

Salinization



**Khaing Khaing Mon
Deputy Staff Officer
Land Use Division**

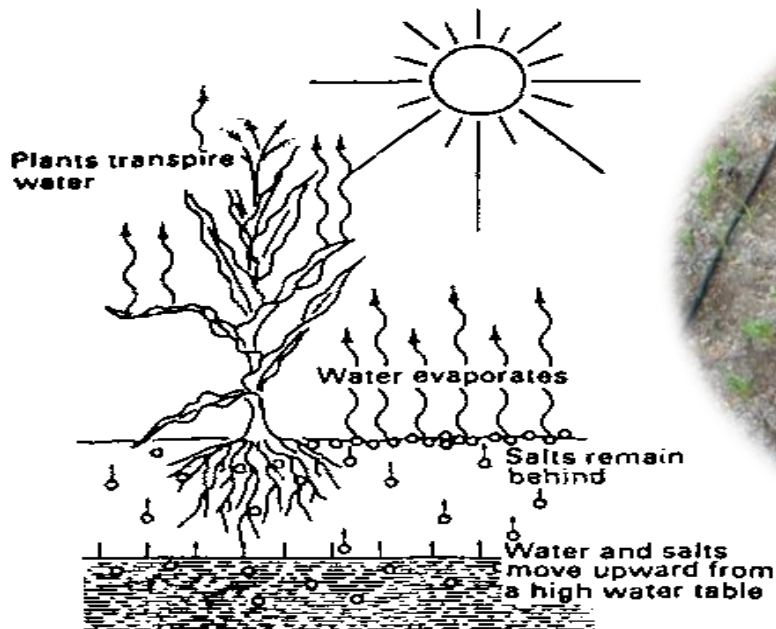


Outline

- ❖ Salinization
- ❖ Causes of Salinization
- ❖ Effect of Salinization
- ❖ Management of Salinization

Salinization

- When water evaporates from the surface of the soil, the water containing soluble salts moves from the deeper layers to the surface of the soil and deposits them at the surface of the fields.



Causes of Salinity

Natural or primary causes

- Weathering process
- Deposition of oceanic salt carried in wind and rain
- Reduction of precipitation

Human-activities or secondary causes

- Land clearing and the replacement of perennial vegetation with annual crops
- Salt rich irrigation water
- Applied water with poor drainage
- Poor land levelling

Effect of Salinization

- ❑ Greatly effect plant growth and production
- ❑ Poor and spotty stands of crops, uneven and stunted growth and poor yields, the extend depending on the degree of salinity
- ❑ Less water available to plants although some is still present in the root zone
- ❑ Yield decline or even death of the plant
- ❑ Toxic to plants (particularly chloride)
- ❑ Soil erosion



Managing Salinization

Reducing the severity and extend of soil salinity is primarily a problem of water management

1. By managing the area contributing excess water to the soil (recharge area)
2. By managing the area where the excess water comes to the surface (discharge area)

Managing Salinization

1. Recharge management:

- Remove excess water from recharge areas of seeps by using actively growing, deep-rooted plants to maximize water extraction (Perennial plants and forages, especially alfalfa)
- Return manure and crop residue to the soil
- Reduce summer fallow
- Use cropping and tillage systems



Alfalfa

Managing Salinization

2. Discharge management

- Grow Salt Tolerance Crop
- Reduce deep tillage
- Plant forage crops or trees



Asparagus

Salt tolerance crop



Date palm



Oat and Pea

Forage crops



Sorghum

Salt Tolerant Crops

<i>Highly Tolerant</i>	<i>Moderately Tolerant</i>	<i>Sensitive</i>
➤ Date palm	➤ Wheat	➤ Red Clover
➤ Barley	➤ Tomato	➤ Beans
➤ Sugar beet	➤ Oat	➤ Peas
➤ Cotton	➤ Rice	➤ Sugarcane
➤ Asparagus	➤ Maize	➤ Apple
➤ Spinach	➤ Onion	➤ Peach
	➤ Potatoes	➤ Apple
	➤ Grape	➤ Orange
	➤ Alfalfa	➤ Plum

