



**The Abdus Salam
International Centre for Theoretical Physics**



1867-13

College of Soil Physics

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Land degradation processes

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Land degradation

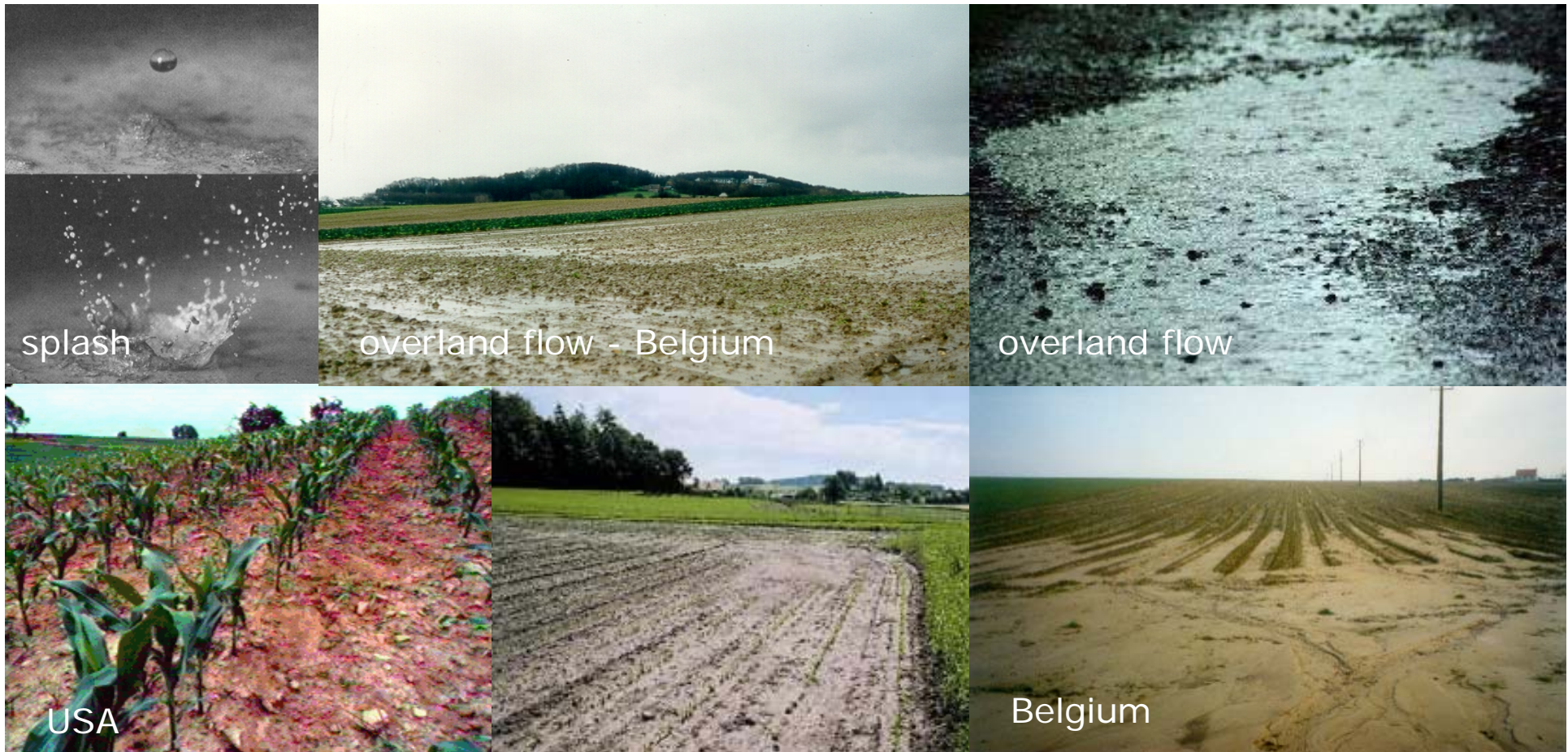
Decline of productivity of land due to (GLASOD - Oldeman et al., 1991):

- Soil degradation:
 - Erosion by water (56%)
 - Erosion by wind (28%)
 - Chemical deterioration (12%)
 - Physical deterioration (4%)
- Vegetational degradation – reduction of biodiversity

Soil degradation

Water erosion

- Loss of topsoil → wash/sheet erosion (splash + overland flow)



Soil degradation

Water erosion

- Loss of topsoil → wash/sheet erosion (splash + overland flow)
- Terrain deformation/mass movement)



