

WORKING WITH NATURAL STORAGE: GROUNDWATER FOR DRY SEASON IRRIGATION...

Why is this a climate smart practice?

...a safe water management strategy

- Avoids risk of rainfall increases, decreases and variability by allowing farmers to grow produce safe from floods and droughts
- Greatest benefit in areas with highly seasonal or highly variable rainfall and river flows, and high evaporative potential
- Reduced evaporative losses is an advantage over other storage options
- Demand driven water supply allows farmers to adapt to market and climate
- Enormous under utilized potential in sub-Saharan Africa

Deep wells in Raya-Kobo Valley, Ethiopia

Boreholes of between 60 and 100 meters depth and heavy duty electric pumps provide consistent year round water supplies supporting reliable multi-cropping of high quality vegetables, spices, fruit, and flowers for market in private or community irrigation schemes

Impacts: 22 deep wells irrigating 832 hectares for high value cash crops, potential estimated at over 50,000 ha

Triggers: - Success of public investment motivating private investment

Benefits: Almost 3000 households have increased income, potential to benefit >100,000 people in Raya-Kobo alone, Productivity high (>4 tons/ha), job creation

Constraints:

- Market inadequacies can limit benefits
- Investment costs relatively high, not affordable by individuals
- Energy for pumping
- Knowledge of groundwater sources lacking

Shallow wells in Atankwidi Catchment, Ghana

Hand dug wells of one to nine meters depth in alluvial materials near rivers used for dry season irrigation by individual farmers, by hand or by pump, to produce vegetables for market

Impacts: Six fold increase in area under gw irrigation between 2005 and 2008 (from 60 to 387 ha irrigated)

Triggers: Necessity induced innovation, farmers are responding to production declines from low rainfall; Farmer to farmer information sharing; Market opportunities improved with new roads in 1990's.

Benefits: On small farms (< 2ha) bucket farmers gained an average profit of more than 160 USD, pump farmers earned more than 580 USD
Partly mitigates the need to migrate for income opportunities

Constraints:

- Access to land and inputs limits spread
- Energy for pumping
- Reliability of shallow groundwater limited and closely connected to surface water resources

Prepared for Agriculture Rural Development Day Learning Event on How can rainwater management help support food production and smallholder farmers' ability to adapt to climate variability and change?