Summary

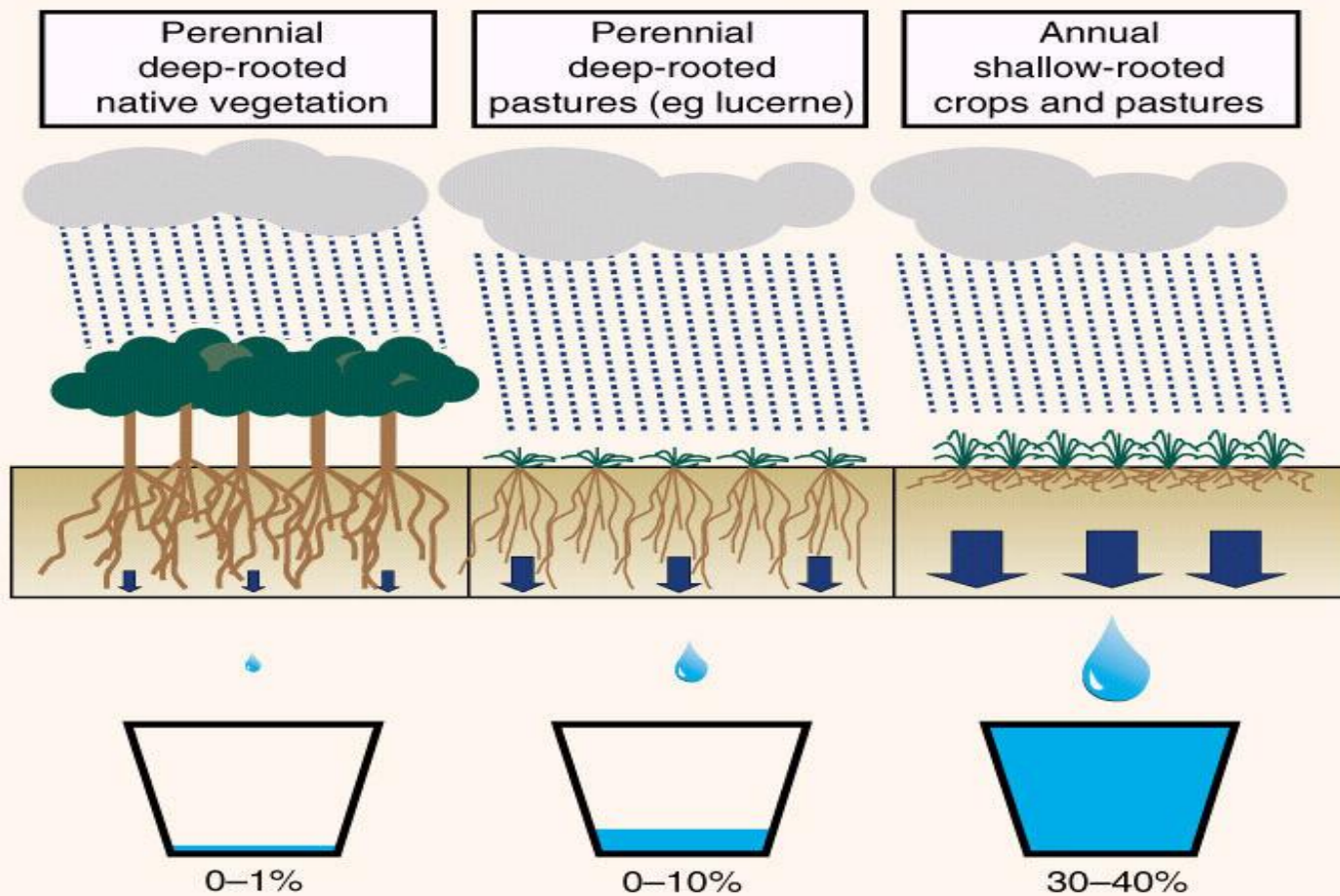
- ❖ Problem of global significant and one that is rapidly growing as a consequence of human activity
- ❖ Better agricultural and land management practices are necessary
- ❖ Management efforts should focus both on recharge and discharge.

Soil salinity is a serious problem in many parts of the world and is becoming worse with growing dryland agriculture and irrigation practice.

Clearing of native vegetation for dryland farming is one of the sources most responsible for the dryland salinity in Australia.

.

Figure 1: Rainfall 'leaked' by various plant systems.



Thank You