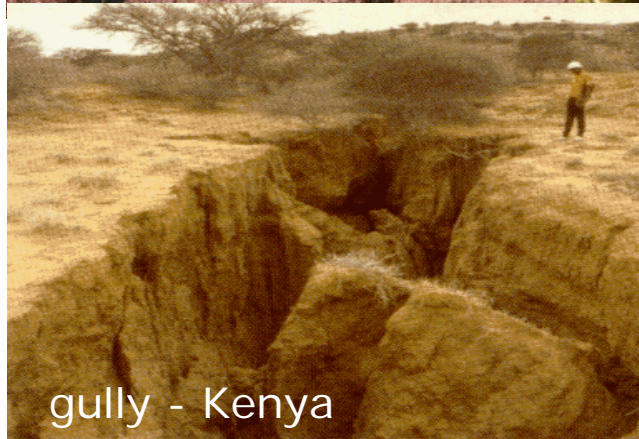
rills - USA



rills - USA



gully - Tanzania



gully - Kenya



landslide - Kenya

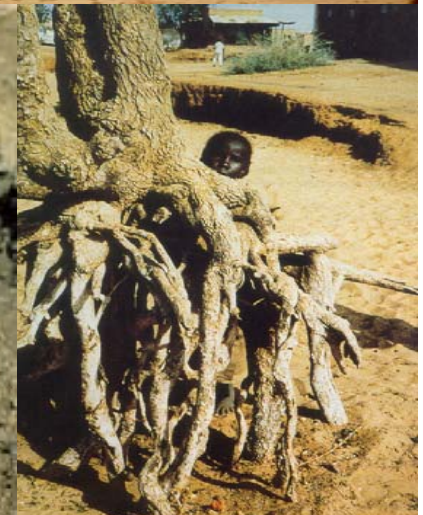


riverbank erosion - USA

Soil degradation

Wind erosion

- Loss of topsoil



Soil degradation

Wind erosion

- Loss of topsoil
- Overblowing



road - USA



rail way - USA



ditch - USA



house - Iraq



farm - Senegal



field - USA

Soil degradation

Wind erosion

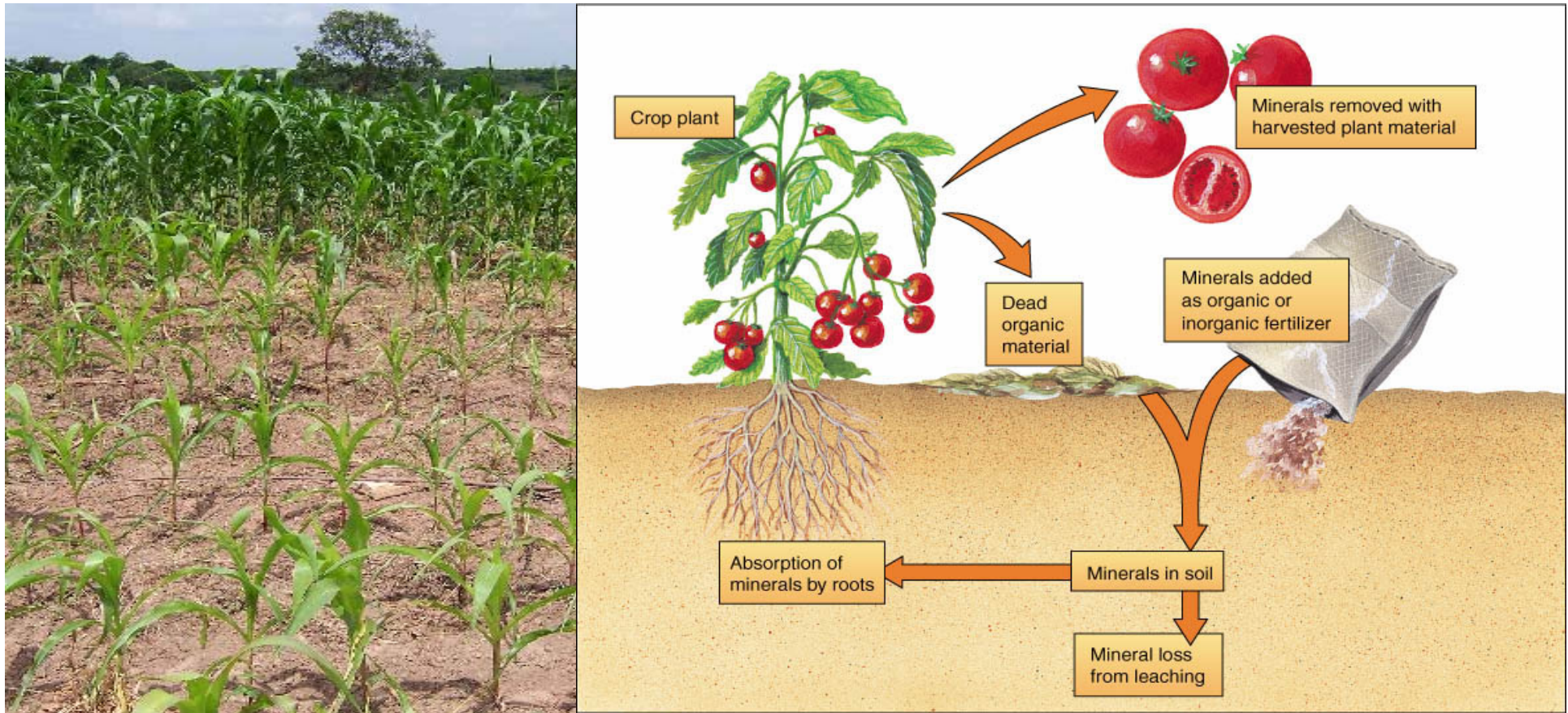
- Loss of topsoil
- Overblowing
- Terrain deformation → dune formation



