World Agroforestry Centre

# Household Pond Protocol Application

AN INITIATIVE OF THE

**BILLION DOLLAR BUSINESS ALLIANCE FOR RWH**

# INTRODUCING BDBA

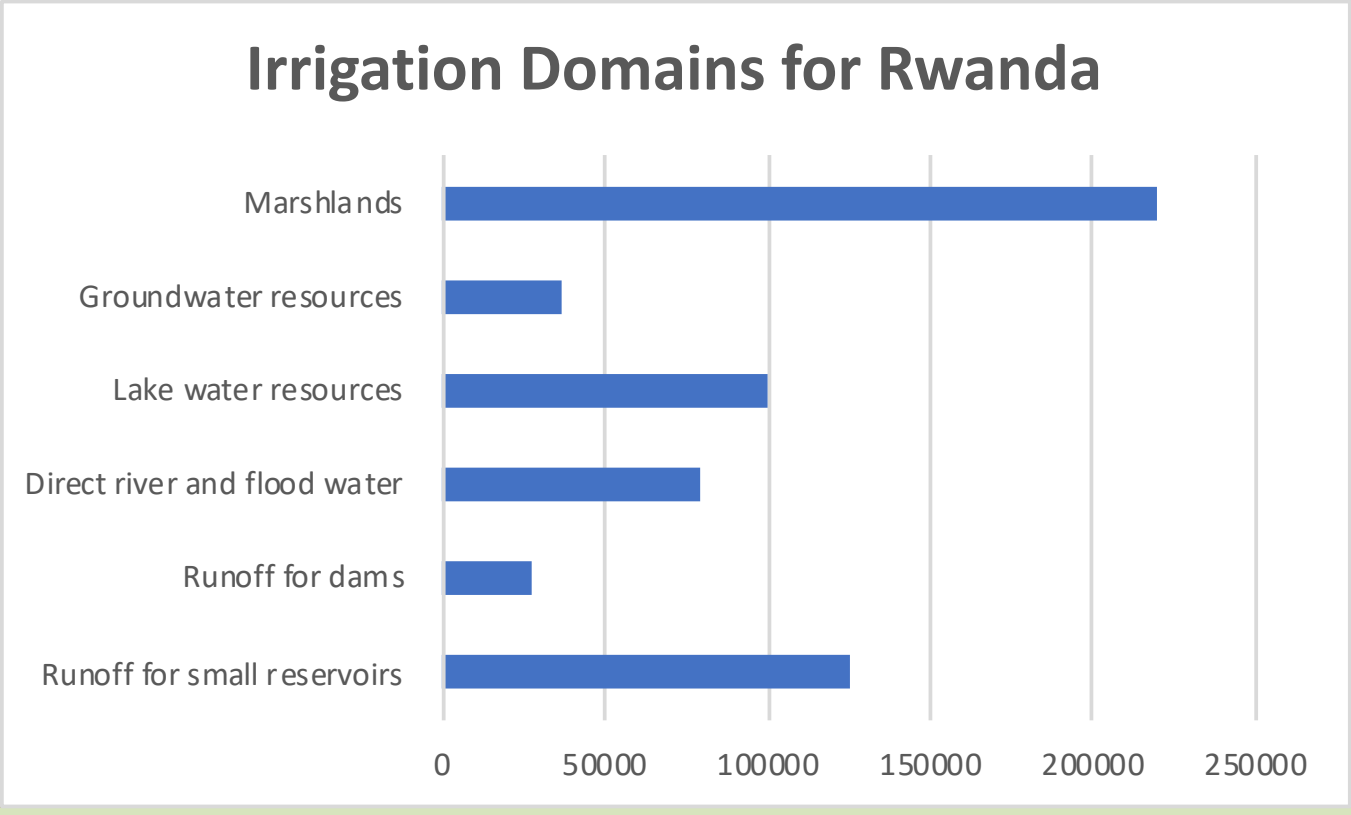
- **BDBA:** Initiated and launched in Addis Ababa in July 2015 during an International RWH Symposium
- **Main Objective:** Boost investments for scaling up farm pond technology for 1,000,000 smallholder farmers in SSA drylands.
- **NB:** 1M ponds is achievable in Kenya in < 5 years.

