

Innovations in Dry Season Horticulture for Women and Smallholders in East Africa - irrigation and soil management



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**HORTICULTURE
INNOVATION LAB**

UC DAVIS
UNIVERSITY OF CALIFORNIA



Previous research on leafy greens found:

--larger prices for vegetables during dry season: 3-4x wet season

--unpredictable rainfall increases vulnerability of rainfed vegetables

Only few % Ugandan crops irrigated

- Farmers interested: but capacity for support (technical & social) is limited
- Solutions very site-specific: need technologies AND participatory processes so farmer design what **they need.**
- Role of women often overlooked



A rural landscape featuring a pond in the foreground covered with large green lily pads and some yellow flowers. A dirt path winds through the scene, with a group of people, including women in colorful dresses and a child carrying a white bundle on their head, walking along it. The background shows a grassy field with scattered trees under a clear blue sky.

Irrigation is complex

-integrated agronomic practices

-issues of maintenance and sustainability

-multiple uses and users of water

-environmental consequences



Irrigation is complex

- markets and infrastructure
- finance and investment
- governance
- land rights

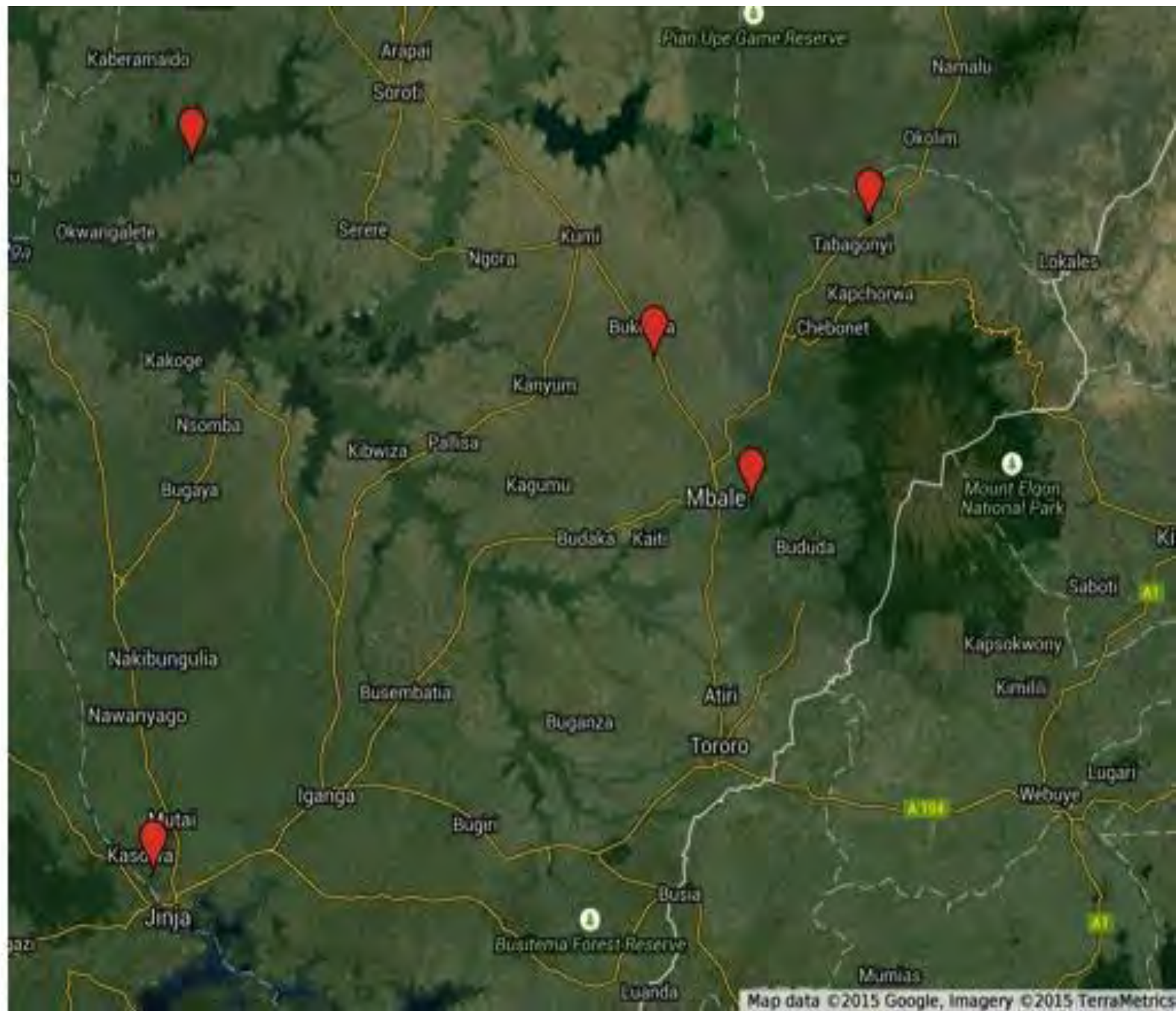
Project goals

Develop innovations in small-scale irrigation for smallholder horticultural production—
use participatory multi-stakeholder research platform
evaluate market, economic, agronomic impacts

Identify constraints and solutions for engagement of women farmers in all aspects

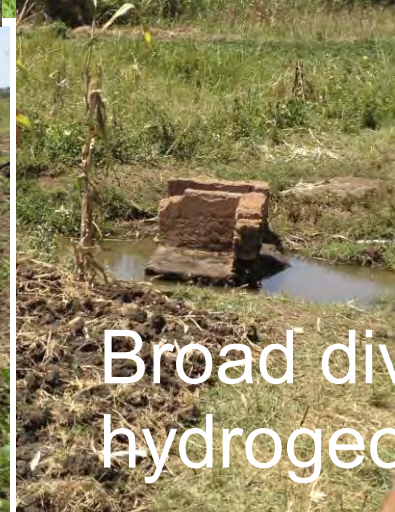
Strengthen irrigation capacity among farmers and support organizations (--extension, NGOs, university and vocational school students, industry)

Eastern Uganda



Working
farmer group
and access to
some markets

Primary innovation sites span broad range of hydrogeologic, soil and climatic sub-regions. Second tier satellite sites will expand approaches to other sites.



