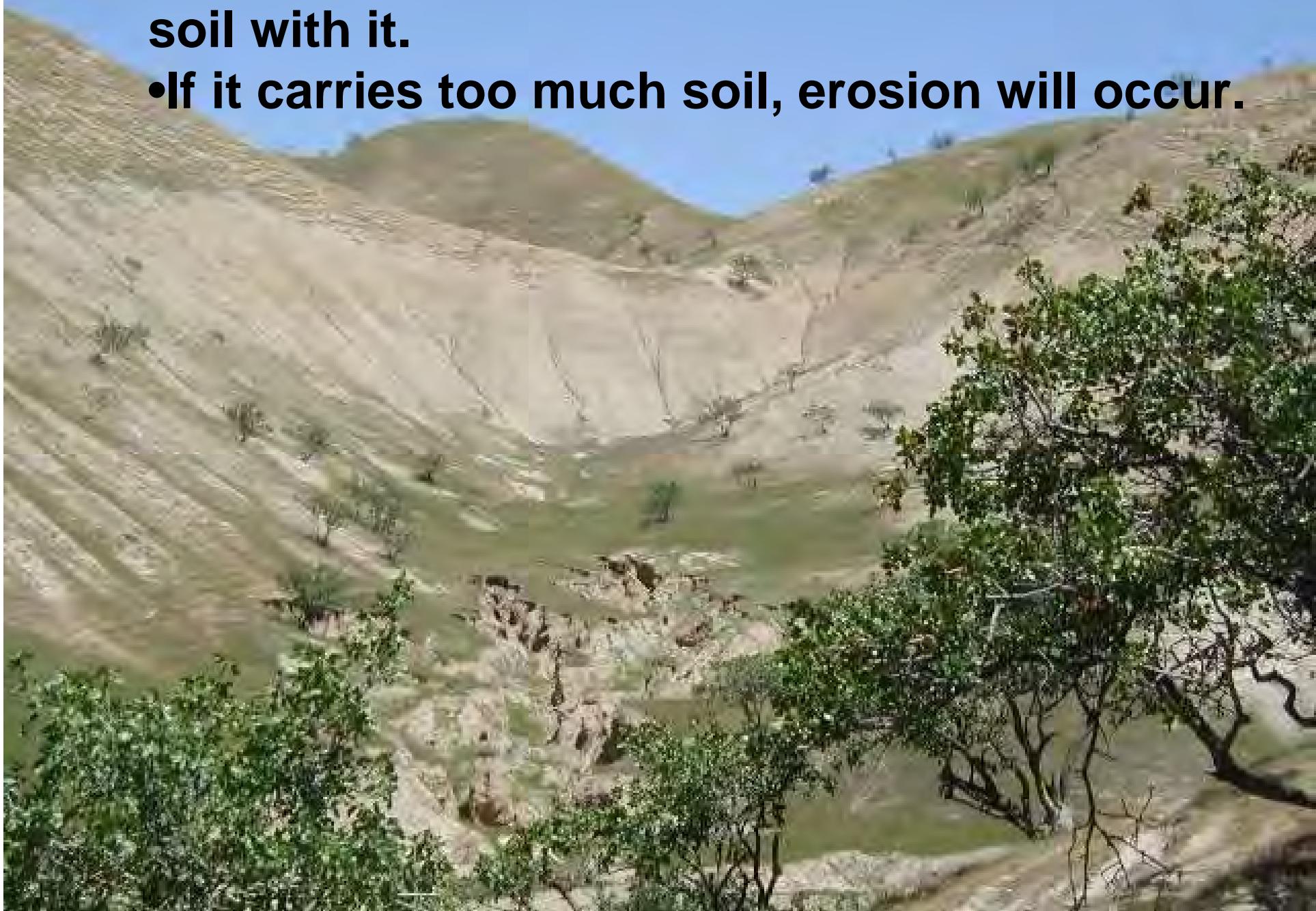
- A watershed can be very large, or it can be small.
- A very large watershed is composed of many smaller watersheds.





- Water flows down hill
- Any point in a watershed receives water from uphill

- As the water flows downhill, it carries some soil with it.
- If it carries too much soil, erosion will occur.



Soil

When soil is gone, it is gone

Too much erosion and the plants will not grow



- It is also very important to our lives.
- Plants need soil.
- Live stock and people eat plants.

Erosion can also threaten:

- Buildings
- Bridges
- Roads
- Agriculture
- Water Supply
- Ecology
- Others?



