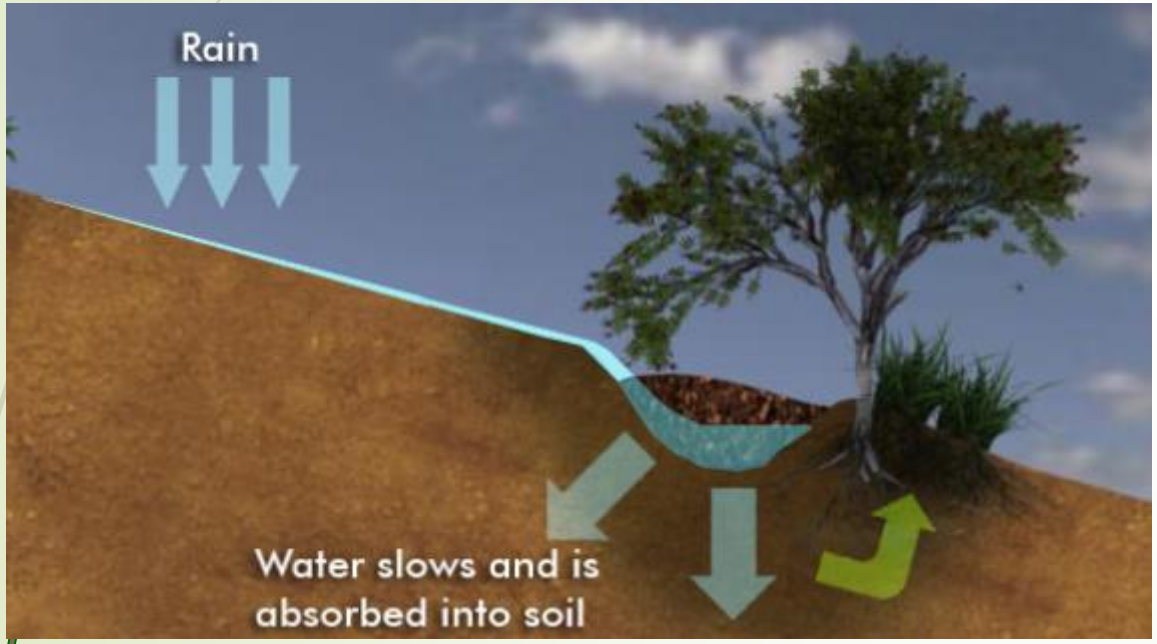
REVIVE

Regenerative Earthworks and Vegetation in Vulnerable Ecosystems

ACTED



Presented by Michael Mangano

ACTED Regional Resilience Coordinator

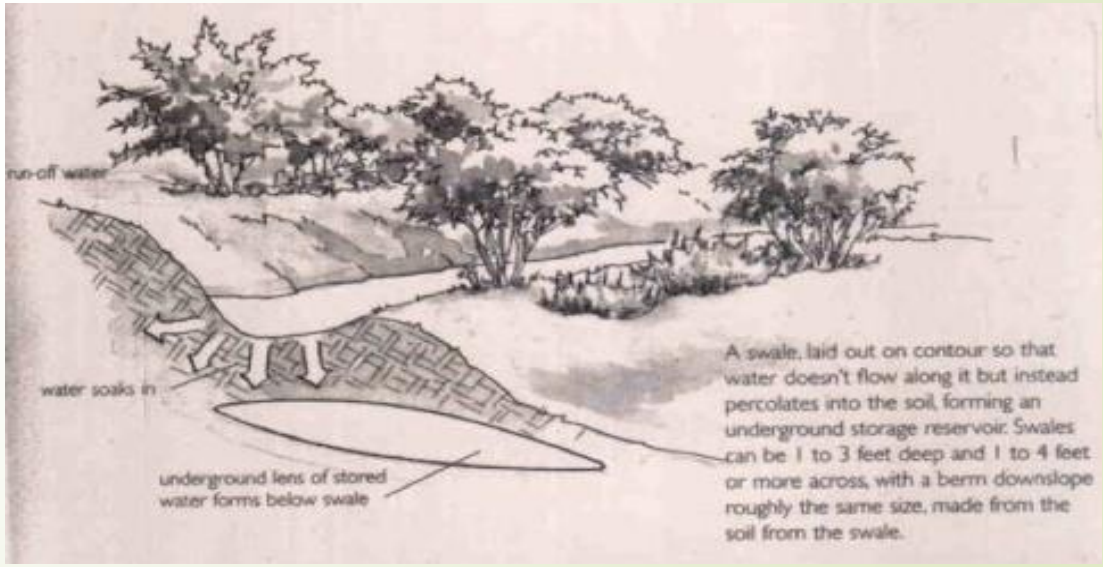