Broad diversity of landscapes and hydrogeologic conditions

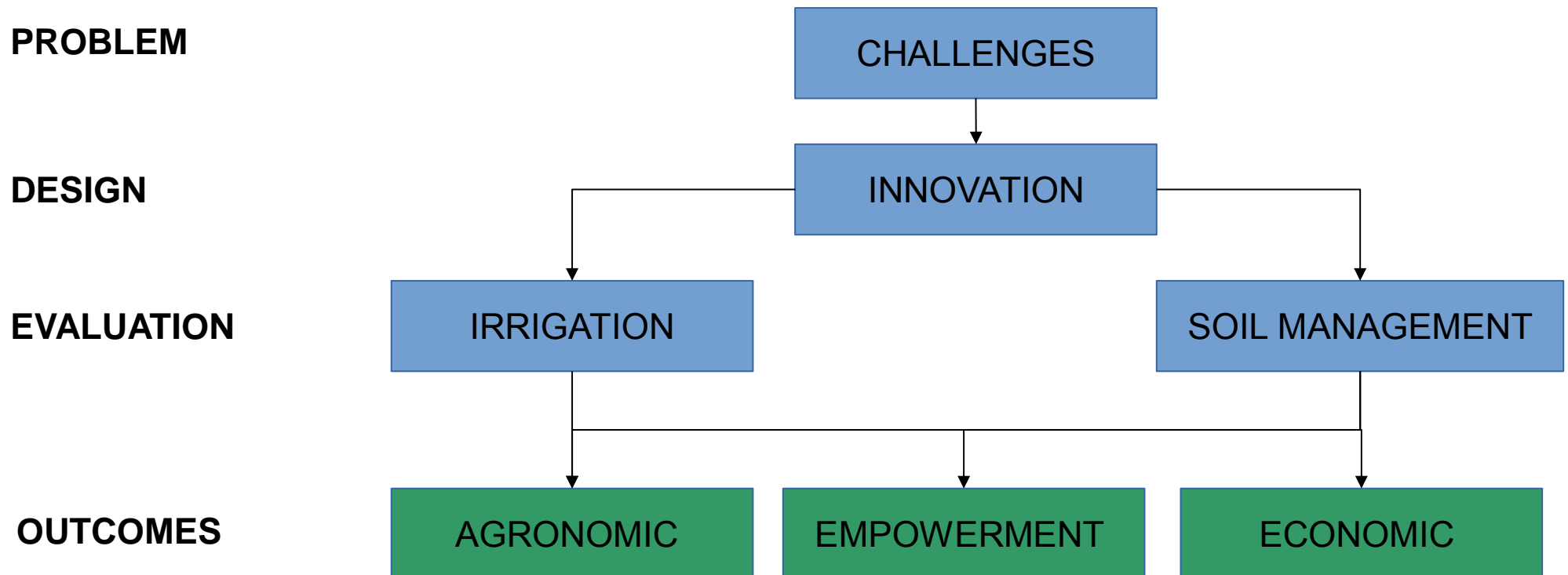


- Farmer group elects farmer committee (50/50 woman/man) to interface between farmer group and technical advisors



Project Elements

- 1) Identifying local challenges for irrigation
- 2) Cultivating women's empowerment
- 3) Plot-level solutions & evaluation (agronomic, economic)



Held farmer focus groups: both mixed gender and all women



Farmers identified major issues/challenges



Expected outcomes

Nutrition

Health

Income

Household Welfare / Harmony

Operations

Labor (Requirement and Difficulty)