# Signing and Kenyan Launch of the BDBA

## 11 April 2017


# Makueni was the Pioneer County in Kenya to launch BDBA – November 2017

# Why the BDBA focused on Farm Ponds



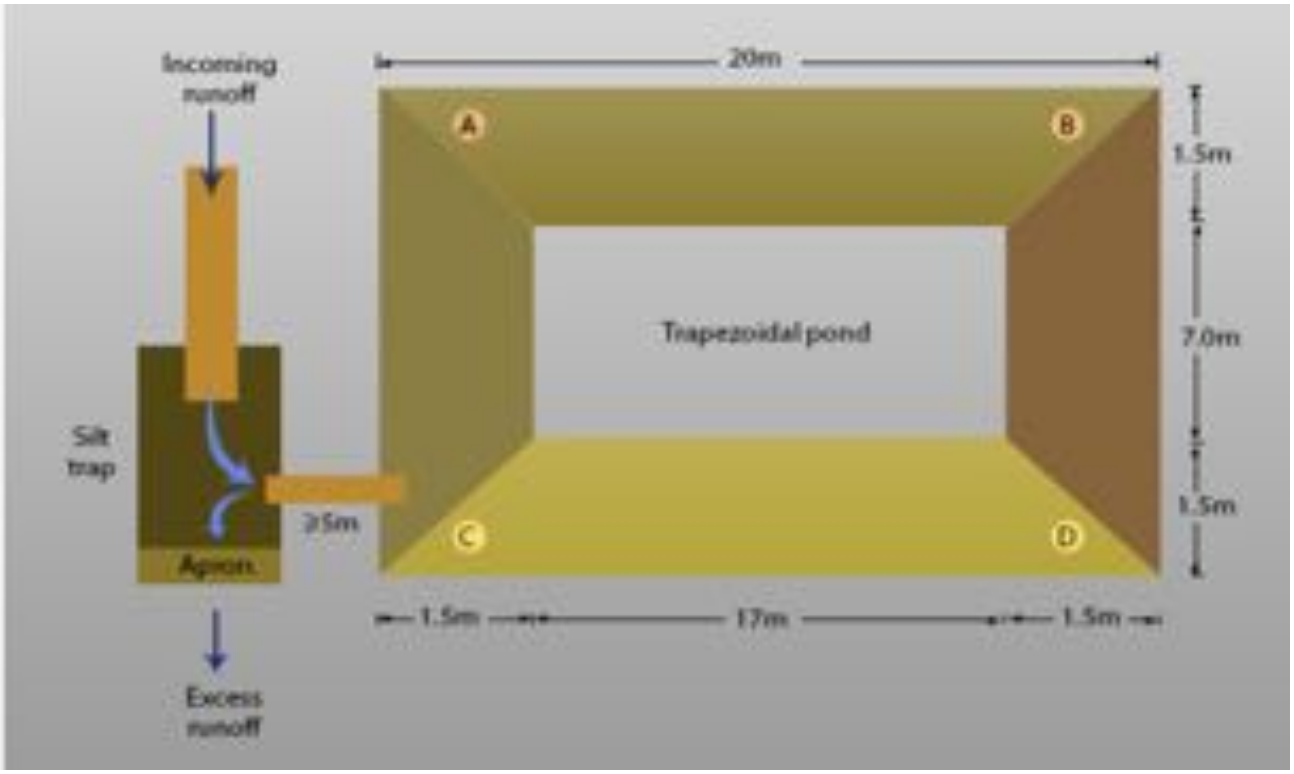
# Objectives of HoPPA

- Develop protocol for pond systems design
- A platform for use by all practitioners
- Digital protocol
- Improvement of the efficiency of runoff pond system and thus increased yields

# Why geo-referencing is important

1. To have a spatial overview of ponds
2. To enable partners assess implementation implications
3. To enable partners assess financial implications
4. To enable partners determine priority areas for implementation
5. To enable partners clearly see how they inter-relate