Bare soil is losing water and nutrients

Regenerative Agriculture

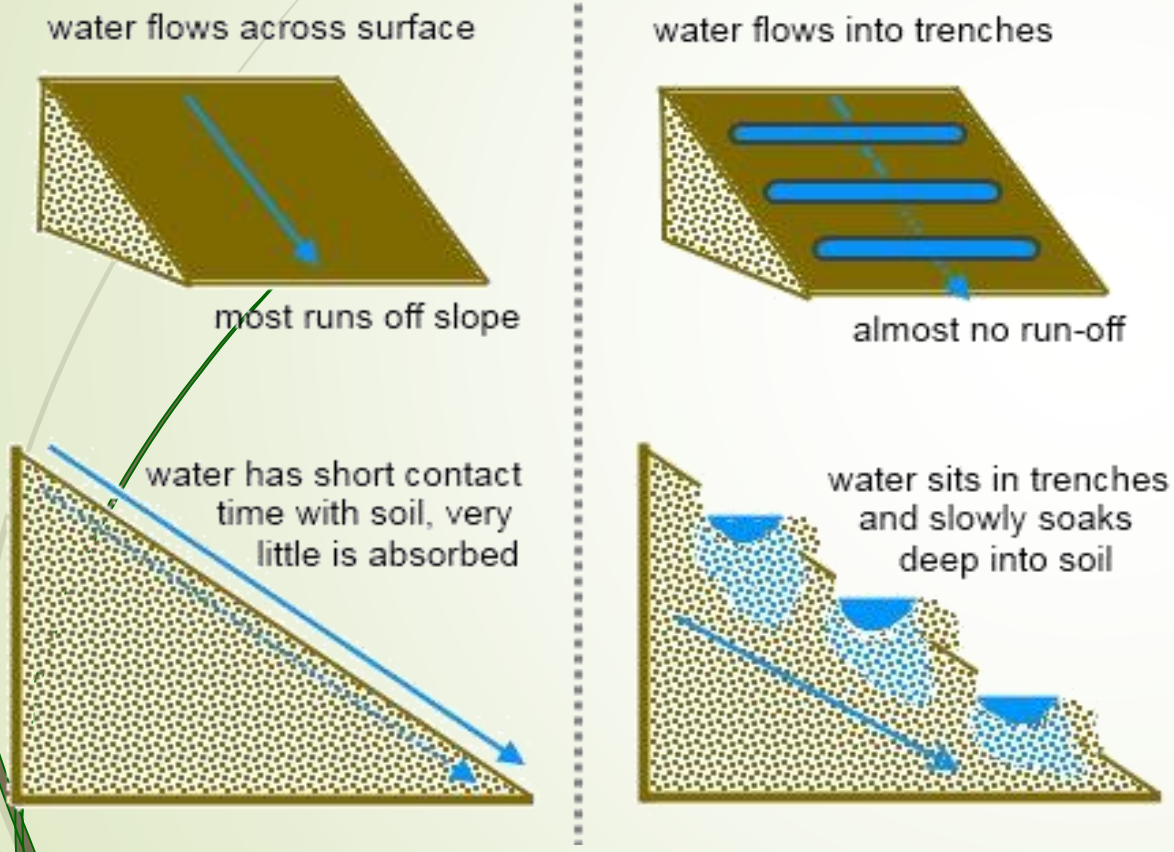
Combine crops, trees, annuals, perennials

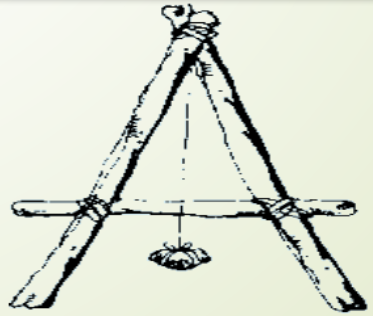
Use organic methods of pesticide and fertilizer