O&M Cost

Capital Cost

Production

Enabling Environment

Land Availability

Water Availability

Finance

Market

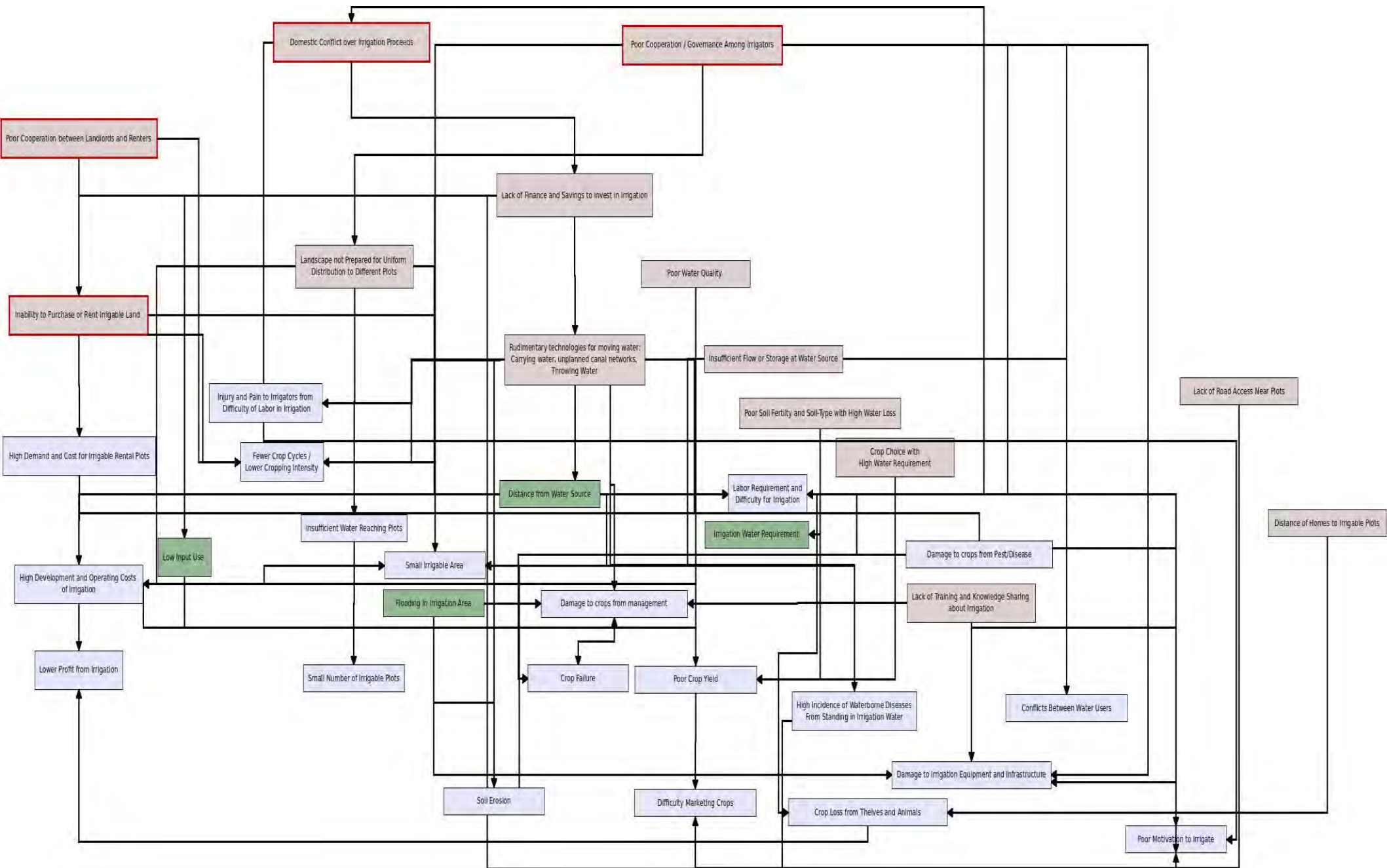
Working Conditions