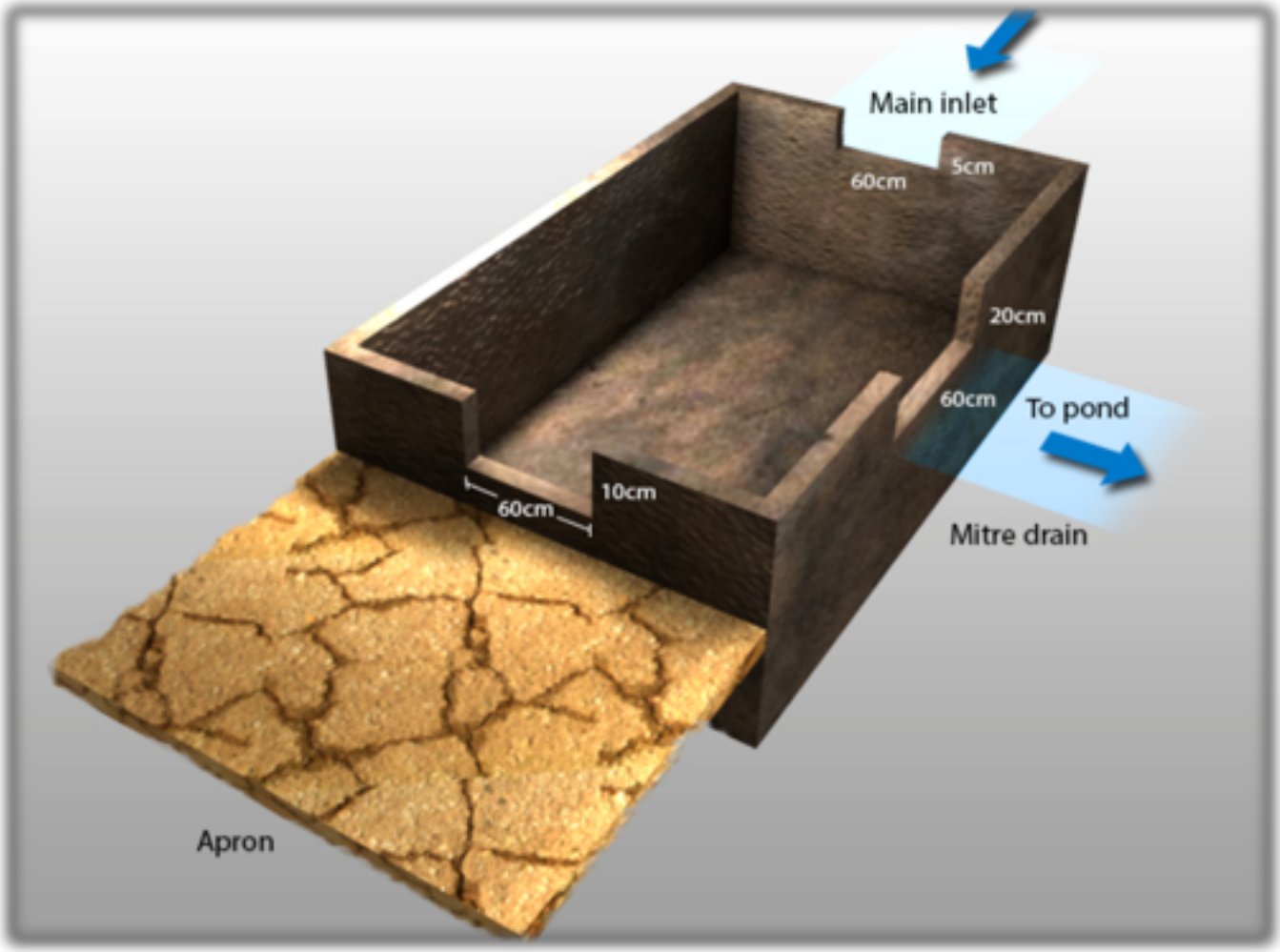
# Individual Components sensed




1. Silt trap – Turbidity
2. Reservoir – Water levels, turbidity
3. Overhead tank – Water level & turbidity
4. Weather – Temperature, humidity
5. Farm – Soil moisture, crop growth