Agro-Ecology
Climate Smart Agriculture
Permaculture Design
Agro-Forestry
Organic Farming
Holistic Grazing management
Vermiculture
Ecological Organic Farming
Conservation Agriculture
Aquaculture
Succession Planting
Farmer Managed Natural Regeneration
3D Farming
Mulching
Composting



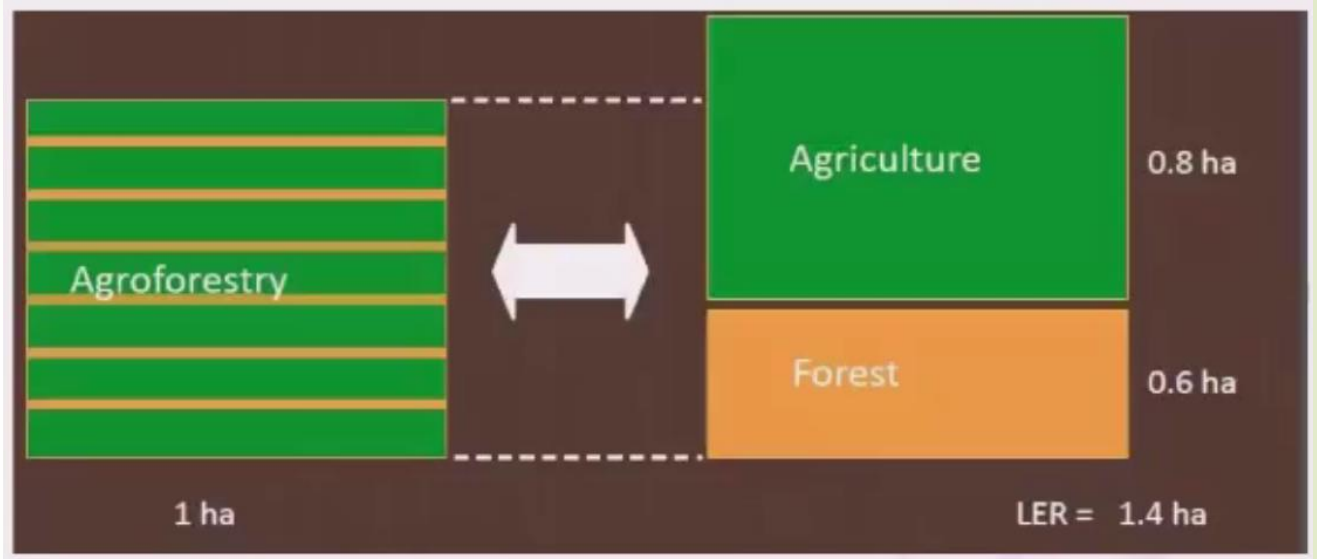
Designing on Contour

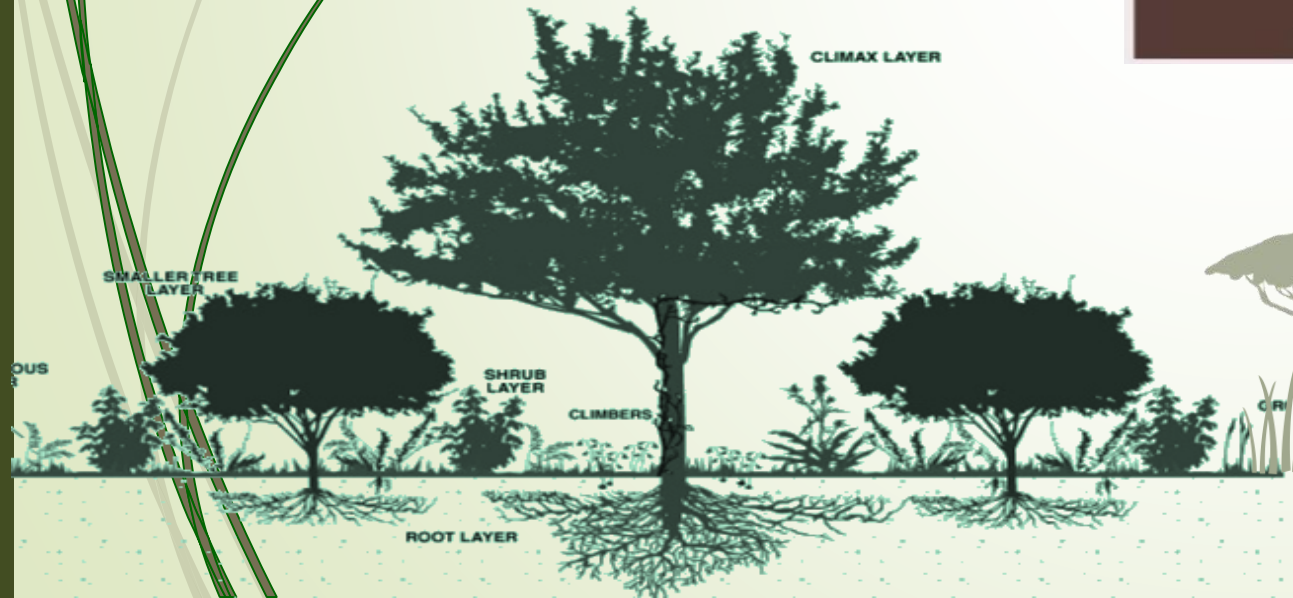




Integrated Vegetation Systems

- Polycultures
- Companion Planting
- Push-pull
- Biodiversity
- Resilient systems





Designing around efficiency

For Human Energy

Illustration: Jak Ritger, Jak Ritger Design

Tending zones in a farming system.