User Cooperation

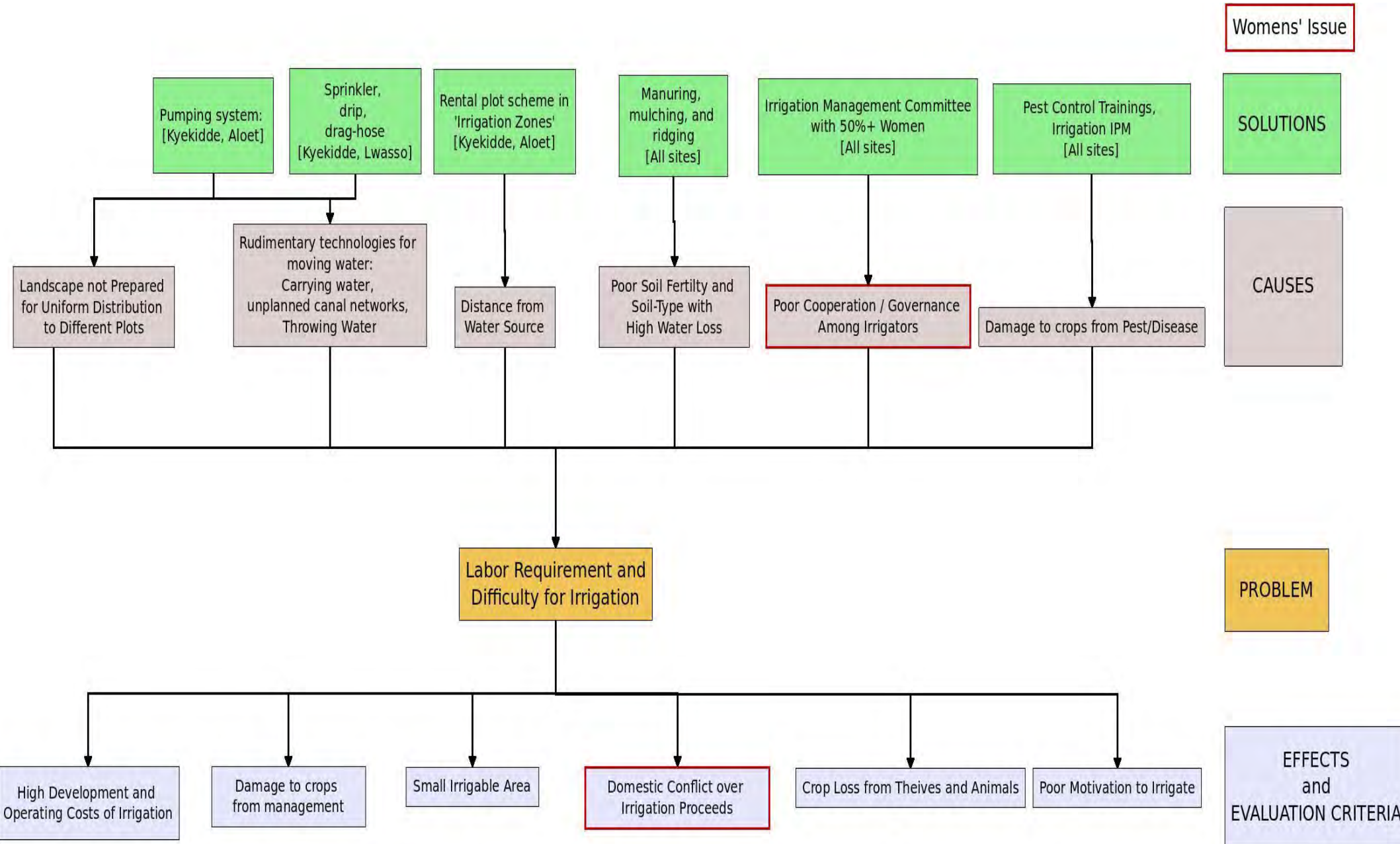
Farmers' Autonomy

Knowledge & Motivation

Mapped out challenges and solutions in implementing irrigation