# Pictorial Illustrations of the Pond

# Automated Silt Trap

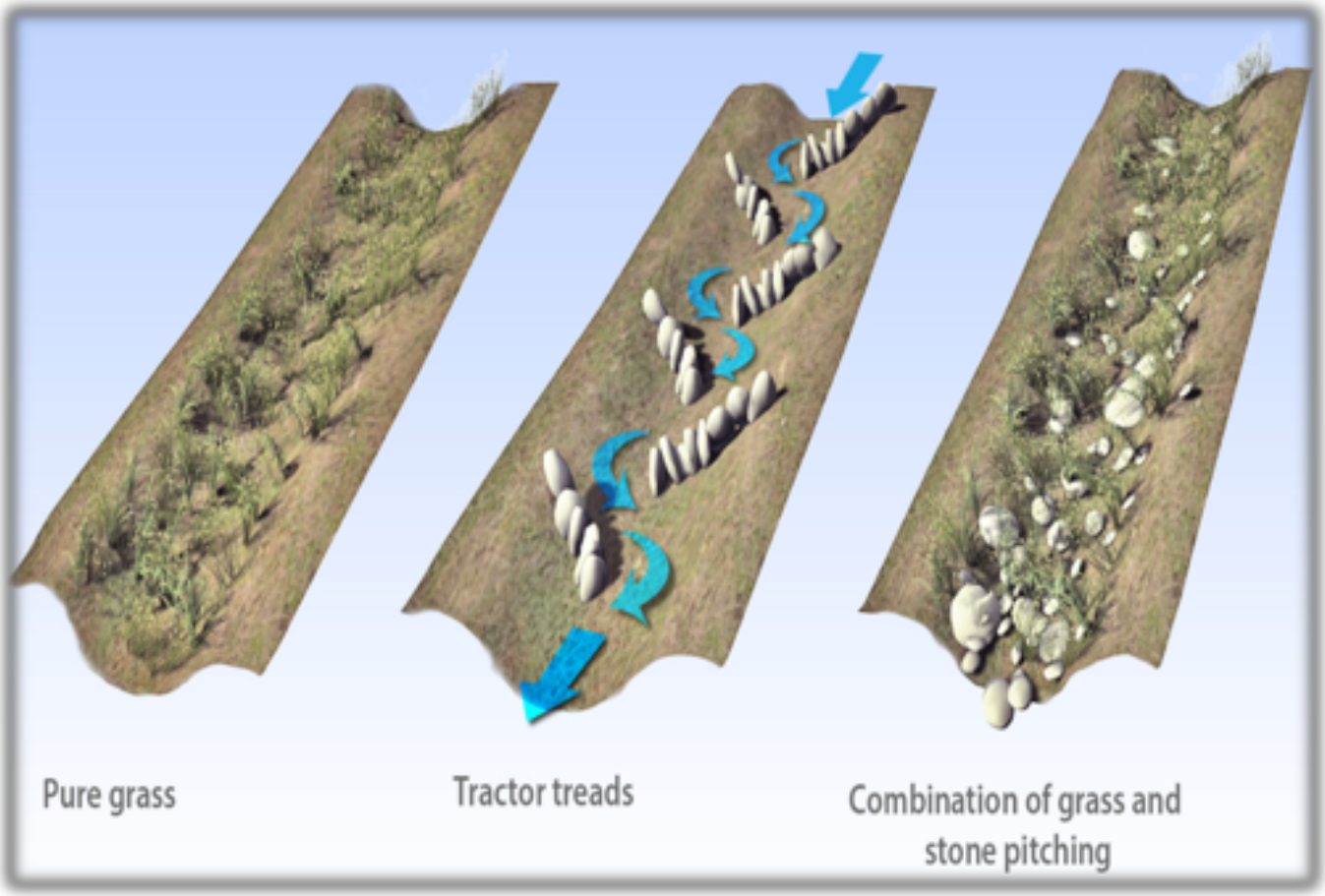



The inner dimensions (LxWxD) of the automated Silt Trap should be
(1.2m x 0.9m x 0.9m)
or approx.
(4ft x 3 ft x 3ft)

# Construction of automated Silt Trap Construction

# Waterways

Below are the different ways of treating channels and waterways



# AUTOMATION OF THE HOUSEHOLD POND PROTOCOL APPLICATION

## DIGITAL ADMINISTRATION

# Potential Areas for Automation

1. Automation of Agricultural Production Systems
    1. Small Scale Supplementary Irrigation Systems (HoPPA).
    2. Large Scale Irrigation Schemes
    3. Flood based Farming Systems
    4. Livestock Production Systems
2. Sensoring/Automation for Early Warning systems

# Automation functions

1. Automated flow mechanism (infrastructural)
2. Pumping without sensing
3. Pumping with sensing (Smart Phone)
4. Monitoring of crop performance
5. Monitoring of farm security
6. Project monitoring

# FARM POND ENTERPRISES

1. High Value crops
2. Trees nurseries & transplanting
3. Poultry production
4. Bee keeping
5. Fisheries

# **Financing Options**
based on land holdings, pond size & livelihood status

| Farm pond size | Land size | Poverty Index | Financing model | Level of subsidy |
|---|---|---|---|---|
| **SMALL 50-100m$^3$** | (½ - 1 acre) | High | Safety net (grant-based) | 50-75% |
| **MEDIUM 100-250m$^3$** | (1-2 acre) | Medium | Subsidy (grant/credit) | 25-50% |
| **BIG 250-1000m$^3$** | (>2 acres) | Low | Self-financing (credit) | 0-25% |

# Conclusion

- The farm pond is a premier technology as it creates water independence at household level
- It is a widely scale-able water harvesting intervention given its low infrastructural complexity.
- Possible to automate the systems at very modest and competitive costs.
- The social impact on will be tangible i.r.t. food security, household income.