For Natural Factors

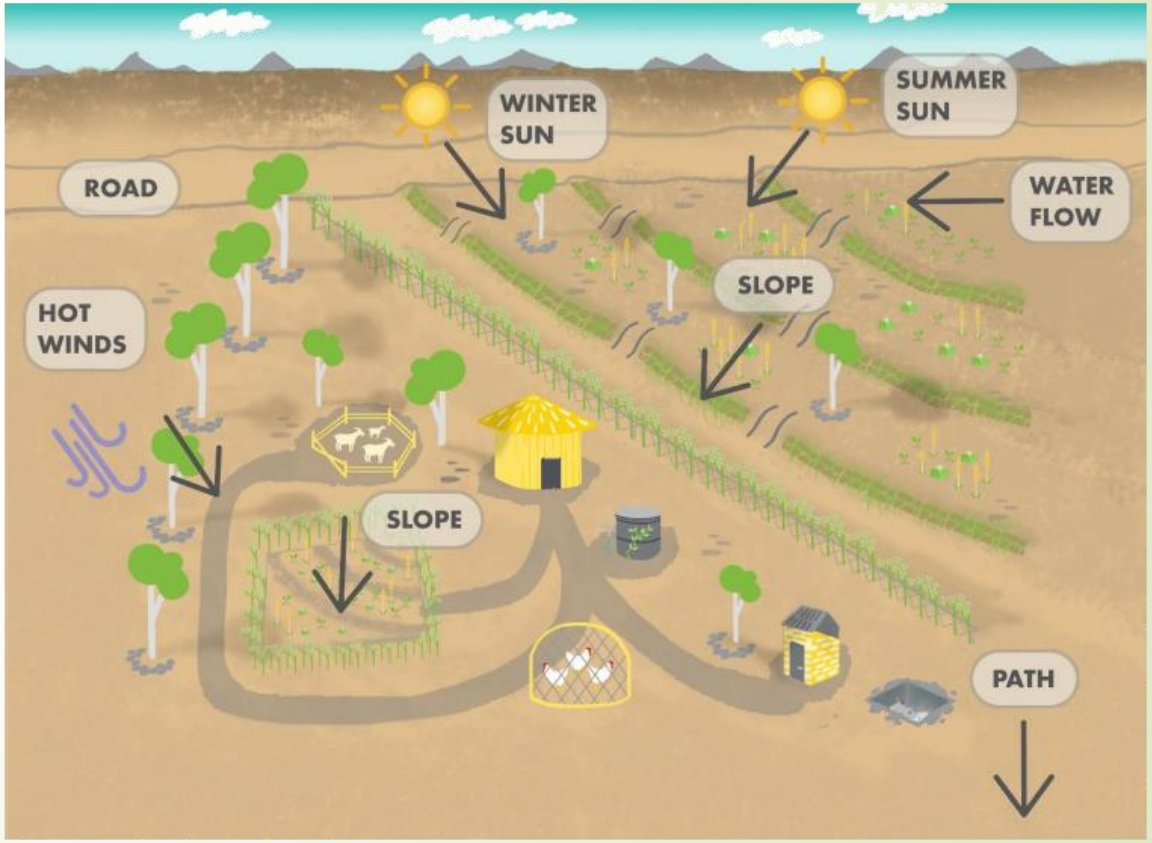