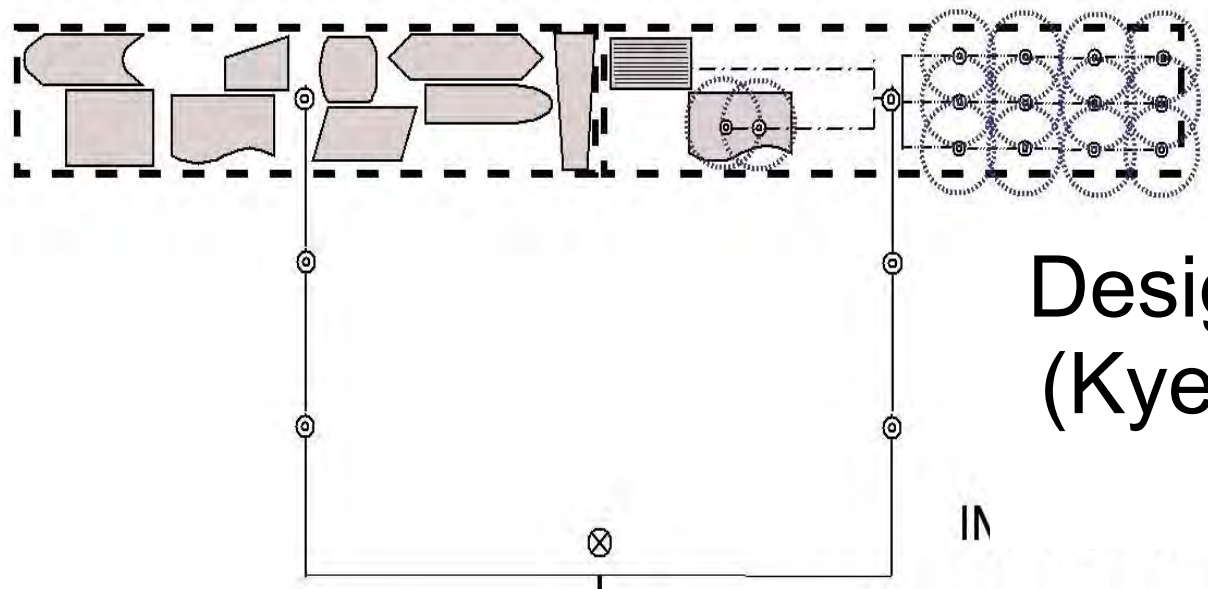
Distillation into user-designed decision tree (for farmers and trainers). *Ultimate platform for dissemination? App?*



