Water harvesting for resilience building in the Sahel

On-farm supplemental irrigation and soil fertility management for dry spell mitigation of sorghum.

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Background

- Food crisis
- Decrease in availability of arable land/cap
- Intra pluvial dry-spells are annual occurrences with negative yield impact.
- Risk minimization rather than production maximization
- Water harvesting is an old principle: harvesting runoff water for its productive use.
Approach

- Need to produce more crop per land and water unit
- Fundamental shift in resource management strategy
  - Runoff is a resource, not a problem
  - Catching the resource upstream for use downstream
Conditions

- Maximize plant water availability
- Maximize plant water uptake
- Bridge crop water deficits
- Rainfall in semi arid environments is generally sufficient to sustain a cereal crop
- Overland surface-runoff is substantial and is easily captured
Revisit the hydro cycle (SSA)
• On-farm field trials
  – Burkina Faso - Ouahigouya
  – Kenya - Mwala
  – Niger - Samadey
Background

- 9 persons per household (5 adults > 9 yrs)
- Labour demand / 1 ha land
- 1000 kg grain per year