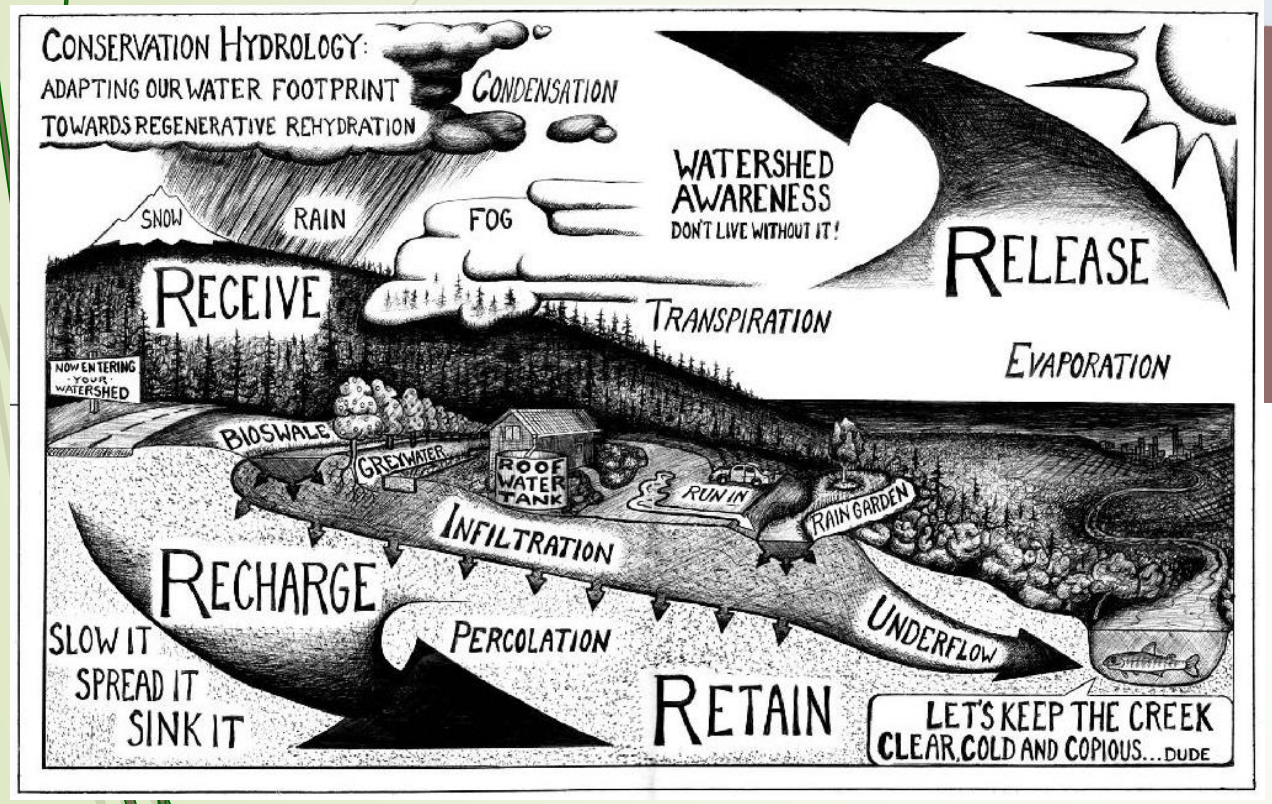
Illustration: Jak Ritger, Jak Ritger Design