Dedicated innovation space at each site is test bed for farmer research

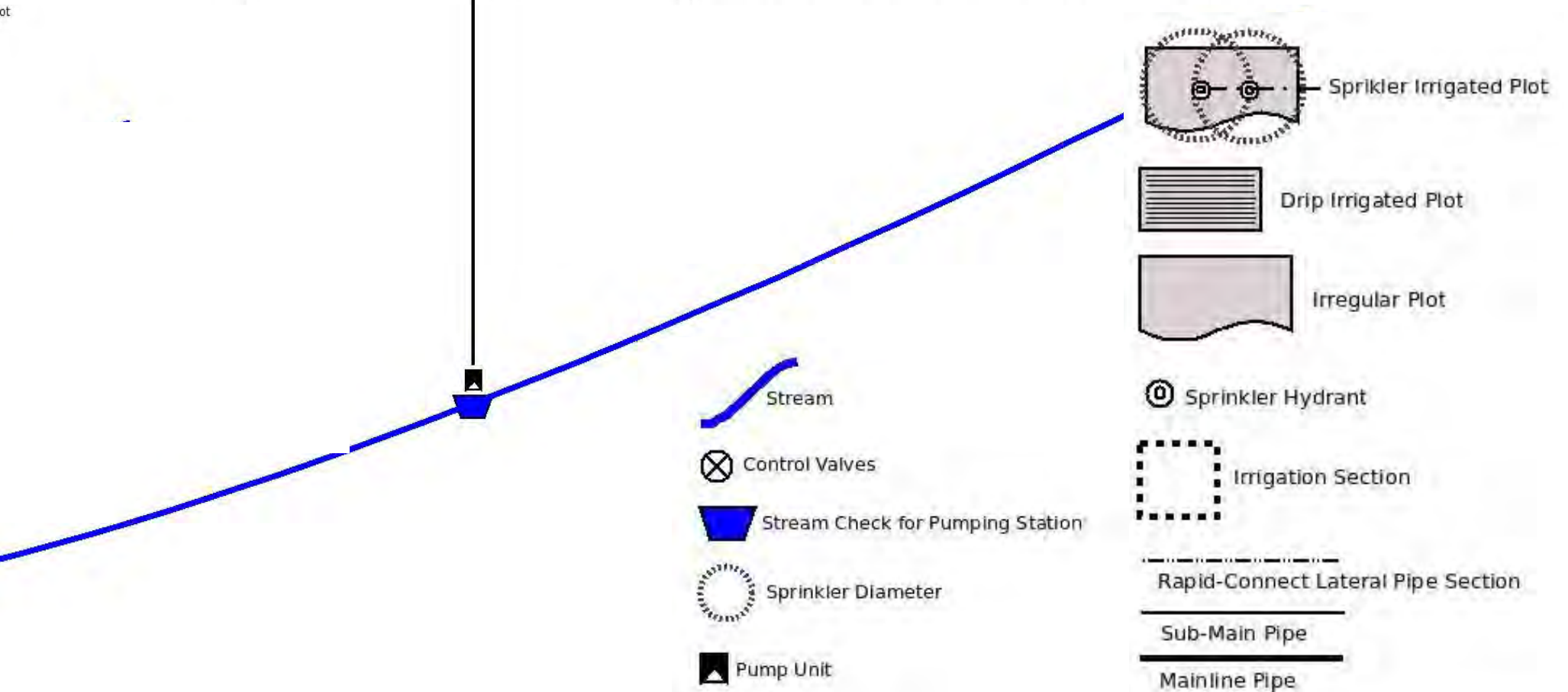
Bring local university students too to learn






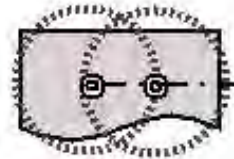




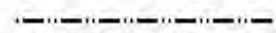
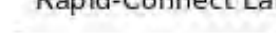





Design of irrigation scheme (Kyekidde): *ultimate platform for dissemination?*

ot



-  Stream
-  Control Valves
-  Stream Check for Pumping Station
-  Sprinkler Diameter
-  Pump Unit
-  Sprinkler Irrigated Plot
-  Drip Irrigated Plot
-  Irregular Plot
-  Sprinkler Hydrant
-  Irrigation Section
-  Rapid-Connect Lateral Pipe Section
-  Sub-Main Pipe
-  Mainline Pipe

Irrigation design realized at Kyekidde



Early results

Land access (especially for women)

challenges: rental cost, eviction,

approaches: negotiated rents, group land rentals

Health

challenges: disease, pain, & injury

approaches: ergonomics, reduce exposure

Technology:

challenges: irrigable area, labor requirement, operating cost

approaches: pressurized systems, increase water efficiency

Governance

challenges: mostly non-existent, water access disputes, no communal investment

approaches: create irrigation committees: scheduling, duties, equity

Scaling out

- Field day w/District office led to implementation of our approach in District
- Action Aid interested in adoption of approaches
- Collaboration with Texas AM (USAID) applying their decision support tools to our sites and to scale to other locations
- Identifying “satellite sites” to implement scaled down version



Primary partners:

- National Semi Arid Resources Research Institute (NaSAARI)
- Buginyanya Zonal Agriculture Research Development Institute (BugiZARDI): Research / development implementation in Eastern Uganda
- Teso Womens Development Initiative (TEWDI-Uganda): NGO for empowering rural women
- Amelioration of Agricultural Risk (AMARI): NGO in smallholder irrigation design
- Busitema University: Student training, internships, network building, and opportunities to improve curriculum
- Irrigation technology companies



