Livelihoods and land degradation dynamics in the Sahel

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My observations in the field

- Sahel (Senegal, Mali, Nigeria) and Ethiopia
- Livelihood/nutrition connections to land degradation are important
- Small plots of land for productive activity
- In turn start to add crop residue to the soil
- Some key issues
- Data: Sustainable affordable water and energy
- Policy, national scale: markets, transport
Context, Senegal
Sub-soil storage, near river Niger
Kaduna, Nigeria
Groundwater (Potou - Senegal)

Spring Protection (Rushiira-Uganda)

Sub-soil infiltration, Koraro, Ethiopia
A public tap staffed 2 hrs/day; users pay 2 KSh/20L jerrycan; goes to pay staff, fuel, maintenance
Distributed Irrigation System Topology

Wells & Pumps

Pump and Solar Data

Time Series Plot of Average Utilization by Site

Utilization in hrs

Date

Site

1

2

3

Nov

Dec

Jan

Feb

Mar
Koraro (ETH, dispersed)

- MV/HH: 38.8 m
- LV/HH: 67.8

- 30% drop in line costs by removing 5-10% of households from grid (providing off-grid solutions)

Rural Ethiopia (Tigray Region, Koraro village area, full 10 km x 10 km area): 2,096 rooftops (red points) identified in satellite imagery (~2,100 HHS) in 54 clusters with 1000 m radius (yellow points and circles) connected by ~83 km MST (yellow line).
One pragmatic way out of quandry

• Focus on few areas where it all can work
• Equivalent of a “special economic zone”
• Ethiopia calls them “agriculture clusters”
• ensuring “market access” for these off-season products,
• How to identify opportunity, prioritization, investment, equity?