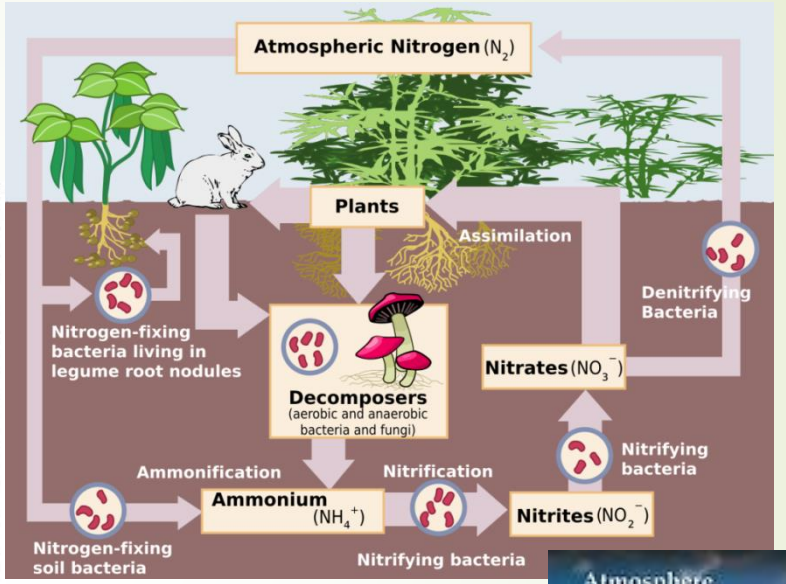
Influences affecting the farm site.

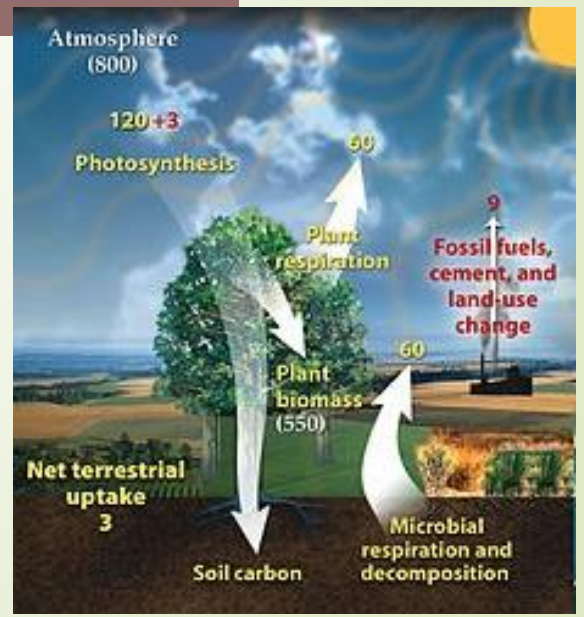
Natural Solutions

- **Fertilizers:** manure, compost
- **Pesticides:** Neem, Tobacco, Chili
- **Termites:** Ash
- **Fencing & shelter:** fast-growing timber & bamboo
- **Little to no construction:** focus on earthworks and vegetation
- **Biodiversity** and companion planting