Erosion can be good or bad



Natural Erosion

- Caused by rain, wind and flow action of rivers and streams
- Gradual
- Can be often be **managed** unless a large storm has occurred



Man-Made Erosion

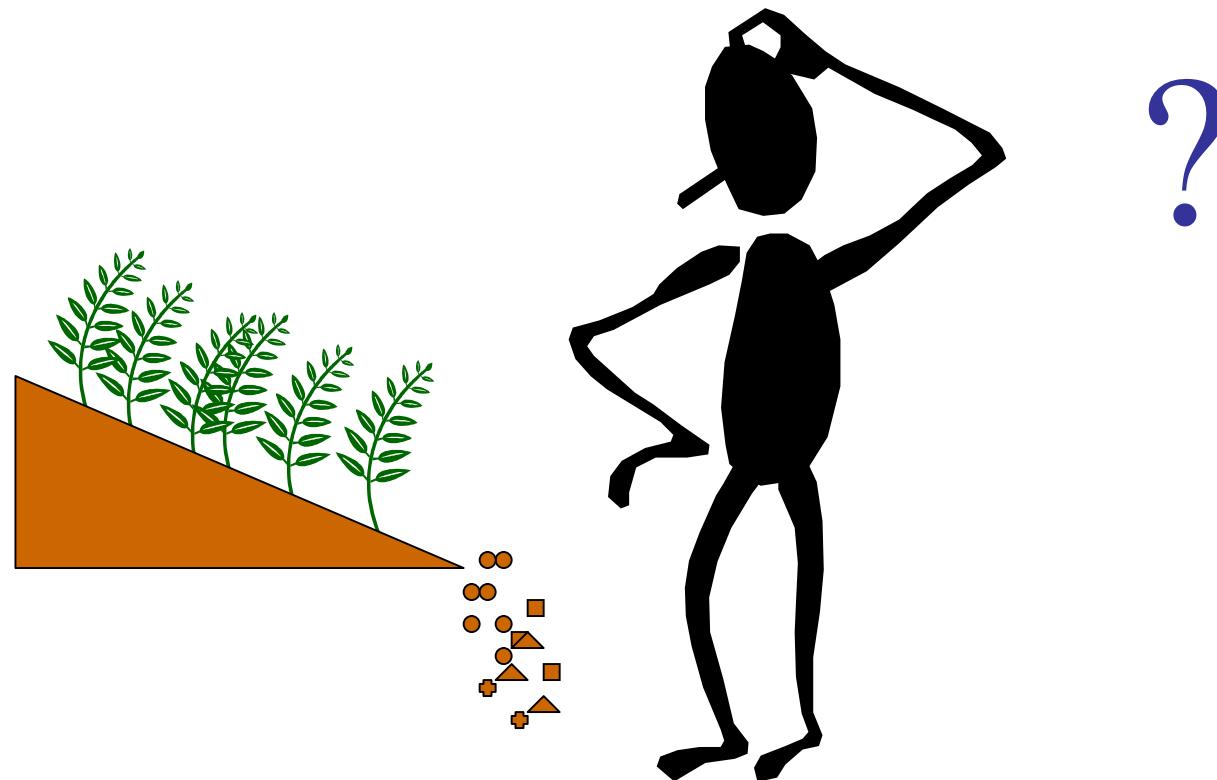
- Caused by overgrazing, poor farming practices, fire, construction activities, etc
- More damaging than natural erosion
- Puts the watershed out of balance
- May need **rehabilitation techniques**



We need to use the right management practices and the right rehabilitation techniques in the correct locations.

We need to know what sort of management strategies work best in what parts of the watershed.

We need to be able to select appropriate rehabilitation treatments when management alone is not sufficient.





To accomplish this, we need to:

- Be able to assess the condition of the watershed.
- Understand how the parts of a watershed should behave naturally.
- Understand what suitable goals are for each watershed.
- Understand the sort of management practices and rehabilitation treatments that may be appropriate



And

We need to realize that any management practices or rehabilitation treatment has to be acceptable to those who use the land

Class Agenda

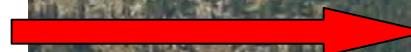


- Identify Zones in a Watershed
- Identify Appropriate Goals
- Management Practices
 - Grazing and Agriculture
 - Persevering Vegetation
- Rehabilitation Treatments
 - Grass and tree planting
 - Terraces and Hillside Ditches
 - Spring Development
 - Check Dams
 - Riparian Buffers
 - Stone Protection and Soil Bioengineering
 - Deflectors
 - Wind/Cold Breaks
 - Wetland Restoration
- Skills
 - Read plans
 - Establishing Vegetation
 - Basic surveying
 - Gabions
- An quick approach to:
 - Assess the watershed
 - Identify Goals
 - Select Appropriate Management Practices and Rehabilitation Treatments

Test Time

This point is affected by the flows from what part of the watershed?

Above?



Below?