Soil degradation

Chemical deterioration

- nutrient/O.M. depletion



Soil degradation

Chemical deterioration

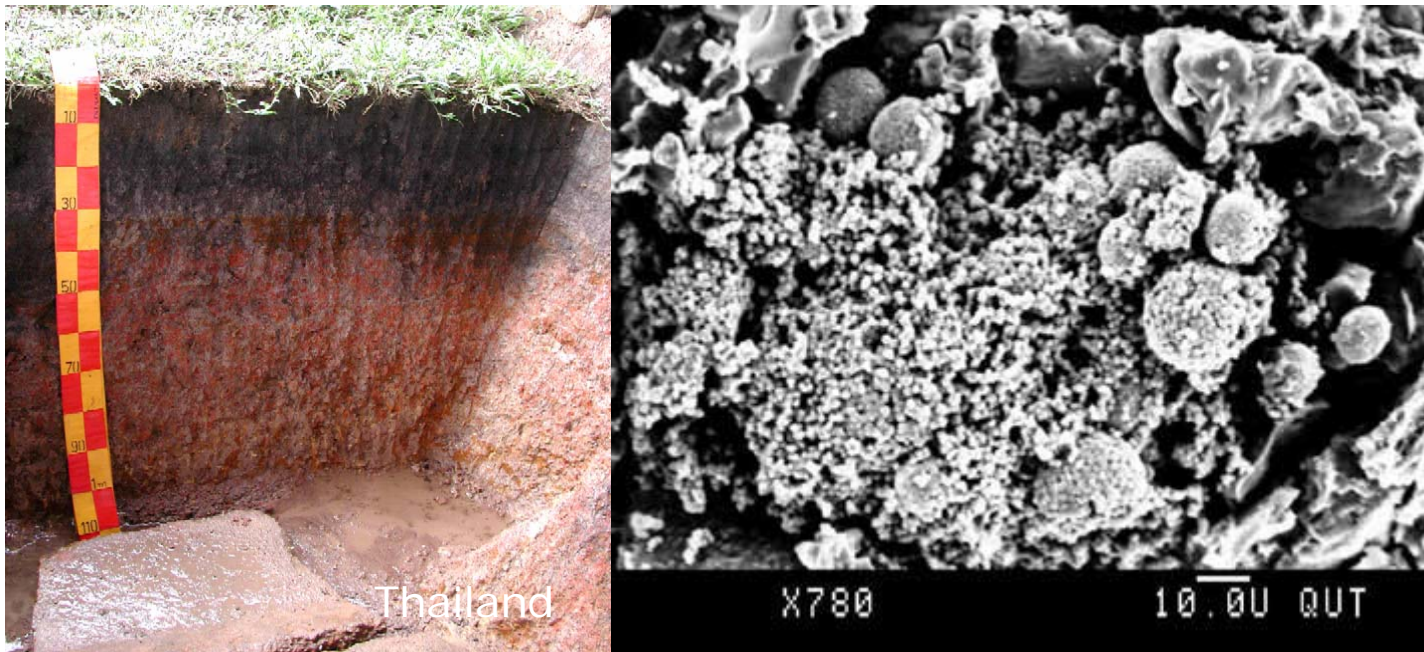
- nutrient/O.M. depletion
- salinization



Soil degradation

Chemical deterioration

- nutrient/O.M. depletion
- salinization
- acidification (acid sulphate soils + acidifying fertilizer)



Soil degradation

Chemical deterioration

- nutrient/O.M. depletion
- salinization
- acidification (acid sulphate soils + acidifying fertilizer)
- soil pollution



Soil degradation

Physical deterioration

- compaction, sealing, crusting



Soil degradation

Physical deterioration

- compacting, sealing, crusting
- sodication + waterlogging



Soil degradation

Physical deterioration

- compacting, sealing, crusting
- sodication + waterlogging
- organic soils



Soil degradation

GLASOD - Global Assessment of (Human-Induced) Soil Degradation (Oldeman et al. 1991):