Water, Carbon, and Nitrogen







Water catchment & infiltration

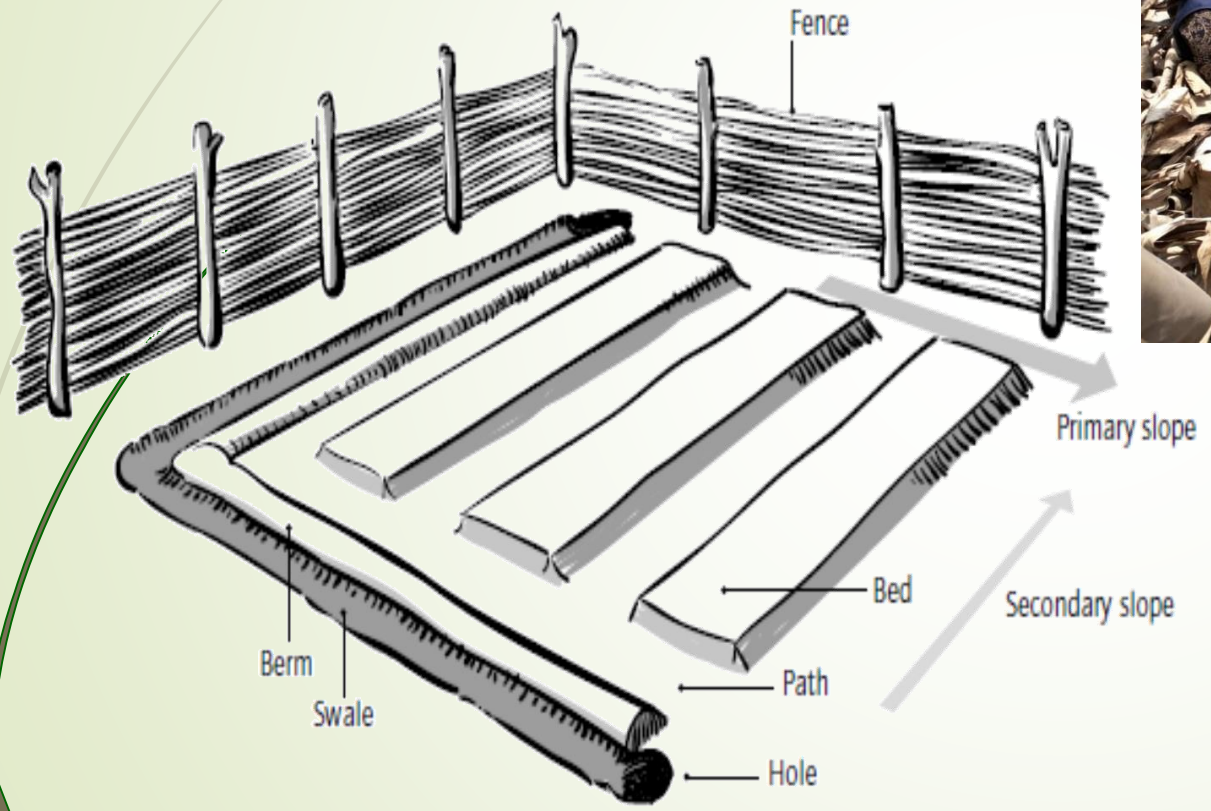
How much rain can we capture?

- 100 mm of rain falling on 1 square meter = 100 liters. This is the same as five 20-liter jerry cans of water.
- Some 60,000 liters of water falls on a 20-meter by 30-meter plot of land in a 100 mm rain. This is equivalent to 3,000 jerry cans of water.
- But the rainfall that runs off a plot of land is lost by the farm.

Water catchment & infiltration

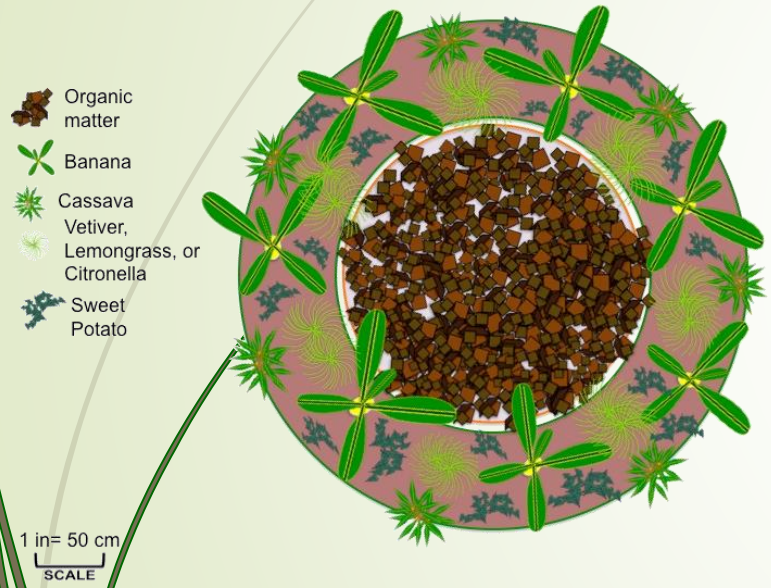
Swales (of all sizes)

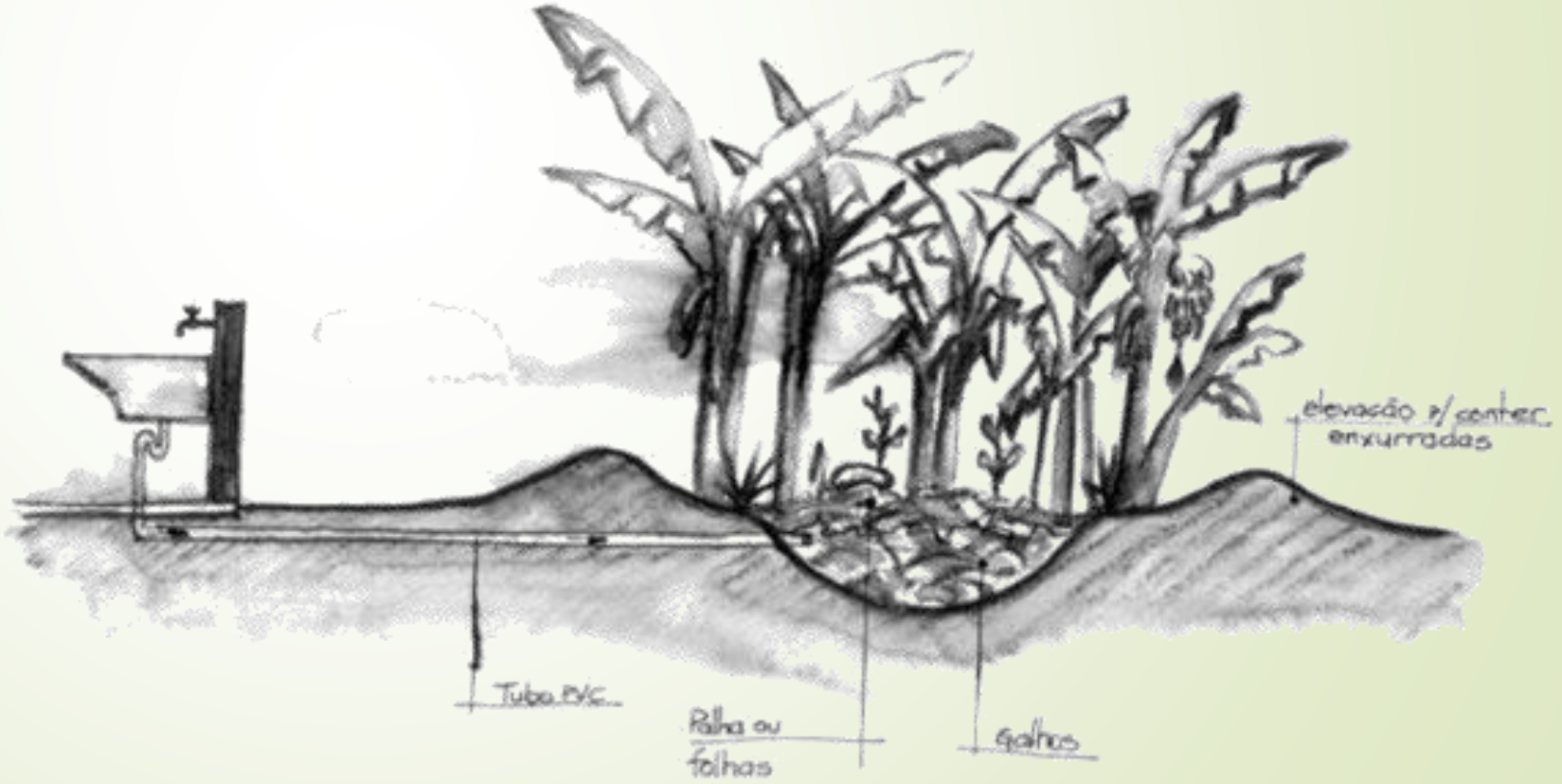
Double-Dug Beds, Raised Beds (on contour)



Planting Circles (Papaya, Banana)

Also used for greywater management





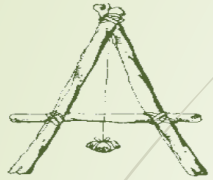
Trees

- Management
  - District
  - Refugee groups
- Species
  - Multi-purpose
  - Preferably indigenous
  - Strictly no invasives
  - Careful of monoculture
    (pine, eucalyuptus)
  - 20+ species per nursery

Covering Soil

Using perimeters of compounds
(the "edge" effect)

Challenges



- Many people are not confident in marking contour lines or designing on contour

- Short-sighted species are preferred by refugees, which limits options for tree preferences

- Water sources inconsistent, unpredictable, reliance on rain-fed means it takes a few seasons for full benefit to be realized

- Host community district technical officers tend to advise on monocultures or questionable species selection (e.g. eucalyptus and pine)

- Incorporating animals requires close attention and careful management